"The mediating role of perceived value on electronic service quality and customer satisfaction: Evidence from Malaysia"

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BUSINESS PERSPECTIVES

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THE MEDIATING ROLE OF PERCEIVED VALUE ON ELECTRONIC SERVICE QUALITY AND CUSTOMER SATISFACTION: EVIDENCE FROM MALAYSIA

Abstract

The purpose of this paper is to examine the role of customers' perceived value in mediating the relationship between Electronic Service Quality (ESQ) and customer satisfaction in online banking in Malaysia. The research model is developed based on the disconfirmation theory. Non-probability purposive sampling was adopted for data collection. A cross-sectional technique with a self-administered questionnaire was applied. The unit of analysis in this study is bank customers using online banking in Selangor, Malaysia. One hundred twenty-eight usable responses were received and analyzed. The Statistical Package for the Social Sciences (SPSS) was applied to analyze the data. Findings showed that the variance in customer satisfaction can be significantly explained via E-service quality dimensions ($R2 = 0.52$). The ease of use, security, reliability, responsiveness (ESQ) have a significant and positive impact on customer satisfaction among online banking users ($p = 0.000$). Furthermore, it was found that the customers' perceived value significantly mediates the relationship between E-service quality and customer satisfaction ($p\text{-value} = 0.0004$). The experimental findings for this paper strengthen and expand the theoretical understanding of the relationship between ESQ, customer perceived value, and customer satisfaction that helps the banks in Malaysia to perform more successfully in the rapid business environment.This study also contributed to diminishing the gap in the ESQ literature between developed and developing countries, especially in the Malaysian context.

Keywords	ESQ, ease of use, security, reliability, responsiveness, online banking
JEL Classification	M31, L86, G29

INTRODUCTION

In the digital age, technology takes on a new significant role in the business environment. Everything has changed due to technological advancements, including how people conduct their banking transactions (Sasono et al., 2021). As a result of the massive increase in internet users, banks started to invest heavily in online banking services that allow customers to benefit from financial functions anywhere and anytime in a very secure manner. Banks have changed how they provide their services to meet their customers' needs; thus, they have come up with online banking services that customers find more convenient than traditional retail banking.

Online banking customers interact through network technologies, while traditional customers interact in a non-website-based context. Online banking allows customers to benefit from various sets of banking activities electronically (i.e., opening/closing bank accounts, money transfers, electronic payments, and online shopping) at any time and place with little costs. For bank management, online banking

is vital in reducing operating and fixed costs and helps the bank build better customer relationships (Amin, 2016). Despite the growth in online banking, there remain significant barriers to adopting online banking services in Malaysia. While the benefits and opportunities presented by digital financial services are evident and proven, most internet users in Malaysia have not adopted those services (Razak et al., 2021). Customer dissatisfaction and insufficient service quality are typical problems that have been underlined about the adoption of online banking.

Online banking created new channels of interactions between the banks and their customers; therefore, various quality services show up in this industry. While customers focus on time-saving and digital lifestyle when using a service, banks tend to focus on the quality of their electronic services to compete in the marketplace and attract more customers as the number of users defines the percentage of success and quality of bank's services. Therefore, maintaining quality is the key to success in online baking (Nochai & Nochai, 2013; Yi, 2014). Under increased competition, banking institutions' imperatives focus on providing better service quality, meeting clients' needs and adjusting to their specific demands, as these are the conditions for achieving customer satisfaction (Gasevic et al., 2016). Since traditional banking services have unique delivery processes, their quality will be difficult to be applied to online banking.

E-service quality and customer satisfaction are essential for banks growth and profitability, and banks in Malaysia have no exception. The majority of online businesses struggle to maintain a presence in business because they can't offer their clients high-quality services (San et al., 2020). Many studies tackled this issue and identified the quality dimensions of E-services and their relation to satisfaction in the banking sector in developing countries; however, limited literature investigated this relation, especially in Malaysia (Hadid et al., 2020; Hong & Marimuthu, 2014; San et al., 2020). Therefore, empirical studies are now an actual demand for the banking industry to understand better E-services quality dimensions and what dimensions will eventually affect customer satisfaction. Indeed, measuring customer satisfaction not only relies on service quality and the customers' perceived value (Bashir et al., 2020; Hapsari et al., 2016; Howat & Assaker, 2013; Yu et al., 2014). Nevertheless, limited studies have investigated the mediating influence of perceived value on the relationship between ESQ and customer satisfaction in Malaysian online banking.

