“E-banking quality and customer loyalty: The mediating role of customer satisfaction”

AUTHORS	Ephrem Habtemichael Redda

ARTICLE INFO	Ephrem Habtemichael Redda (2023). E-banking quality and customer loyalty: The mediating role of customer satisfaction. *Banks and Bank Systems*, *18*(2), 177-188. doi:10.21511/bbs.18(2).2023.15
DOI	http://dx.doi.org/10.21511/bbs.18(2).2023.15
RELEASED ON	Friday, 09 June 2023
RECEIVED ON	Friday, 28 October 2022
ACCEPTED ON	Wednesday, 15 March 2023

JOURNAL	"Banks and Bank Systems"
ISSN PRINT	1816-7403
ISSN ONLINE	1991-7074
PUBLISHER	LLC “Consulting Publishing Company “Business Perspectives”
FOUNDER	LLC “Consulting Publishing Company “Business Perspectives”

NUMBER OF REFERENCES	NUMBER OF FIGURES	NUMBER OF TABLES
58	**3**	**2**

BUSINESS PERSPECTIVES

LLC "CPC "Business Perspectives"
Hryhorii Skovoroda lane, 10,
Sumy, 40022, Ukraine
www.businessperspectives.org

Ephrem Habtemichael Redda (South Africa)

E-BANKING QUALITY AND CUSTOMER LOYALTY: THE MEDIATING ROLE OF CUSTOMER SATISFACTION

Abstract

Attaining customer satisfaction and loyalty is seen as a prerequisite for successful bank management. The purpose of the study is to identify and explain the mechanism through which e-banking quality is related to loyalty by including satisfaction as a mediating variable in South Africa. The study adopts a descriptive research design and a quantitative mediation analysis. The data collected through SurveyMonkey comprised a sample of 310 participants who used online banking. The results of the mediation analysis confirm that e-banking quality has a considerable and positive effect on customer satisfaction, which in turn has a significant and positive effect on loyalty in e-banking. The direct effect of e-banking quality on loyalty is also confirmed. Furthermore, the study's findings show that the quality of e-banking has a significant and favorable indirect effect on loyalty, as mediated by customer satisfaction. Because the direct effect of e-banking quality on loyalty remained significant after the satisfaction intervention/mediation in the model, the mediation is regarded as partial. The findings of this study offer essential marketing guidance for banking professionals who design and implement e-banking solutions for their customers.

Received on: 28th of October, 2022
Accepted on: 15th of March, 2023
Published on: 9th of June, 2023

Ephrem Habtemichael Redda, Ph.D., Professor of Marketing Management, Faculty of Economic and Management Sciences, Department of Marketing Management, North-West University, South Africa.

Keywords e-banking, satisfaction, loyalty, mediation

JEL Classification M31, G21, G41

Conflict of interest statement:
Author(s) reported no conflict of interest

INTRODUCTION

One of the most significant concepts in service marketing is service loyalty, which ultimately influences purchase and/or repurchase intentions, as well as the spread of positive word of mouth (WOM) among family and friends. The spread of word of mouth in the electronic or digital environment is called electronic word of mouth (eWOM). In fact, loyal consumers devoted to a firm constitute its foundation for successful business operations (Caruana, 2002). Both practitioners and researchers have shown a great deal of interest in service quality on the back of pioneer research of seminal works (Parasuraman et al., 1985; Buttle, 1996; Zeithaml, 1988). A major factor driving researchers' and practitioners' interest in service quality is their belief that it improves an organization's profitability (Caruana, 2002). As will be seen later in the literature review, in detail, customer loyalty is affected by various factors, including service quality and customer satisfaction levels (Solimun & Fernandes, 2017; Lee & Moghavvemi, 2015; Mosahab et al., 2010; Nyan et al., 2020; Srivastava & Rai, 2013; Yew & Rahman, 2019).

Consumer behavior in relation to marketing and service interactions has changed due to swift expansion, as well as heightened adoption of technology in various aspects of life, particularly in the service sector

(Redda & Surujlal, 2019). Thus, banking service delivery systems and consumer behavior have changed due to the introduction of technology in the process of service delivery systems. Internet banking, one of the remote methods of delivering banking services, lessens the need for face-to-face interactions with people (Jayawardhena, 2004). Technology-based self-services have significantly changed how service companies and customers interact with one another, raising a variety of research and practice issues regarding the delivery of electronic services, which is crucial to the success or failure of e-commerce, as well as improving customer experience and customer satisfaction (Ankrah, 2012).

In this study, the baking system enabled through the internet of things is referred to as e-banking. The mechanism through which a customer can conduct financial transactions electronically without going to a bank branch is referred to as 'electronic banking' (Ombati et al., 2010). Therefore, 'e-banking' is described as an internet portal that enables users to conduct various financial services, such as those for paying bills and investing (Pikkarainen et al., 2004) 2004). Therefore, accessing bank accounts, transferring money, and purchasing financial goods or services through bank websites all fall under the category of electronic banking. Banks that do not enable transactions on their websites but simply provide information are not regarded as providing electronic banking services for the purposes of this study.

The properties and characteristics of services make the definition of the service quality construct difficult. As a result, service quality has been seen as an abstract and challenging to conceptualize, understand and measure, in contrast to the quality of goods, which can be assessed in a more objective fashion. Measuring quality becomes challenging due to the distinctive qualities of services, including the inseparability of production and consumption, intangibility, and variety (Parasuraman et al., 1985). According to Buttle (1996), Parasuraman et al. (1985), and Parasuraman et al. (1988), service quality is a multidimensional concept that is essential for increasing customer satisfaction with services provided in both online and offline environments (Boshoff, 2007). Additionally, research reveals a connection between customer loyalty and service excellence (Caruana, 2002). In addition, numerous studies have discovered a connection between customer loyalty and customer satisfaction (Koo, 2006).

