Assessment of E-banking Service Quality Dimensions: An Empirical Investigation

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Abstract

The study investigated e-banking service quality dimensions that are relevant from the perspective of e-banking customers. The literature reveals that several dimensions have been proposed to measure e-banking service quality. However, it is important to identify the key e-banking service quality dimensions that banks can focus on to improve the quality of e-banking service. Eight dimensions, including user interface, ease of use, reliability, security and privacy, convenience, personalisation, fulfillment and responsiveness were examined. A structured questionnaire was used to collect data for the study. Initially, the items that make up the questionnaire were subjected to reliability test using Cronbach Alpha and some items were deleted. The final questionnaire was administered to 384 e-banking customers using Google Forms, but only 171 responded. The results of structural equation modeling show that security and privacy, convenience, fulfillment and responsiveness significantly influence perceived e-banking service quality. In contrast, user interface, ease of use, reliability and personalisation do not significantly influence perceived e-banking service quality. The e-banking service quality dimensions identified in this study are expected to provide a frame of reference for bank managers to assess their e-banking performance and to enhance customer experience.

Keywords: E-banking, Service Quality, Bank Customer, Responsiveness, Fulfillment

1. Introduction

The evolution of e-banking transformed the banking industry and introduced significant changes to the operations and delivery of financial services. E-banking encompasses a range of digital platforms, including Internet banking, mobile banking, Automated Teller Machines (ATMs), POS (Point of Sales) and electronic fund transfers, enabling customers to access their accounts and conduct financial transactions without visiting the bank (Salman et al., 2024). E-banking has emerged as a strategic tool in the financial sector, offering innovative and convenient solutions for financial institutions and customers (Chungu & Phiri, 2024). Moreover, it fosters sustainable banking practices, where going digital is viewed as one of the pathways to adopting environmentally conscious practices in the banking industry (Malc et al., 2023). For e-banking to achieve these goals, there is need to provide quality services to customers (Raza et al., 2020).

It has been noted that the key strategy for the success and survival of any business is to deliver quality services to customers (Shankar & Datta, 2020; Sadaf & Rahela, 2019). This is necessary because a high level of e-banking service quality contributes to achieving business goals in terms of better and more efficient relationships with customers, increased ability to attract potential customers, greater competitiveness and increased efficiency and effectiveness in service delivery which in turn lead to increase in profitability of the bank (Barrutia & Gilsanz, 2009). On the other hand, it provides customers with a superior experience and convenience. Subedi and Adhikar (2024) are of the view that the

fundamental reason for using e-service is the convenience of being able to receive the service in one's comfort and being able to access the service wherever one is. Hence, the usage of e-banking has increased drastically since the outbreak of the global pandemic and the introduction of the cashless policy in Nigeria.

Despite significant investments in e-banking services, not all customers are really satisfied and several customers have experienced one challenge or the other (Ayinaddis et al., 2023). That is why most banks have long queues for customer complaints on e-banking issues. As e-banking continues to reshape how people interact with banks, it is imperative to determine the key e-banking service quality dimensions. Mohammad et al. (2013) opined that to deliver quality services electronically, managers need to understand the perception of customers regarding the quality of their services and the way customers evaluate them. The authors also noted that to ensure high perceived service quality by customers in electronic markets, banks must evaluate the level of service quality being offered. If banks know the quality attributes they can use to measure the quality of e-banking services, it would be much easier for them to take the necessary measures and steps to improve the overall quality of their e-banking services. Hence, the objective of this study is to identify the relevant e-banking service quality dimensions that banks can focus on to improve the quality of e-banking. The following hypotheses were tested in the study:

H_1: User interface has a positive influence on perceived e-banking service quality
H_2: Ease of use has a positive influence on perceived e-banking service quality
H_3: Reliability has a positive influence on perceived e-banking service quality
H_4: Security and privacy have a positive influence on perceived e-banking service quality
H_5: Convenience has a positive influence on perceived e-banking service quality
H_6: Personalisation has a positive influence on perceived e-banking service quality
H_7: Fulfillment has a positive influence on perceived e-banking service quality
H_8: Responsiveness has a positive influence on perceived e-banking service quality