1. LITERATURE REVIEW AND HYPOTHESES

In the era of digitallization, the trends of moving towards virtual technology and electronic services have been growing and emphasized. Electronic service quality (ESQ) is how "a website facilitates efficient and effective shopping, purchasing and delivery of products and services" (Zeithaml et al., 2002, p. 363). The ESQ model was mainly designed to assess and test against the online offered services (Lubis et al., 2021). E-service quality offers virtual companies the market competitive benefits and feedback received in the customers' product development procedures to enhance customer relationships. E-service is essential to determine e-commerce's success or failure and to provide customers with an exceptional experience in the interactive flow of information (Ho & Lin, 2010; Santos, 2003).

The theoretical framework for this study was developed relying on traditional literature that concerns customer satisfaction in real-world (Oliver, 1980; Parasuraman et al., 1988) and literature that concerns customer satisfaction in Cyberspace (internet) (Chang et al., 2009; Hadid et al., 2020; Ibok & Ikoh, 2014; Lubis et al., 2021; McKinney et al., 2002; San et al., 2020). Both literatures are primarily expanded based on disconfirmation theory (Zafar et al., 2011). In disconfirmation theory, satisfaction is the product created due to the gaps between proposed performance and cognitive values (Khalifa & Liu, 2003). The purpose of this paper is to examine the mediating influence of perceived value in the relationship between ESQ and customer satisfaction in Malaysian online banking, as well as to contribute to the ESQ literature by integrating two theoretical models, Zeithaml et al. (2002) and Nochai and Nochai (2013), into one integrated model in online banking. At first,

Zeithaml, Parasuraman, and Malhotra (2002) developed the WEBQUAL model, one of the widely cited models when studying customer satisfaction in an online context; Security, responsiveness, and reliability are the considerations in this model.

Several E-service literature recommended that future researchers include appropriate dimensions for information system acceptance that can affect online customer satisfaction (Nochai & Nochai, 2013; Razak et al., 2021). This study has accepted these considerations and adopted ease of use as an essential dimension in E-service quality. According to previous literature, this study has utilized the most influential dimensions (Ease of use, Security, Reliability, and Responsiveness) to reflect the E-service quality in online banking effectively. The ease of use is convenient for website usage by customers. The website should be a medium for customers to search, navigate and use. Ease of use is essential in the E-service quality dimension (Elsamen, 2015; Hadid et al., 2020). Usability has consistently been referred to as the level of ease of use in the online environment (Zeithaml et al., 2002). Not only that, but the term ease of use can also refer to how a customer perceives the site's navigation (Bressolles et al., 2014). Furthermore, ease of use is linked to the easy and short URL address, well-structured, well-organized, more accessible catalogs to be followed, site navigation, concise terms and conditions, and content (Santos, 2003).

The Technology Acceptance Model (TAM) portrays the usage and adoption of ease of use. "Ease of use is the degree to which a person believes that using a particular service would be free of effort" (Davis, 1989, p. 320). Additionally, online transactions can be complicated, thus resulting in customers feeling intimidated by its usage. In the online banking medium, ease of use involves the capability of the online bank website; it consists of high website accessibility and well-organised and logical content (Nochai & Nochai, 2013). Indeed, the perceived ease of use is an essential motive for determining the customers' acceptance to perform transactions via online banking in Malaysia (Razak et al., 2021).

Concerning security, customers can do bank business easily through online banking from the safety and security of their house and private elec-

tronic devices (Sasono et al., 2021). In E-service, according to Yi (2014), security encompasses the protection of credit card transactions and the confidentiality of shared data. Parasuraman et al. (1985) believed that security is the level of danger, risk and doubt. Security encompasses safeguarding users against the potential dangers of fraudulent activities and monetary losses arising from the utilization of their credit cards or other financial data. Highly secured banking security and its transactions ought to be safely and confidentially completed (Majdalawi, 2010). Analogized to other E-service quality, security has shown to hold a low and positive influence on customer satisfaction. In other words, online banking users still doubt the safety of their online banking transactions and private information (Mondal & Kujur, 2021).

In the concept of online service quality, reliability is the site's technical functionality concerning how to extend it could function adequately (Parasuraman et al., 2005; Zeithaml et al., 2002). Regarding online banking, reliability can be measured via Internet banking services. Zavareh et al. (2012) argued that researchers could investigate whether the delivery service via online banking is rapid, whether the business has access to the online banking website, and whether the online banking system can deliver the promised service in the promised time or not. Reliability is an essential dimension of E-service quality to be addressed in online banking (Hammoud et al., 2018; Mondal & Kujur, 2021). To sum up, high-reliability services will allow bank customers to be satisfied, thus delivering positive recommendations to other customers. Increased bank service quality reliability will reduce the chances of bank switching. Thus, if bank customers are not satisfied with the service reliability, a high tendency of bank switching will occur. According to Hadid et al. (2020), reliable online banking services play an essential role in expanding the bank's client base; accordingly, the overall financial achievement will significantly improve.