Several studies in international markets have attempted to determine the mediating role of customer satisfaction on customer loyalty in a variety of service industries, whether online or offline. Most of the studies were conducted in advanced economies, with only a few conducted in other parts of emerging economies (Solimun & Fernandes, 2017; Lee & Moghavvemi, 2015; Mosahab et al., 2010; Nyan et al., 2020; Srivastava & Rai, 2013; Yew & Rahman, 2019). Most of the studies were in other service industries, not in banking.

1. LITERATURE REVIEW

Service is generally perceived subjectively. Customers typically describe services as an "experience, trust, feeling and security" (Grönroos, 2007). Such descriptions are extremely obscure ways of defining what service is. Unlike the objective measurement of goods quality, service quality is abstract and difficult to quantify and comprehend. A more exact description of service quality is offered by Parasuraman et al. (1988) who view it as the difference or discrepancy between expectations and perceptions of services. The direction and size of discrepancy is a crucial factor when assessing the quality of services. In this instance, service quality is seen as a broad evaluation of a mindset pertaining to the actual delivery of the service. The measurement and conceptualization of the concept service quality are a complicated subject due to the distinctive properties of services, namely intangibility of services, perishability of services, heterogeneity of the quality of services, and the inseparability of production and consumption (Parasuraman et al., 1985). The concept of service quality is complicated, and evidence from the literature suggests that it is a multidimensional construct (Buttle, 1996; Parasuraman et al., 1985; Parasuraman et al., 1988). Parasuraman et al. (1985) opine that consumers' evaluations of service quality are established by comparing their

http://dx.doi.org/10.21511/bbs.18(2).2023.15

prior expectations of the service with their perceptions after actual service execution. It is the disparity between what customers expect from a service and how the service performs.

The inception and ongoing development of electronic forms of services can be attributed to a number of interconnected socioeconomic and technological factors that have emerged during the past three decades. These interconnected socioeconomic and technological factors have changed the way banks design their banking systems and deliver the services to their customers. The phrase 'electronic services', which also refers to as 'high-technology services', refers to knowledge-intensive services that are dynamically co-produced by the customer via electronic communication mediums (Santos, 2003), and electronic service quality (e-service quality) can be described as the degree to which a website makes shopping, buying and shipping efficient and effective (Parasuraman et al., 2005). The co-production of services and consumption of service on the part of customers are believed to have an impact on the quality services. In other words, the outcome of the quality of service is affected by the involvement of the customer in the service delivery process.

In response to the changing landscape of the banking sector in particular (and the financial services sector in general), banks have been engaged in providing innovative banking solutions to their clients. E-banking refers to the process by which a consumer can perform financial transactions electronically without going to a bank branch (Ombati et al., 2010); it is an internet gateway that enables users to access different financial services, such as those for paying bills and investing (Pikkarainen et al., 2004). In this study, the term e-banking quality refers to the consumers' overall assessment and judgement of the superiority and quality of electronic service offerings made available over the internet platform.

The introduction of internet technology in the delivery banking services has some implications for banking systems across the world. Such implications mean that banking service delivery systems and consumer behavior have changed due to the introduction of technology in the process of service delivery systems of various baking products. Internet banking has reduced the need for face-to-face interactions banking customers. Such technology-based self-services have significantly changed how service companies and customers interact with one another, raising a variety of research and practice issues regarding the delivery of electronic services, which is crucial to the success or failure of e-commerce, as well as improving customer experience and customer satisfaction, and the banking sector is no exception to this phenomenon.

Customer fulfilment in reaction to a product or service is referred to as customer satisfaction – a pleasure derived from consumption-related activity. The term 'satisfaction' can refer to the pleasure experienced after receiving products or services that make the customer happy or feel good. Delight may follow from satisfaction for services that truly surprise the customer in a good way (Gupta & Bansal, 2012; Buttle, 1996). According to Jain and Gupta (2004) and Kuo et al. (2009), a company's assets solely comprise contented customers, and a company's continued existence is dependent solely on maintaining these relationships. The notion of satisfaction might be viewed from two angles: it might be viewed as "the outcome of a consumption activity or an experience, and it can also be viewed as a process (what was received and what was expected)" (Boshoff, 2007; Parker & Mathews, 2001). Often, the concept of satisfaction is confused with the term quality and is expressed as follows (Boshoff & Du Plessis, 2009):

$$Satisfaction = \frac{Perceived\ service}{Expected\ service}. \tag{1}$$

Another view and definition of the concept of satisfaction are based on the disconfirmation paradigm, which looks at it from a post-purchase evaluative point of view. Within this context, a comparison is made between customer expectations of the service and the actual performance of the service (Bloemer & De Ruyter, 2017; Boshoff & Du Plessis, 2009; Du Plessis & Rousseau, 2007; Hoffman & Bateson, 2006; Torres et al., 2001), and the result could range between satisfaction and dissatisfaction. Two types of evaluations are proposed: transaction-specific and cumulative satisfaction. The former refers to the customer's view of how they were treated during a specific transac-

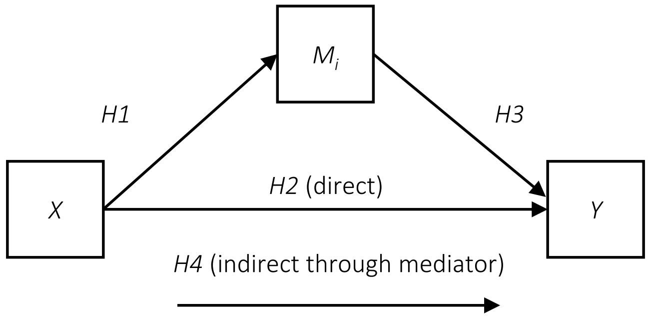

Figure 1. Proposed research model

tion, while the latter refers to their overall experience with the service provider following a number of service encounters (Gupta & Zeithaml, 2006; Zeithaml, 2013); however, the majority of studies do lean towards the cumulative perspective (Ganguli & Roy, 2011; Johnson et al., 2001).