2. Literature Review

2.1 *E-banking Service Quality*

E-banking service quality measures how well the banking service provided meets customer expectations. This results from comparing customers' prior expectations about the service and their perceptions of the experience of service performance (Sewaka et al., 2022). Several researchers have tried to identify the dimensions of e-banking service quality. These dimensions try to define e-banking service quality with the expected features of e-banking. Chungu and Phiri (2024) proposed efficiency, user interface, responsiveness, reliability, and ease of use. Subedi and Adhikar (2024) identified tangibility, reliability, responsiveness, assurance, and empathy, while Lemma and Hailemichael (2024) proposed efficiency, system availability, fulfillment, privacy and security, ease of use, and quality of recovery. Malc et al. (2023) identified efficiency, availability, contact, design, security, and fulfillment. Mwiya et al. (2022) indicated that security, website traits, privacy, responsiveness, effectiveness, fulfillment, and reliability are the dimensions of e-banking service quality. Tetteh (2022) noted that the dimensions of e -banking service quality are convenience, ease of use, availability, and affordability while Omofowa et al. (2021) identified innovation, technology competence, reliability and tangibility. Beshir and Zelalem (2020) indicated effectiveness, responsiveness, easiness, privacy and commission.

Dsouza et al. (2018) found that six factors, which include value-added service, responsiveness, availability, services assured, bank charges, and convenience, are relevant in e-banking. Hammoud et al. (2018) indicated reliability, effectiveness, ease of use, responsiveness, communication, security and privacy. Al-Hawary and Al-Smeran (2017) identified six dimensions, namely, reliability, ease of use, efficiency, website design, privacy, and responsiveness while Askari et al. (2016) indicated reliability, responsiveness, ease of use, personalisation, security and website design. Hoseini and Dangoliani (2015) stated that effectiveness, fulfillment, system availability, privacy, assurance (trust), and service quality aesthetics are the dimensions of e-banking service quality. Narteh (2015) identified reliability, convenience, ease of use, fulfillment and responsiveness. Akinmayowa and Ogbeide (2014) investigated the dimensions of automated service quality and posited that service quality dimensions include convenience, efficient operation, security and privacy, reliability and responsiveness. Fariz and Bagher (2014) evaluated and ranked the factors influencing e-banking service quality based on both active and passive dimensions. The active dimensions were website content, website composition and structure, website links, website ease of use, and website appearance. In contrast, the passive dimensions were motivation, website reliability, website performance, website support, website communication, and website security.

Zavareh et al. (2012) indicated that the dimensions of e-banking service quality include effective and reliable services, fulfillment, security/trust, point aesthetics, responsiveness/ contact, and ease of use. Kumbhar (2011) identified the dimensions of system availability, e-fulfillment, efficiency, security, responsiveness, easiness, convenience, cost-effectiveness, problem handling, compensation and contact while Shirshendu & Sanjit (2011) are of the view that the dimensions are customer service, security and information quality, convenience, usage easiness and reliability. Khan (2010) stated that the key dimensions of automated service quality include reliability, ease of use, privacy, convenience and responsiveness. Muhammad (2010) identified convenience, efficient operation, security and privacy, reliability and responsiveness. In the view of Ojasalo (2010) the dimensions are ease of use, web site design and appearance, personalisation, information, responsiveness, communication, security and reliability.

The literature reveals that several dimensions have been proposed to measure e-banking service quality. Despite the insights these studies provide, there is no consensus among the authors concerning the dimensions of e-banking service quality. For banks that offer several e-banking services, a holistic assessment is needed to capture customers' e-service quality experience. Building on this premise, the study reviewed e-banking service quality dimensions and extracted eight key dimensions that banks can focus on to obtain feedback on their performance and to improve the quality of e-banking. The purpose is to identify the most significant e-banking service quality dimensions that may influence perceived e-banking service quality by bank customers.