Responsiveness is another key variable for electronic service quality in the context of online banking. Responsiveness is the ability and willingness to ease customers by providing efficient service (Parasuraman et al., 1988). In terms of online banking, banks are responsible for communi-

cating with customers within the time stipulated from the time they receive customers' enquiries and managing and handling customers' problems. All organizations should be well versed in customer concerns (Zeithaml et al., 2009). Four steps can be used to categorize responsiveness. First, an efficient online banking system is capable of effectively managing and operating the service. Additionally, online banking network can accurately direct users toward moving forward in the case of a failure; third, it can offer a quick solution to address mistakes in online banking transactions; and fourth, it can provide a prompt response to any customer inquiries (Hammoud et al., 2018). Online banking customers assume that the banks must rapidly respond to their demand. It shows how often a bank consciously delivers services that are crucial to the clienteles (Hadid et al., 2020). According to Chen et al. (2013), customer retention can be affected by timely answered demands.

Perceived value is "the customer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml et al., 1988, p. 14). It is the total benefits obtained by the customer compared to the total cost. Customers' perceived value will be higher with better service quality (Abdelfattah et al., 2015; Keshavarz & Jamshidi, 2018). In online retailing, the service/product itself, the website, online platform, and the procedures involved in discovering, purchasing, and receiving services or products provide significant value for the clients (Keeney, 1999). Literature indicated that service quality is an essential driver of perceived customer value (Lubis et al., 2021; Parasuraman & Grewal, 2000). Indeed, customer value is directly related to online buy/rebuy and perceived ESQ (Bressolles et al., 2014; Zeithaml et al., 2002). Conversely, perceived value also prompts customer satisfaction levels (Keshavarz & Jamshidi, 2018; Lubis et al., 2021). Recently, researchers have shed light on the indirect role of perceived value in the relationship between service quality and customer satisfaction (Hapsari et al., 2016; Keshavarz & Jamshidi, 2018).

Customer satisfaction in current business management is a growth factor for profitable companies. Satisfaction depends on the product or service's importance to the customers. In the electronic context, the total number of satisfied customers from all purchases and utilization of the goods or services on a website is known as satisfaction (Kim et al., 2009). Customer satisfaction can be influenced by potential advantages and comfortable access provided by the online banking (Sasono et al., 2021). Indeed, customer satisfaction is hard to achieve online due to the absence of in-person communication between customers and bank personnel in this technology-oriented environment (Kaur & Kaur, 2013). Therefore, a client who is content or satisfied considers an honorary marketer of the bank. This satisfied client leads to employee branding and client commitment to the banks' personnel.

At this moment, satisfied customers will have positive word-of-mouth and share it with their close surroundings (Kashif et al., 2015; Lubis et al., 2021). On the contrary, customers may become dissatisfied if the service falls short of their expectations, particularly if the gap among their potentials and actual experience widens, a negative perspective presented by word-of-mouth will be held towards the organization (Kaur & Kaur, 2013; Zeithaml et al., 1996).