Obtaining loyalty is frequently seen as the ultimate goal of any marketing effort. Attaining customer loyalty has a number of benefits, including generating more revenue and profit, and the spread of positive word-of-mouth to family and friends. Various studies confirm the importance of customer loyalty in attaining an organization's bottom line, i.e. profit (Haghkhah et al., 2020; Ishak & Abd Ghani, 2013; Lam et al., 2004). An organization's ability to maintain customer loyalty and ability to maintain favorable behavioral intentions of consumer are related (Zeithaml et al., 1996).

Loyalty is said to have two components, behavioral and attitudinal. Attitudinal loyalty is gauged by a commitment of psychological nature to a company, product or brand and while behavioral loyalty concentrates on a gauge of the proportion of purchases of a particular brand (Hawkins & Vel, 2013; Koo, 2006; Pritchard et al., 1992). Attitudinal loyalty can be defined as "a deeply held commitment to repurchase or patronize a preferred product/service consistently in the future, thereby causing repetitive same brand-set purchases despite situational influences and marketing efforts having the potential to cause switching behavior", while behavioral loyalty is "an ongoing propensity to buy the brand, usually as one of several" (Oliver, 1999).

E-loyalty is defined as a consumer's intention to purchase something from a company's website (Cyr et al., 2009). Anderson and Srinivasan (2003) identify eight antecedents, namely customization, contact interactivity, care, community, convenience, cultivation, choice, and character as drivers of customer loyalty in an e-commerce environment. The direct relationships between service quality and customer satisfaction (Chang & Wang, 2008; Sleimi et al., 2020), between service quality and loyalty (Chang & Wang, 2008; Haghkhah et al., 2020), and between customer satisfaction and loyalty are well documented in the literature (Anderson & Srinivasan, 2003; Chang & Wang, 2008). The customer satisfaction construct has been used as a mediator or moderator of several constructs in a variety of service settings. For example, empirical studies have found satisfaction as a mediator between service quality and loyalty in an off-line business setting (Caruana, 2002). Several other empirical studies have also found satisfaction as a mediator between service quality and loyalty in an electronic environment (Chang & Wang, 2008; Sleimi et al., 2020). Figure 1 depicts the conceptual model investigated in this study, in which M_i (customer satisfaction) acts as a mediator between X (e-banking quality) and Y (customer loyalty).

This study starts by delineating the relationship between e-banking quality, customer satisfaction and loyalty. A mediated model is proposed to further investigate this relationship. By proposing the mediated model, the study seeks to identify and explain the mechanism through which e-banking quality is related to loyalty by including satisfaction as a mediating variable. In doing so, the study provides empirical evidence so that scholars and businesses enrich their understanding of the intricate relationships among these constructs, namely service quality, satisfaction and loyalty in e-banking.

http://dx.doi.org/10.21511/bbs.18(2).2023.15

The key question addressed in this study is: Does customer satisfaction play a mediating or intervening role between service quality and loyalty in e-banking?

In line with the literature reviewed and in support of the research objective and research question, the following alternative hypotheses are formulated as depicted in Figure 1:

H1: *E-banking quality has a significant positive effect on customer satisfaction in e-banking.*

H2: *E-banking quality has a significant positive effect on loyalty in e-banking.*

H3: *Customer satisfaction has a significant positive effect on loyalty in e-banking.*

H4: *E-banking quality has a significant positive indirect effect on loyalty, as mediated by customer satisfaction.*

The research design and method followed to address the foregoing research question, research objectives and hypothesis are described in the ensuing section.

2. METHOD

Descriptive research design and quantitative research methods were employed to realize the objectives of the study. Using non-probability sampling, 310 usable responses were secured from a convenience sample in an emerging market (Gauteng, South Africa). This sample size is deemed sufficient given the scaled items of the questionnaire and the type of analysis pursued in this study (Blanche et al., 2006; Malhotra, 2010). A cross-section survey was implemented, and data were collected using a combination of an online (SurveyMonkey) and self-administered questionnaire. The questionnaire contained demographic information in Section A, while Sections B, C and D comprised scaled items for the various constructs (measured using a Likert scale). The data collection process conformed to ethical standards and the study was granted ethics clearance (Reference number: ECONIT-ACC-2015-005) from the relevant structure of the university.

Descriptive statistics were utilized to describe the sample that partook in the study. Factor analysis was used for item reduction and to determine factors that constitute the e-banking quality construct. Correlation analyses and multivariate regression analyses were performed to determine the relationship between dimensions of e-banking quality and customer satisfaction and loyalty. To have a full and deeper understanding of the intricate relationships among these constructs, namely e-banking quality, satisfaction, and loyalty, a mediation analysis using the PROCESS macro version 3.5 (Abbu, 2017; Hayes, 2018) was pursued. The statistical analysis implemented, as recommended by Hayes (2018), is depicted in Figure 2, where the direct effect of X (e-banking quality) on Y (customer loyalty) = c', and the indirect effect of X (e-banking quality) on Y (customer loyalty) through M_i (customer satisfaction) = a_i b_i. Non-parametric bootstrapping was used to test the indirect effect. If the value of zero (0) came between the bottom and upper bounds of the confidence interval, it was considered the null. With 50,000 samples, the percentile bootstrap estimation method was chosen, and the confidence interval was set at a 95% level (Shrout & Bolger, 2002).