2.2 *E-banking Service Quality Dimensions*

2.2.1 ***User Interface***

User interface refers to the arrangement of content and aesthetic features of the platform through which e-banking transactions are carried out. This should be up-to-date, well organized and easy to navigate. It is measured by the ability of customers to get to the user interface, perform the needed transaction and conveniently log out. The user interface is a

customer's first point of contact when accessing e-banking. As Fariz and Bagher (2014) noted, all items should be explained in simple and straightforward language that is understandable to most users. Due to the lack of face-to-face interaction with the bank, the user interface is what e-banking customers interact with. As such, it can be expected to influence their perception of e-banking service quality. Moreover, customers may get frustrated and eventually be discouraged from using e-banking if accessing it is challenging. Some authors have indicated that user interface is an important measure of e-banking service quality (Chungu & Phiri, 2024; Barrutia & Gilsanz, 2009; Lee & Lin, 2005).

2.2.2 ***Ease of Use***

Ease of use is the degree to which the e-banking channel ensures a hassle-free transaction for the customers. It is the degree to which the e-banking channel can be easily understood and operated. As noted by Natalia et al. (2020) ease of use is the most significant attribute not only at the stage of e-banking acceptance but also at the stage of using the service. Some e-banking users find the instructions for performing some operations challenging to understand. If users feel that a technology is easy to use, their chances of using it and their perception of service quality may improve. E-banking channels should make it easy for customers to perform all the functions without asking for help. Therefore, as indicated by some studies (Chungu & Phiri, 2024; Lemma & Hailemichael, 2024; Tetteh, 2022; Beshir & Zelalem, 2020; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Narteh, 2015; Zavareh et al., 2012) ease of use can influence the perception of e-banking service quality.

2.2.3 ***Reliability***

Reliability refers to the consistency of performance and dependability of the e-channel (Azhar et al., 2024; Narteh, 2013). It is the extent to which the e-banking channel can perform the promised service dependably and accurately (Omofowa et al., 2021). It relates to accuracy, speed and 24 hours availability of a service. It indicates how the technology delivers its promises about service provision and delivery. This means that the technology should function all the time and deliver what it promises to deliver. It involves the technical functioning of the e-banking channel such that the information provided is accurate and functional. It is important to make customers trust that the bank will perform what it promises to do. The relevance of reliability is based on the premise that customers' perception of e-banking service quality will likely increase when the service is performed as promised or expected by the customer. Reliability has been identified as a crucial measure of e-banking service quality (Gazi et al., 2024; Chungu & Phiri, 2024; Subedi & Adhikar, 2024; Mwiya et al., 2022; Shankar & Jebarajakirthy, 2019; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Narteh, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012).

2.2.4 ***Security and Privacy***

Security is the degree to which the e-banking channel is safe and protects customer information. It protects customers from fraud, financial loss, and personal information. It is the guarantee that the records showing transactions and security of credit card/account information are not shared. Kassim and Mujinga (2024) noted that security is critical in e-banking as financial transactions are electronically conducted, and customers are exposed to countless security threats such as identity theft and unauthorized access. Subedi and Adhikar (2024) also emphasized the importance of security in e-banking. This dimension

holds an important position in e-banking because customers perceive significant risks in the virtual environment due to the high prevalence of internet fraud (Zhengwei & Jinkun, 2012). Customers want to be sure that their transactions are safe and private and that they can identify those they are dealing with. In e-banking, security may be the appealing criterion for the customers to prefer it. Security is an important dimension of e-banking service quality in some studies (Lemma & Hailemichael, 2024; Malc et al., 2023; Mwiya et al., 2022; Beshir & Zelalem, 2020; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Hoseini & Dangoliani, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012; Kumbhar, 2011; Khan, 2010).