The relationship between ESQ, perceived value, and customer satisfaction is still the focus of researchers' intrest. Indeed, E-service is essential to determine the e-commerce's success or failure and to provide customers with an exceptional experience in the interactive flow of information (Ho & Lin, 2010; Santos, 2003). The process of evaluating customer satisfaction cannot be researched in isolation from the ESQ and customer perceived value (Bashir et al., 2020). In this respect, studies have shown that ESQ plays an essential positive role in customer satisfaction (Hammoud et al., 2018; Lubis et al., 2021; Nochai & Nochai, 2013). According to Keshavarz and Jamshidi (2018), customer satisfaction happens when they find that the quality of the service exceeds their expectations. Indeed, a further comprehensive understanding of perceived value, ESQ, and customer satisfaction interactions should be considered in future research, particularly in the service sector. The indirect influence of perceived value on ESQ and customer satisfaction is almost neglected (Ataburo et al., 2017; Bashir et al., 2020; Hapsari et al., 2016). In the context of Malaysian online banking, limited researches have emphasized the mediating role of perceived value in such relationships.
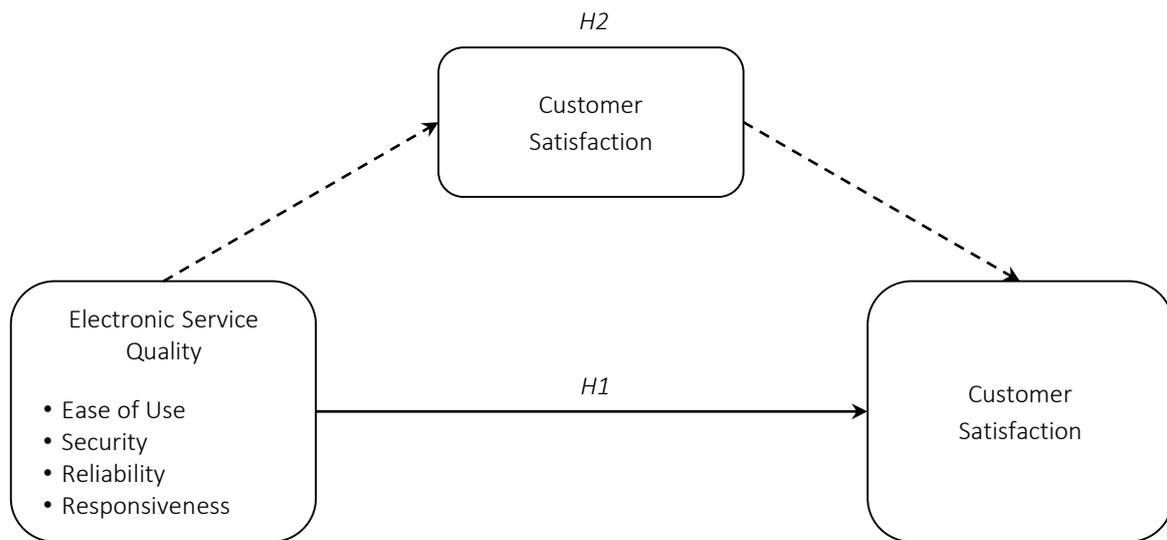
H2

Customer
Satisfaction

Electronic Service
Quality

• Ease of Use
• Security
• Reliability
• Responsiveness

H1

Customer
Satisfaction

Figure 1. Research model

After all, the purpose of this paper is to investigate the impact of customers' perceived value in mediating the relationship between ESQ and customer satisfaction in online banking in Malaysia The following hypotheses were created in light of the discussion above:

H1: *E-service quality dimensions have a positive impact on customer satisfaction.*

H2: *The relationship between E-service quality and customer satisfaction is significantly mediated through perceived value.*

2. METHODS

This study is quantitative in nature along with a deductive method. In this study, all bank customers in the Selangor area are the targeted population. More specifically, the unit of analysis is bank customers using online banking in Selangor, Malaysia. As for the sampling method, this study followed for non-probability technique, particularly the judgmental (purposive) method. This study targeted online banking users and not all bank customers; thus, judgment sampling was utilized.

The primary data for this study were gathered via a self-administered questionnaire. Respondents feel more comfortable answering the questions of the

self-administered questionnaire; they also take more responsibility for reading and answering the questions (Kumar, 2011; Zikmund et al., 2009). In this study, the questionnaire was separated within two sections. The first section covered the personal information, while the second section covered the respondent's agreements via a 5-point Likert scale: (1) strongly agree and (5) strongly disagree. This study has applied acceptable and validated items that were considered the adopted variables depending on various prior literature; specifically in the context of developing countries (Ahangar, 2011; Bebli, 2012; Culiberg & Rojsek, 2010; Kashif et al., 2015; Kuo et al., 2009; Nochai & Nochai, 2013; Parasuraman et al., 2005).

As this study has utilized 24 items; then, the minimum sample size of this research stands to 120 respondents (Hair et al., 2010). In total, 150 questionnaires were distributed to the online banking users, and 128 usable questionnaires were received and analyzed, which is considered a highly acceptable response rate (85%). SPSS was utilized in terms of data entry, data cleaning, missing data, outliers, normality, validity, reliability, multiple regression analysis, and others needed tests. Indeed, when dealing with intricate data relationships, SPSS can provide more precise analysis and sound conclusions. It is equipped with advanced and robust techniques for both univariate and multivariate analysis (Paura & Arhipova, 2012).

3. RESULTS

This study targeted online banking users within the area of Selangor, Malaysia. In a total of 821 respondents, it was found that 56.3% of respondents were males, while 43.8% were females. Concerning respondents' average age, the bulk of respondents (32.8%) were 24-29 years old. In terms of respondents' races, the results indicated that the majority (36.7%) were of Malay ethnicity. Furthermore, the results indicated that most respondents held bachelor's degrees (62%.7). Next to that, 28.9 % of respondents had between 4,001 and 5,000 RM as monthly income.

The online banking experience results indicated that the majority (46.9%) of respondents have six years and more experience. These results emphasized that most of this study respondents were highly experienced users in terms of online banking services. After all, most respondents were frequent users of Maybank online banking services (8.23%). All detailed numbers and percentages are summarized in Table 1.