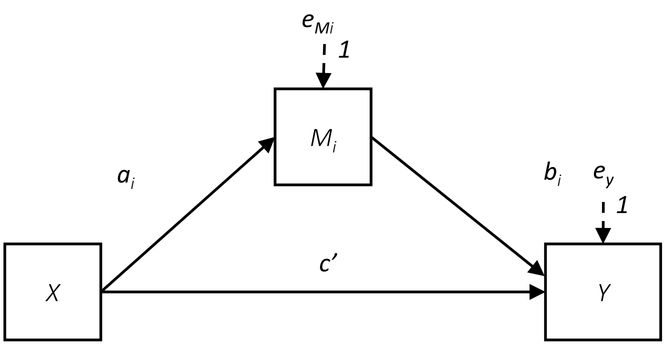

Figure 2. Statistical diagram

In equation form, the mediation analysis with one mediating variable is given as follows:

$$y = c + (a \cdot x) + (b \cdot M), \tag{2}$$

where y is the dependent variable; x is the independent variable (the predictor variable); M is the mediating variable; a is the regression coefficient for the effect of x on M; b is the regression coefficient for the effect of M on y; c is the intercept term.

The mediation effect (i.e., the indirect effect of x on y through M) is calculated by multiplying a and b. It should be noted that this formula presupposes that M partially or fully mediates the relationship between x and y. Typically, bootstrapping techniques are used to determine the significance of the indirect effect and test for mediation. These analyses can be carried out by the Process Macro, which can also produce extra results such as the total and direct effects of x on y (Hayes, 2009; Preacher & Hayes, 2008).

3. RESULTS

This study considered customers of electronic banking only. In other words, accessing bank accounts, transferring money, and purchasing financial goods or services through bank websites all fall under the category of electronic banking. Banks that do not enable transactions on their websites but simply provide information are not regarded as providing electronic banking services for the purposes of this research. There were 310 participants in the study, of which 53% were men and 47% were women. Age cohorts 35 to 44 (33 percent), 45 to 54 (13 percent), 18 to 25 (8 percent), and the oldest age cohort 54 to 64 made up the majority of study participants (34%), who were between the ages of 25 and 34 (12 percent). The majority of survey respondents (66%) claimed to utilize online banking for the most of their financial needs, showing that they are familiar with and have experience with e-banking services. The majority of respondents, 65%, had extensive experience using e-banking.

The following steps were undertaken to address the research objectives and test the hypotheses formulated in this study:

- Step 1: Determining the dimensions of e-banking quality;
- Step 2: Correlation analysis and assessment of psychometric properties;
- Step 3: Defining the correlation between the dimensions of e-banking quality and satisfaction;
- Step 4: Determining the relationship between the dimensions of e-banking quality and loyalty;
- Step 5: Determining the relationship between satisfaction and loyalty in e-banking;
- Step 6: Conducting mediation analysis (satisfaction as a mediator of loyalty in e-banking).

These steps are discussed in the following subsections.

3.1. Step 1: Determining the dimensions of e-banking quality

To determine the multi-dimensionality of the e-banking quality construct, exploratory and confirmatory factor analyses were conducted. Since the reporting and analysis of the item reduction are not the subject of this paper, the statistical figures are not reported here. The analysis produced eight composite variables, which produced acceptable validity and reliability measures (Redda, 2015). These dimensions that constitute e-banking quality construct include privacy and security, ease of use, system availability, efficiency, reliability, functionality, contact and responsiveness, and aesthetics.

3.2. Step 2: Correlation analysis and assessment of psychometric properties

Table 1 reports the bivariate correlation of the variables under study: e-banking quality, customer satisfaction, loyalty, as well as Cronbach's alpha and mean values of the same variables. The Cronbach's alpha (α) for the three constructs was above 0.70, affirming the reliability of the scales used in collect-

http://dx.doi.org/10.21511/bbs.18(2).2023.15

Table 1. Correlation analysis

Constructs (variables)	Cronbach`s alpha	Mean	1	2	3
E-banking quality (1)	0.943	4.88	1.00	–	–
Customer satisfaction (2)	0.883	5.02	.665**	1.00	–
Customer loyalty (3)	0.847	4.79	.521**	.551**	1.00

ing the data (Malhotra, 2010). The bivariate correlation of the variables under study was as expected in terms of sign and effect suggesting nomological validity and the size of the coefficients was not above 0.90, confirming the non-existence of obvious multicollinearity issues between the variables (Malhotra, 2010; Pallant, 2020).

Having ascertained the validity, reliability and absence of multicollinearity issues, the next step was to assess the relationships further through multivariate regression analysis.

3.3. Step 3: Relationship between the dimensions of e-banking quality and satisfaction

The eight e-banking quality dimensions, independent variables (IVs), were regressed with satisfaction, dependent variable (DV). The regression model produced a significant F-ratio (F = 37.988; $p \leq 0.00$), suggesting the appropriateness of the model in explaining satisfaction in e-banking. Collectively, the eight antecedents explained 49 per cent of the variance in customer satisfaction levels in e-banking, evidenced by the adjusted R^2 value of 0.489. All eight variables considered in the study, namely privacy and security, system availability, efficiency, ease of use, functionality, reliability contact and responsiveness, and aesthetics, were found to have a significant positive effect on customer satisfaction.

3.4. Step 4: Relationship between the dimensions of e-banking quality and loyalty

The eight e-banking quality dimensions, independent variables (IVs), were regressed with loyalty, dependent variable (DV). The regression model containing these dimensions returned a significant F statistic (F = 16.79; $p \leq 0.00$), suggesting the appropriateness of the model in explaining satisfaction in e-banking. Collectively, the eight antecedents explained 29 per cent of the variance in customer satisfaction levels in e-banking, evidenced by the adjusted R^2 value of 0.290. Of the eight the dimensions, four were found to have a significant positive effect on customer loyalty in e-banking at $p < 0.05$, subsequently named antecedents of loyalty in e-banking. The four antecedents include system availability, reliability, functionality and aesthetics.