Table 1. Respondents' profile

Demographic Profile	Number of Respondents (N = 128)	Valid Percentage (%)
Gender		
Male	72	3.65
Female	56	7.34
Age		
18-23	32	0.52
24-29	42	8.23
30-35	30	4.32
36-41	9	0.7
42-47	8	3.6
48-53	4	3.1
35and above	3	3.2
Race		
Malay	47	7.63
Chinese	32	0.52
Indian	23	0.81
Other	26	3.02
Marital Status		
Single	78	9.06
Married	50	1.93
Occupation		
Public sector	41	0.23
Private sector	36	1.82
Self-employed	13	2.01
Student	31	2.42
Unemployed	7	5.5

Demographic Profile	Number of Respondents (N = 128)	Valid Percentage (%)
Education		
Secondary school or below	23	0.81
Diploma	11	6.8
Bachelor's degree	86	2.76
Postgraduate	8	3.6
Monthly income		
Less than RM 1,000	4	1.3
RM 1,001 – RM 2,000	23	0.81
RM 2,001 – RM 3,000	27	1.12
RM 3,001 – RM 4,000	25	5.91
RM 4,001 – RM 5,000	37	9.82
5,001 or above	12	4.9
Online banking Experience		
less than one year	4	1.3
1 – 3 years	27	1.12
4 – 6 years	37	9.82
More than six years	60	9.64
Frequently Used Online Bank		
Maybank	42	8.23
CIMB	38	7.92
Bank Islam	5	9.3
Hong Leong Bank	4	1.3
HSBC	3	3.2
Public bank	16	5.21
Affin bank	4	1.3
Bank Rakyat	2	6.1
RHB bank	7	5.5
Alliance bank	3	3.2
AmBank	4	1.3

In terms of the research instruments, the reliability of a scale was assessed by measuring the internal consistency among its items. To achieve a reliable model for a particular study, all study variables should be given the same Cronbach's alpha scores if tested again in the same circumstances and sample size. Table 2 showed that all study variables had achieved an acceptable level of Cronbach's alpha scores (>0.70). In other words, this study model is reliable and fits the data on hand.

Table 2. Reliability test for E-service quality dimensions

Variable	Cronbach's alpha	Number of Items	Total Number
Ease Of Use (EU)	0.897	4	128
Security (SE)	0.889	4	128
Reliability (RE)	0.828	4	128
Responsiveness (RS)	0.893	4	128
Perceived Value (PV)	0.830	4	128
Customer Satisfaction (CS)	0.841	4	128

Table 3 shows the results of the EFA test; all items are with acceptable factor loading (>0.5).

Moreover, results revealed that the total variance explained from adapted E-service quality dimensions is 74.43%. In particular, responsiveness, security, ease of use, and reliability can explain 19.7%, 19.08%, 18.86%, and 16.79% of the total variance in E-service quality. In other words, the most crucial dimension for online banking users among study respondents is responsiveness.

Table 3. Factor loadings based principal component analysis with varimax rotation for 16 items related to E-service quality dimensions

Dimensions	Component				
	RS	SE	EU	RE	n
ESQ.RS4	.826				128
ESQ.RS2	.809				128
ESQ.RS1	.779				128
ESQ.RS3	.765				128
ESQ.SE4		.811			128
ESQ.SE3		.801			128
ESQ.SE1		.756			128
ESQ.SE2		.743			128
ESQ.EU1			.776		128
ESQ.EU4			.772		128
ESQ.EU2			.770		128
ESQ.EU3			.768		128
ESQ.RE3				.803	128
ESQ.RE2				.786	128
ESQ.RE4				.752	128
ESQ.RE1				.731	128
Eigenvalues	3.152	3.053	3.018	2.686	
% of Variance	19.699	19.082	18.860	16.789	

Note: RS = Responsiveness, RE = Reliability, SE = Security, EU = Ease of Use, ESQ = Service Quality.

As data was proved to be normally distributed, Pearson's product-moment correlation coefficient (r) was employed to quantify the magnitude of the linear association among the variables. The correlation coefficient value ranges from +1 to -1 (Zikmund et al., 2010). Overall, correlation can be thought of as a standardised covariance. Covariance is the extent to which a change in one variable corresponds systematically to a change in another. As shown in Table 4, all study variables are positively correlated to each other's, satisfying the positive trend in the developed hypothesis for this study.

Table 4. Correlation test

		PV	CS	SQ
PV	Pearson Correlation	1	.636**	.636**
	Sig. (2-tailed)		.000	.000
	N	128	128	128
CS	Pearson Correlation	.636**	1	.730**
	Sig. (2-tailed)	.000		.000
	N	128	128	128
SQ	Pearson Correlation	.636**	.730**	1
	Sig. (2-tailed)	.000	.000	
	N	128	128	128

Note: ** Correlation is significant at the 0.01 level (2-tailed).

The purpose of this study is to examine the influence of ESQ dimensions on customer satisfaction among online banking users in Malaysia. Perceived value was proposed to have an indirect effect on the relationship between ESQ and customer satisfaction. Multiple regression analysis was conducted to reflect the model appropriateness and the influence of the E-service quality dimension and perceived value on customer satisfaction. Moreover, two main hypotheses were developed in order to be empirically investigated.

H1: There is a direct and significant effect of ESQ on customer satisfaction in the Malaysian banking sector.

Several statistical indicators can be used to assess the fitness and appropriateness of a study model. In this respect, the Coefficient of Determination (R^2) is most widely used in social science. As shown in Table 5, about 52% of the variance in customer satisfaction can be explained via E-service quality dimensions, which is considered an excellent score for a goodness-of-fit model.

Table 5. Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.733ᵃ	.538	.523	.43157

Note: RS = Responsiveness, RE = Reliability, SE = Security, EU = Ease of Use, CS = Customer Satisfaction, ESQ = Electronic Service Quality. a. Predictors: (Constant), SQ.RS.M, SQ.RE.M, SQ.SE.M, SQ.EU.M. b. Dependent Variable: SQ.CS.M.

ANOVA is another test that the researcher could use to define the model goodness-of-fit, as well as whether the independent variables can significantly affect the dependent variable or not.

Table 6. ANOVA test[a]

	Model	Sum of Squares	df	Mean Square	F	Sig.
	Regression	26.642	4	6.660	35.761	.000[b]
1	Residual	22.909	123	.186		
	Total	49.550	127			

Note: RS = Responsiveness, RE = Reliability, SE = Security, EU = Ease of Use, ESQ = Electronic Service Quality. a. Dependent Variable: SQ.CS.M. b. Predictors: (Constant), SQ.RS.M, SQ.RE.M, SQ.SE.M, SQ.EU.M.

Table 7. Regression coefficients (ESQ dimensions → CS)

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
	B	Std. Error	Beta			Tolerance	VIF
(Constant)	.675	0.224		3.014	.003		
ESQ.EU	00.201	0.078	0.245	2.591	.011	0.411	2.431
1 ESQ.SE	0.228	0.076	0.253	2.994	.003	0.515	1.943
ESQ.RE	0.207	0.064	0.229	3.234	.002	0.732	1.366
ESQ.RS	0.157	0.069	0.189	2.288	.024	0.534	1.871

Note: RS = Responsiveness, RE = Reliability, SE = Security, EU = Ease of Use, ESQ = Electronic Service Quality, CS = Customer Satisfaction. a. Dependent Variable: ESQ.CS.

Table 6 shows a significant positive relationship between ESQ dimensions and customer satisfaction in the Malaysian banking sector.

Table 7 shows that ease of use, security, responsiveness, and reliability are considered dimensions for E-service quality in the Malaysian banking sector. According to beta coefficient (β), t-test, and p-value, the *ease of use* (EU) has a significant positive effect on customer satisfaction, β = .245, t = 2.591, and p = .011. In the same line, the *security* (SE) dimension was found to have a significant positive impact on customer satisfaction, β =.253, t = 2.994, and p = .003. Also, *reliability* (RE) was found to have a significant positive effect on customer satisfaction, β =.229, t = 3.234, and p = .002. Finally, *responsiveness* (RS) was shown to have a significant positive effect on customer satisfaction β =.189, t = 2.288, and p = .024. After all, Table 8 indicated that the ESQ construct has a significant and positive impact on customer satisfaction among online banking users in the Malaysian banking sector, β = .0.790, t = 0.066, and p = .000.

Table 8. Regression coefficients (ESQ → CS)

Model Summary	β	SE	t	p
ESQ → CS	90V,·	0.066	001,٢١	000.

Table 8 shows that E-service quality has a significant and positive impact (p =.000) on customer satisfaction. In other words, E-service quality is an essential predictor of customer satisfaction in the domain of online banking services in Malaysian banks.

H2: *Perceived value indirectly and significantly affects the relationship between ESQ and customer satisfaction in the Malaysian banking sector.*

The mediation model's three direct, total and indirect effects (Table 9, 10, and 11) were satisfied. The results indicated that E-service quality was found to have a significant and positive *direct effect* on customer satisfaction, SE = 0.810, t = 7.310 and significant at p-value = .000.