3.5. Step 5: Relationship between satisfaction and loyalty in e-banking

A simple regression was performed to determine the relationship between customer satisfaction and loyalty to e-banking services. Satisfaction as an independent variable (IV) was regressed with loyalty, the dependent variable (DV). The model produced an F statistic (F = 16.79; $p \leq 0.00$), with a significant prediction power (F = 134.431; $p \leq 0.00$), providing evidence of the appropriateness of the model in explaining loyalty in e-banking. The result indicated that satisfaction explained 30 percent of the variance in the loyalty to e-banking, as indicated by the R^2 value of 0.304. As demonstrated in step 4, only four of the eight dimensions of e-banking quality were found to be significant predictors of customer loyalty, while all eight predicted customer satisfaction (step 3). To have a full and deeper understanding of the intricate relationships among these constructs, namely service quality, satisfaction, and loyalty in e-banking, mediation analysis is pursued.

3.6. Step 6: Mediation analysis (satisfaction as a mediator of loyalty in e-banking)

The mediation analysis results are provided in Table 2 and displayed in Figure 3. To test the hypothesis that e-banking quality has a significant positive indirect effect on loyalty, as mediated by customer satisfaction (*H4*), a mediation study was performed using the PROCESS macro version 3.5 (Hayes, 2017).

Table 2. A mediation analysis of satisfaction using the PROCESS macro

Part 1: E-banking quality on satisfaction						
Independent variable	**Coefficient**	**SE**	**T-stats**	**p-values**	**LLCI**	**ULCI**
E-banking quality	0.7601	0.0478	15.6129	0.00	6643	0.8558
Part 2: E-banking service quality and satisfaction on loyalty						
Independent variables	**Coefficient**	**SE**	**T-stats**	**p-values**	**LLCI**	**ULCI**
E-banking quality	0.3577	0.0799	4,4792	0.00	0.2006	0.5149
Satisfaction	0.4155	0.0698	5,9494	0.00	0.2781	0.5529
Part 3: Direct and indirect effect of X on Y						
Direct effect of e-banking quality on loyalty						
Independent variable	**Coefficient**	**SE**	**T-stats**	**p-values**	**LLCI**	**ULCI**
E-banking quality	0.3577	0.0799	4.4792	0.00	0.2006	0,5149
The indirect effect of e-banking quality on loyalty						
Mediating variable	**Effect**	**BootSE**	**BootLLCI**	**BootULCI**	**–**	**–**
Satisfaction	0,3158	0,0651	0,19	0,4436	–	–

Note: Y = loyalty; *X* = e-banking service quality; *M* = Satisfaction; *Confidence intervals* = 95; *Number of bootstrap samples* = 5,000.

4. DISCUSSION

The first part of the statistical output shows the results of the outcome variable (satisfaction) and independent variable (e-banking quality). As reported in Table 2 and illustrated in Figure 3, the results indicate that e-banking quality has a significant and positive effect on satisfaction in e-banking, as evidenced by the beta value, $\beta = 0.7601$, $p < 0.001$, SE = 0.0487, 95% CI [0.6643, 0.8558], providing support for *H1*. Put differently, excellent service quality in e-banking does indeed translate into customer satisfaction. Consequently, *H1*, postulated as *e-banking quality has a significant positive effect on customer satisfaction in e-banking,* is supported in line with the literature (Caruana, 2002; Kassim & Abdullah, 2010; Lee & Moghavvemi, 2015; Yew & Rahman, 2019). An R-squared value of 0.4418 was produced, suggesting approximately 44 per cent of the variance in customer satisfaction was explained by the service quality of e-banking services. This underscores the importance of service quality in e-banking in general and the dimensions of e-banking quality in particular, which banks should pay particular attention to when developing their e-banking systems.

The second part of the statistical output shows the result of the outcome variable (customer loyalty) and independent variables (e-banking quality and satisfaction). The results indicate that both e-banking quality and satisfaction are predictors of customer loyalty in the case of e-banking services. As can be seen, the direct effect of e-banking quality on loyalty is confirmed, $\beta = 0.3577$, $p < 0.001$, SE = 0.0799, 95% CI [0.2006, 0.5149], providing support for *H2*, which was postulated as *e-banking quality has a significant and positive effect on loyalty in e-banking*. Furthermore, the results indicate that satisfaction has a significant and positive effect on loyalty in e-banking, $\beta = 0.4155$, $p < 0.001$, SE = 0.0698, 95% CI [0.2781, 0.5529], thereby supporting *H3*. In keeping with the satisfaction theory and empirical evidence, *H3*, stated as *customer satisfaction has a significant positive effect on loyalty in e-banking,* is, therefore, supported (Chikazhe et al., 2021; Yew & Rahman, 2019). This part of the regression model produced an R-square of 0.3466, which can be interpreted as that approximately 35 per cent of the variance in loyalty towards e-banking is accounted for by the quality of service (e-banking quality) and customer satisfaction. In other words, providing excellent quality of e-banking which satisfy customers do indeed result in loyal customers for the bank.

The third part of the statistical output shows the direct and indirect effect of e-banking quality on customer loyalty. In line with recommendations of Hayes (2018), a bootstrap method was used to estimate to examine the indirect effect. The analysis was on SPSS with Process Marco version 3 plugins. The null hypothesis of zero (0) did not fall between the two confidence intervals (upper and lower-level intervals), meaning the indirect effect of e-banking quality on loyalty is nonzero (0). As

http://dx.doi.org/10.21511/bbs.18(2).2023.15

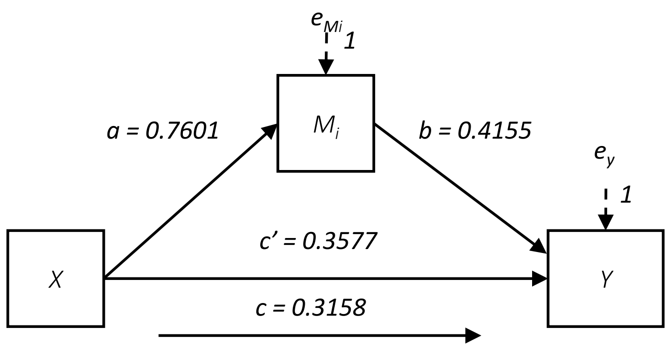

Figure 3. Mediation analysis results

demonstrated in Table 2 and Figure 3, the last hypothesis (*H4*), postulated as *e-banking quality has a significant positive indirect effect on loyalty, as mediated by customer satisfaction,* is, therefore, supported (β = 0.3158, p < 0.001, SE = 0.0651, 95% CI [0.1900, 0.4436]). Therefore, the results of this study corroborate previous studies that confirm the mediating role of customer satisfaction between service quality and loyalty (Caruana, 2002; Chang & Wang, 2008; Sleimi et al., 2020; Yew & Rahman, 2019; Mosahab et al., 2010).