In addition, the findings showed that the *total effect* of the relationship between E-service quality and customer satisfaction was positive and significant, SE = 0.066, t = 12.001, and significant at p-value = 0.000. Finally, the perceived value was found to have a significant *indirect effect* on the relationship between E-service quality and customer satisfaction, SE = 0.065, z = 3.532, and significant at p-value = .0004. In other words, a perceived value significantly mediates the proposed relationship, and in specific, perceived value is found to have a *partial mediation effect* in the proposed relationship.

Table 9. Direct effect

Model Summary	Effect	SE	t	p
ESQ → CS	0.592	0.081	7.309	.0000

Table 10. Total effect

Model Summary	Effect	SE	t	p
ESQ → CS	0.790	0.066	12.001	.000

Table 11. Indirect effect

Model Summary	Effect	SE	z	p
ESQ → PV → CS	0.198	0.056	3.532	0.0004

Note: The number of boosts is 1,000. Level of confidence is 95.00.

This study's results showed that perceived value significantly mediates the relationship between ESQ and customer satisfaction among online banking users in the Malaysian banking sector. According to Hair et al. (2010), the perceived value partially mediated the relationship between ESQ and customer satisfaction.

Table 12. Summary of hypothesis testing results

No.	Hypothese	Results
1	There is a direct and significant effect of ESQ on customer satisfaction in the Malaysian banking sector.	Supported
2	Perceived value indirectly and significantly affects the relationship between ESQ and customer satisfaction in the Malaysian banking sector.	Supported

4. DISCUSSION

This study seeks to broaden the knowledge of the factors that contribute to ESQ in online banking; particularly, in the Malaysian context, as well as to investigate the potential effect of customers' perceived value in mediating the relationship between ESQ and customer satisfaction in online banking.

The results of this study revealed that all ESQ dimensions (*ease of use, security, reliability, and responsiveness*) had a significant impact on customer satisfaction in online banking services. The findings indicated that *ease of use* is an essential dimension of E-service quality among online banking users in Malaysia. This result stands in line with previously conducted studies (Askari & Kazempoor, 2016; Nochai & Nochai, 2013; Razak et al., 2021; Zavareh et al., 2012). The reason for this result may be attributed to the ability of online banking users to find the needed information in their bank's online services system. Also, the languages included

in their bank website or applications are easy to understand; the text is also clear to be understood. In the same line, online banking service users found the output format easily read.

Security is found to be highly loaded as an E-service quality dimension among online banking users in Malaysia. This finding aligns with previous research studies (Gasevic et al., 2016; Ibok & Ikoh, 2014; Nochai & Nochai, 2013; Rita et al., 2019; Zavareh et al., 2012). This result could be attributed to the following facts: nowadays customers are in high demand for the ability of online banking services to keep accurate records of users' transactions. In addition, security and transaction privacy is highly included in Malaysian banks' online services. Furthermore, this result could be attributed to the safe and secure feeling of banks customers while performing online banking services. After all, introducing adequate actions to develop the elementary facilities to enhance online banking security is highly essential. Improving business transaction security can enhance customer satisfaction (Ibok & Ikoh, 2014).

The finding of this study showed that *reliability* is an essential dimension of E-service quality. This finding is consistent with other previous studies (Askari & Kazempoor, 2016; Hammoud et al., 2018; Nochai & Nochai, 2013; Parasuraman et al., 1988; Rita et al., 2019). This result can be interpreted with several possibilities. First, it could be attributed to the high level of users' trust in internet banking services in their banks. The core belief is that online banking services are delivered as promised. Third, highly continuous updates have led to a significant result. Finally, the ability of the banks to perform online banking services with no errors.

Indeed, *responsiveness* is the most influential dimension compared to this study's other three adapted dimensions. This result is consistent with previous studies (Askari & Kazempoor, 2016; Keshavarz & Jamshidi, 2018; Mondal & Kujur, 2021; Parasuraman et al., 1988; Zafar et al., 2011; Zavareh et al., 2012). This finding can be attributed to the following indicators. First, users believe that their banks are performing the right task at the right time. Also, users have a strong belief in the skills and experience of the bank's website custom-

er services staff. Finally, reported complaints are solved quickly and proficiently.

The results of this study indicated a significant and positive relationship between ESQ (Electronic Service Quality) and customer satisfaction in the context of online banking services. In the cyber world, E-service quality is more sensitive to measure compared to traditional service quality in the real world due to the intangibility of the bulk provided services. Therefore, H1 is formulated to investigate if E-service quality positively and significantly impacts customer satisfaction. Indeed, results showed that H1 is significantly supported; this finding was found to be in line with previously conducted studies (Amin, 2016; Chang et al., 2009; Cristobal et al., 2007; Ma & Zhao, 2012; Rita et al., 2019; Sasono et al., 2021). These results proved that online banking users in Malaysia considered the four adapted dimensions (ease of use, security, reliability, and responsiveness) as essential significant dimensions when measuring E-service quality concerning their satisfaction level.