Since the direct effect of e-banking quality on loyalty remained significant after the intervention/mediation of satisfaction in the model, the mediation is interpreted as partial mediation (Hayes, 2018; Hayes & Scharkow, 2013; Nyan et al., 2020). In line with the growing evidence of the role of satisfaction in mediating the relationship between service quality (in this case, e-banking quality) and loyalty, the empirical findings support the study's main thesis: e-banking quality has a significant and positive indirect effect on loyalty, as mediated by customer satisfaction. In other words, consumer satisfaction acts as a go-between for e-banking quality and client loyalty. Thus, e-banking quality not only directly leads to loyalty, but it also operates and contributes to loyalty through client satisfaction.

CONCLUSION

The aim of this paper was to identify and explain the mechanism through which e-banking quality is related to loyalty by including satisfaction as a mediating variable in South Africa. The results of the study indicate that e-banking quality has a considerable and positive effect on customer satisfaction, which in turn has a significant and positive effect on loyalty in e-banking. The direct effect of e-banking quality on loyalty has also been confirmed. Furthermore, the results of the study show that the quality of e-banking has a significant and favorable indirect effect on loyalty, as mediated by customer satisfaction. Because the direct effect of e-banking quality on loyalty remained significant after the satisfaction intervention/mediation in the model, the mediation is regarded as partial.

Emanating from the findings of this study, businesses should note that there is a direct effect of service quality of e-banking on customer satisfaction, as well as on loyalty, underscoring the importance of e-banking quality and its dimensions. Businesses should also note the importance of customer satisfaction, as it also plays a mediating role between the service quality of e-banking and loyalty. In this case, businesses should always aim to either meet or exceed customer expectations with superior e-banking quality. The limitation of this study is that it considered only one variable as an independent variable and one variable as a mediator of customer loyalty. Future studies can address this limitation by incorporating more independent and mediating variables in order to have a more holistic understanding of consumer behavior and consumer decision making in e-banking. However, the selection and inclusion of variables should be based on solid theoretical foundations.

AUTHOR CONTRIBUTIONS

Conceptualization: Ephrem Habtemichael Redda.
Data curation: Ephrem Habtemichael Redda.
Formal analysis: Ephrem Habtemichael Redda.
Funding acquisition: Ephrem Habtemichael Redda.
Investigation: Ephrem Habtemichael Redda.
Methodology: Ephrem Habtemichael Redda.
Project administration: Ephrem Habtemichael Redda.
Resources: Ephrem Habtemichael Redda.
Software: Ephrem Habtemichael Redda.
Validation: Ephrem Habtemichael Redda.
Visualization: Ephrem Habtemichael Redda.
Writing – original draft: Ephrem Habtemichael Redda.
Writing – reviewing & editing: Ephrem Habtemichael Redda.

REFERENCES

1. Abbu, H. R. (2017). Methodology Review: Direct, Mediating, and Moderating Analysis using Hayes PROCESS Models. *Conference: Marketing Edge Research Summit, Data & Marketing Association (DMA)*. New Orleans, LA.

2. Anderson, R. E., & Srinivasan, S. S. (2003). E-Satisfaction and E-Loyalty: A Contingency Framework. *Psychology and Marketing, 20*(2), 123-138. https://doi.org/10.1002/mar.10063

3. Ankrah, E. (2012). Technology and Service Quality in Banking Industry. *Information and Knowledge Management, 2*(8), 52-60. Retrieved from https://core.ac.uk/reader/234671270

4. Blanche, M. T., Durrheim, K., & Painter, D. (2006). *Research in practice: Applied methods for social Sciences*. UCT Press.

5. Bloemer, J., & De Ruyter, K. (2017). On the relationship between store image, store satisfaction and store loyalty. *European Journal of Marketing, 32*(5), 499-513. https://doi.org/10.1108/03090569810216118

6. Boshoff, C. (2007). A Psychometric Assessment of E-S-QUAL: A Scale to Measure Electronic Service Quality. *Journal of Electronic Commerce Research, 8*(1), 101-114. Retrieved from http://www.jecr.org/sites/default/files/08_1_p07_0.pdf

7. Boshoff, C., & Du Plessis, P. J. (2009). *Services marketing: a contemporary approach*. Juta Legal and Academic Publishers.

8. Buttle, F. (1996). SERVQUAL: review, critique, research agenda. *European Journal of Marketing, 30*(1), 8-32. https://doi.org/10.1108/03090569610105762

9. Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *European Journal of Marketing, 36*(7/8), 811-828. https://doi.org/10.1108/03090560210430818

10. Chang, H. H., & Wang, H. (2008). The Relationships among e-Service Quality, Value, Satisfaction and Loyalty in Online Shopping. In S. Borghini, M. A. McGrath, and C. Otnes (Eds.), *E-European Advances in Consumer Research* (pp. 10-15). Duluth, MN: Association for Consumer Research. Retrieved from https://www.acrwebsite.org/volumes/13957/eacr/vol8/e-08

11. Chikazhe, L., Makanyeza, C., & Chigunhah, B. (2021). Understanding mediators and moderators of the effect of customer satisfaction on loyalty. *Cogent Business & Management, 8*(1), 1922127. https://doi.org/10.1080/23311975.2021.1922127

12. Cyr, D., Head, M., & Ivanov, A. (2009). Perceived interactivity leading to e-loyalty: Development of a model for cognitive-affective user responses. *International Journal of Human-Computer Studies, 67*(10), 850-869. https://doi.org/10.1016/j.ijhcs.2009.07.004

13. Du Plessis, F., & Rousseau, G. G. (2007). *Buyer behaviour: understanding consumer psychology and marketing*. Oxford University Press Southern Africa.

14. Flores, A. F., Saldanha, E. D. S., & Vong, M. F. (2020). The Effect of Customer Satisfaction Mediation for the Relationship Between Service Quality and Customer Loyalty. *Timor-Leste Journal of Business and Management, 2*(1), 56-65. Retrieved from https://tljbm.org/jurnal/index.php/tljbm/article/view/22/20

15. Ganguli, S., & Roy, S. K. (2011). Generic technology-based service quality dimensions in banking: Impact on customer satisfaction and loyalty. *International Journal of Bank Marketing, 29*(2), 168-189. https://doi.org/10.1108/02652321111107648

16. Grönroos, C. (2007). *Service management and marketing: customer management in service competition*. John Wiley.

17. Gupta, K., & Bansal, I. (2012). Development of an instrument to

measure internet banking service quality in India. *Researchers World, 3*(2), 11-15. Retrieved from https://www.proquest.com/openview/746d99dbc45c1033b423ec7b88786024/1

18. Gupta, S., & Zeithaml, V. (2006). Customer metrics and their impact on financial performance. *Marketing Science, 25*(6), 718-739. http://dx.doi.org/10.1287/mksc.1060.0221

19. Haghkhah, A., Rasoolimanesh, S. M., & Asgari, A. A. (2020). Effects of customer value and service quality on customer loyalty: mediation role of trust and commitment in business-to-business context. *Management Research and Practice, 12*(1), 27-47. Retrieved from https://mrp.ase.ro/no121/f3.pdf

20. Hawkins, K., & Vel, P. (2013). Attitudinal loyalty, behavioural loyalty and social media: An introspection. *The Marketing Review, 13*(2), 125-141. http://dx.doi.org/10.1362/146934713X13699019904605

21. Hayes, A. F. (2009). Beyond Baron and Kenny: Statistical mediation analysis in the new millennium. *Communication Monographs, 76*(4), 408-420. https://doi.org/10.1080/03637750903310360

22. Hayes, A. F. (2018). Partial, conditional, and moderated moderated mediation: Quantification, inference, and interpretation. *Communication Monographs, 85*(1), 4-40. https://doi.org/10.1080/03637751.2017.1352100

23. Hayes, A. F., & Scharkow, M. (2013). The relative trustworthiness of inferential tests of the indirect effect in statistical mediation analysis: does method really matter? *Psychological Science, 24*(10), 1918-1927. https://doi.org/10.1177/0956797613480187

24. Hoffman, K. D., & Bateson, J. E. G. (2006). *Service marketing: concepts, strategies & cases*. Thompson South Western.

25. Ishak, F., & Abd Ghani, N. H. (2013). *A review of the literature on brand loyalty and customer loyalty*. Retrieved from http://repo.uum.edu.my/id/eprint/16316/1/20.pdf

26. Jain, S. K., & Gupta, G. (2004). Measuring Service Quality: Servqual vs. Servperf Scales. *Vikalpa, 29*(2), 25-38. https://doi.org/10.1177/0256090920040203

27. Jayawardhena, C. (2004). Measurement of Service Quality in Internet Banking: The Development of an Instrument. *Journal of Marketing Management, 20*(1-2), 185-207. https://doi.org/10.1362/026725704773041177

28. Johnson, M. D., Gustafsson, A., Andreassen, T. W., Lervik, L., & Cha, J. (2001). The evolution and future of national customer satisfaction index models. *Journal of Economic Psychology, 22*(2), 217-245. https://doi.org/10.1016/S0167-4870(01)00030-7

29. Kassim, N., & Abdullah, N. A. (2010). The effect of perceived service quality dimensions on customer satisfaction, trust, and loyalty in e-commerce settings A cross cultural analysis. *Asia Pacific Journal of Marketing and Logistics, 22*(3), 351-371. https://doi.org/10.1108/13555851011062269

30. Koo, D. M. (2006). The fundamental reasons of e-consumers' loyalty to an online store. *Electronic Commerce Research and Applications, 5*(2), 117-130. https://doi.org/10.1016/j.elerap.2005.10.003

31. Kuo, Y. F., Wu, C. M., & Deng, W. J. (2009). The relationships among service quality, perceived value, customer satisfaction, and post-purchase intention in mobile value-added services. *Computers in Human Behavior, 25*(4), 887-896. https://doi.org/10.1016/j.chb.2009.03.003

32. Lam, S. Y., Shankar, V., Erramilli, M. K., & Murthy, B. (2004). Customer value, satisfaction, loyalty, and switching costs: an illustration from a business-to-business service context. *Journal of the Academy of Marketing Science, 32*(3), 293-311. https://doi.org/10.1177/0092070304263330

33. Lee, S. P., & Moghavvemi, S. (2015). The Dimension of Service Quality and Its Impact on Customer Satisfaction, Trust, and Loyalty: A Case of Malaysian Banks. *Asian Journal of Business and Accounting, 8*(2), 91-121. Retrieved from https://ajba.um.edu.my/article/view/2715

34. Malhotra, N. K. (2010). *Marketing research: an applied orientation*. Pearson Education Prentice Hall.

35. Mosahab, R., Mahamad, O., & Ramayah, T. (2010). Service Quality, Customer Satisfaction and Loyalty: A Test of Mediation. *International Business Research, 3*(4), 72-80. https://doi.org/10.5539/ibr.v3n4p72

36. Nyan, L. M., Rockson, S. B., & Addo, P. K. (2020). The Mediation Effect of Customer Satisfaction on the Relationship Between Service Quality and Customer Loyalty. *Journal of Management and Strategy, 11*(3), 13. https://doi.org/10.5430/jms.v11n3p13

37. Oliver, R. L. (1999). Whence consumer loyalty? *Journal of Marketing, 63*(4_suppl1), 33-44. https://doi.org/10.1177/00222429990634s105

38. Ombati, T. O., Magutu, P. O., Nyamwange, S. O., & Nyaoga, R. B. (2010). Technology and service quality in the banking industry: Importance and Performance of Various Factors Considered In the Electronic Banking Services. *African Journal of Business & Management (AJBUMA), 1,* 151-164.