Indeed, E-service quality has been measured in several directions with several dimensions. This study makes an effort to ensure that all the adapted dimensions are highly validated and adequately replicate the concept of ESQ in online banking services. Scholars like Zeithaml et al. (2002) assured that the success of any business using internet websites to deliver their services is mainly relying on the quality of services delivered. The quality of service provided is more vital than other success factors like low-price services. In the same line, Askari and Kazempoor (2016) stressed that E-service quality is a newly crucial topic with many strategic benefits that can significantly affect an organization's success within the electronic marketplace. Overall, among the four dimensions of ESQ that were employed, reliability was found to exert the most significant influence on customer satisfaction, followed by security, ease of use, and responsiveness. In other words, online banking users admitted that their banks are exceptionally reliable in terms of billing accurateness, appropriate record maintenance, and providing the service within an adequate time.

Building upon the third research objective, this study aims to explore whether perceived value acts as a mediating factor in the relationship between ESQ and customer satisfaction within the Malaysian bank-

ing sector. Indeed, this study aims for a deeper empirical understanding of the proposed relationships between E-service quality, perceived value, and customer satisfaction. In this respect, H2 suggests that e-service quality has an indirect effect on customer satisfaction through perceived value. Such mediation effect can determine the antecedents and consequences of perceived value. The results revealed that H2 is significantly supported. For mediation effect, E-service quality is found to have a significant positive impact on the customers' perceived value. This result is in line with prior studies (Bashir et al., 2020; Chang & Wang, 2011; Hapsari et al., 2016). This result can be attributed to the highly positive influence of the adapted dimensions in this study, which are presented by the ease of use, security, reliability, and responsiveness.

On the other hand, the results showed that users' perceived value directly affects customer satisfaction. This findings was in line with prior research (Bashir et al., 2020; Chang & Wang, 2011; Hapsari et al., 2016). This finding can be attributed to several indicators such as the overall convenience of website usage and the high level of website control. In addition, this result can reflect the positive feeling toward the value achieved from using the bank website in terms of time and effort. The results of this study have proved that perceived value is a significant antecedent for customer satisfaction. In other words, with online banking users in Malaysia, when a customer experiences a superior value from a particular service, it will be transformed into a high level of satisfaction.

After all, the results of this study have empirically proved the indirect relationship between E-service quality and customer satisfaction. Indeed, the findings of the study indicate that perceived value plays a significant role in influencing the relationship between ESQ and customer satisfaction. These results were found to stand in line with Chang and Wang (2008), Hapsari et al. (2016), and Bashir et al. (2020), who found a significant mediation influence for perceived value in a proposed relationship. After all, it can be concluded that online banking users in Malaysia have found a high website quality that exceeded their expectations. They feel satisfied with the services value-added from their bank's website. The results showed that their expectations regarding online banking services are highly satisfied.

CONCLUSION

This study focused on investigating the role of customers' perceived value as a mediator in the relationship between ESQ and customer satisfaction in the context of online banking. It was revealed that ease of use, security, reliability, and responsiveness are vital factors contributing significantly to customer satisfaction. Moreover, the results demonstrated that customers' perceived value plays a significant mediating role between ESQ and customer satisfaction. Consequently, it can be inferred that online banking users have experienced superior perceived benefits compared to old banking methods. These findings hold the potential to contribute valuable insights to the field of ESQ and customer satisfaction research.

On the managerial implications, this study has empirically addressed the ESQ dimensions that influence the satisfaction levels of online banking users and their perceived value in a significant manner. Policymakers can use the results of this study in the banks in Malaysia to better realize the significance of ESQ dimensions and perceived value as antecedents affecting the satisfaction level of online banking users. Customer satisfaction is a problematic term, particularly in online banking services. Numerous studies have been conducted in terms of ESQ and customer satisfaction. However, most studies in the Malaysian banking sector were limited to direct relationships. In this respect, more empirical studies are still required to consider more indirect relationships. Therefore, this study has utilized the perceived value as a mediator variable in the relationship between ESQ and customer satisfaction to strengthen and expand the theoretical understanding of the indirect relationship. After all, future researchers are recommended to investigate the developed model of this study in other Malaysian sectors. Furthermore, it is recommended to extend this study model and include additional ESQ dimensions. Ultimately, the indirect relationships in the ESQ and customer satisfaction domain are still rare, and more empirical investigations are still needed.

AUTHOR CONTRIBUTIONS

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