39. Pallant, J. (2020). *SPSS survival manual: A step by step guide to data analysis using IBM SPSS* (7th ed.). Routledge. https://doi.org/10.4324/9781003117452

40. Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1985). A Conceptual Model of Service Quality and Its Implications for Future Research. *Journal of Marketing, 49*(4), 41. https://doi.org/10.2307/1251430

41. Parasuraman, A., Zeithaml, V. A., & Malhotra, A. (2005). E-S-QUAL a multiple-item scale for assessing electronic service quality. *Journal of Service Research, 7*(3), 213-233. https://doi.org/10.1177/1094670504271156

42. Parasuraman, A., Zeithaml, V., & Berry, L. (1988). SERVQUAL: A Multiple-Item Scale for Measuring Consumer Perceptions of Service Quality. *Journal of Retailing, 64*(1), 12-40. Retrieved from https://www.proquest.com/openview/7d007e04d78261295e5524f15bef6837/pdf

43. Parker, C., & Mathews, B. P. (2001). Customer satisfaction: contrasting academic and consumers' interpretations. *Marketing Intelligence & Planning, 19*(1), 38-44. https://doi.org/10.1108/02634500110363790

44. Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnila, S. (2004). Consumer acceptance of online banking: An extension of the technology acceptance model. *Internet Research, 14*(3), 224-235. https://doi.org/10.1108/10662240410542652

45. Preacher, K. J., & Hayes, A. F. (2008). Asymptotic and resampling strategies for assessing and comparing indirect effects in multiple mediator models. *Behavior Research Methods, 40*(3), 879-891. https://doi.org/10.3758/brm.40.3.879

46. Pritchard, M. P., Howard, D. R., & Havitz, M. E. (1992). Loyalty measurement: A critical examination and theoretical extension. *Leisure Sciences, 14*(2), 155-164. https://doi.org/10.1080/01490409209513164

47. Redda, E. H. (2015). *Electronic banking services in South Africa: Service quality scale development and validation* (Doctoral Thesis). North-West University. Retrieved from https://repository.nwu.ac.za/bitstream/handle/10394/16547/Redda_EH.pdf

48. Redda, E. H., & Surujlal, J. (2019). The role of selected demographic variables on perceptions of internet banking service quality, value, satisfaction and loyalty. *Journal of Management Information and Decision Science, 22*(3), 262-272. Retrieved from https://www.abacademies.org/articles/the-role-of-selected-demographic-variables-on-perceptions-of-internet-banking-service-quality-value-satisfaction-and-loyalty-8486.html

49. Santos, J. (2003). E-service quality: A model of virtual service quality dimensions. *Managing Service Quality: An International Journal, 13*(3), 233-246. https://doi.org/10.1108/09604520310476490

50. Shrout, P. E., & Bolger, N. (2002). Mediation in experimental and nonexperimental studies: new procedures and recommendations. *Psychological Methods, 7*(4), 422-445. Retrieved from https://pubmed.ncbi.nlm.nih.gov/12530702/

51. Sleimi, M., Musleh, M., & Qubbaj, I. (2020). E-Banking services quality and customer loyalty: The moderating effect of customer service satisfaction: Empirical evidence from the UAE banking sector. *Management Science Letters, 10*(15), 3663-3674. https://doi.org/10.5267/j.msl.2020.6.027

52. Solimun, S., & Fernandes, R. (2017). The mediation effect of customer satisfaction in the relationship between service quality, service orientation, and marketing mix strategy to customer loyalty. *Journal of Management Development, 37*(1), 76-87. https://doi.org/10.1108/JMD-12-2016-0315

53. Srivastava, M., & Rai, A. K. (2013). Investigating the mediating effect of customer satisfaction in the service quality – customer loyalty relationship. *The Journal of Consumer Satisfaction, Dissatisfaction & Complaining Behavior, 26*, 95-109. Retrieved from https://www.jcsdcb.com/index.php/JCSDCB/article/view/141

54. Torres, I. M., Summers, T. A., & Belleau, B. D. (2001). Men's shopping satisfaction and store preferences. *Journal of Retailing and Consumer Services, 8*(4), 205-212. https://doi.org/10.1016/S0969-6989(00)00024-2

55. Yew, M. P., & Rahman, A. M. (2019). The mediating role of satisfaction in developing customer loyalty in the Malaysian telecommunication industry. *Academy of Entrepreneurship Journal, 25*(1), 1-12. Retrieved from https://www.abacademies.org/articles/The-mediating-role-of-satisfaction-in-developing-customer-loyalty-in-the-1528-2686-25-S1-222.pdf

56. Zeithaml, A. V. (1988). Consumer Perceptions A Means-End Value: Quality, and Model Synthesis of Evidence. *American Marketing Association, 52*(3), 2-22. http://dx.doi.org/10.1177/002224298805200302

57. Zeithaml, V. (2013). *Services marketing: Integrating customer focus across the firm*. McGraw-Hill/Irwin.

58. Zeithaml, V. A., Berry, L. L., & Parasuraman, A. (1996). The behavioral consequences of service quality. *Journal of Marketing, 60*(2), 31-46. http://dx.doi.org/10.2307/1251929

http://dx.doi.org/10.21511/bbs.18(2).2023.15