2.2.5 ***Convenience***

Convenience is the ability to use the e-banking channel anytime, anywhere and without delays (Narteh, 2013). It is the ability to ensure that the e-banking channel operations are convenient in terms of saving customers' time, money and providing a range of services. This implies constant accessibility of the technology to customers. Hammoud, et al. (2018) noted that these days, bank customers want to operate and carry out their banking transactions at any location without going to the bank, at any time without being limited to the bank's working hours, and to do all their payments in a fast and cost-effective way. The convenience of e-banking has been identified as one of the factors influencing perceived e-banking service quality (Tetteh, 2022; Dsouza et al., 2018; Narteh, 2015; Akinmayowa & Ogbeide, 2014).

2.2.6 ***Personalisation***

Personalisation is the ability of the e-banking channel to address users on a one-on-one basis. E-banking enables a bank to collect and store customer information and identify them individually. If the customer database is linked to the e-banking channel, then whenever they visit the e-channel, the bank can greet them with targeted offers. The more they use e-banking, the more the bank can effectively refine their profile and market to them. As noted by Kabadayi and Gupta (2011), personalisation in web services is important to some customers, causing them to revisit the site in the future. Therefore, personalisation of e-banking has been identified as one of the dimensions influencing perceived e-banking service quality (Askari et al., 2016; Ojasalo, 2010).

2.2.7 ***Fulfillment***

Fulfillment is the extent to which e-banking channel performs outcomes that meet customer expectations. It represents the outcome performance of service delivery and focuses on customers' requirements regarding the purpose for using the e-banking channel and what they receive. For example, when using POS to pay, the transaction is expected to be successful. However, if the customer's account is debited and the transaction is unsuccessful, it lacks fulfillment. Some studies (Lemma & Hailemichael, 2024; Malc et al., 2023; Mwiya et al., 2022; Hoseini & Dangoliani, 2015; Narteh, 2015; Zavareh et al., 2012) recognized fulfillment as a key dimension of e-banking service quality.

2.2.8 ***Responsiveness***

Responsiveness concerns how the bank responds to help customers when they face e-channel issues. It has to do with how the bank handles customer complaints arising from transactional failures (Narteh, 2013). It includes the extent to which banks have put in place measures to recover services when the technology could not deliver as expected and their

ability to handle customer complaints arising from transactional problems. In e-banking, a bank's prompt response can make customers feel more comfortable with the service. Therefore, it includes the ability of banks to provide appropriate information to customers when a problem occurs and to provide prompt services. Banks should have support email or phone numbers that customers can call for help. Responsiveness has been identified as a crucial determinant of e-banking service quality in several studies (Chungu & Phiri, 2024; Subedi & Adhikar, 2024; Kassim & Mujinga, 2024; Mwiya et al., 2022; Beshir & Zelalem, 2020; Dsouza et al., 2018; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Narteh, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012).

3. Methodology

The study adopted a quantitative approach and survey research design. The population of the study comprised e-banking users in Osun State, Nigeria. At the initial stage, 50 e-banking users were selected to validate the research instrument. In the final study, Krejcie and Morgan (1970) sample size determination table was used to determine the sample size. It recommended that for a population having more than 1,000,000 target groups, a sample size of 384 is acceptable. A structured questionnaire was used to collect data for the study. The variables in the study were measured using measurement scales adapted from previous studies, e-banking service quality dimensions and perceived e-banking service quality were adapted from Narteh (2013) and Mohammad et al. (2013). The questionnaire consists of three sections. The first section was designed to capture respondents' demographic information; the second section measured the dimensions of e-banking service quality, and the third section measured customers' perceived e-banking service quality on a five-point Likert scale ranging from 5 ‘strongly agree’ to 1 ‘strongly disagree. A pre-test of the instrument was conducted to assess the validity and reliability of the scale by administering the instrument to 50 e-banking users.

The validity of the instrument was determined using face and content validity. To test the instrument's reliability, Cronbach's Alpha was computed for each variable in the study. This test was conducted to verify the consistency of items that measure the variables before administering the final questionnaire. The results of the analysis are shown in Table 1:

Table 1. Reliability analyses

Variables/Items	Number of Items	Cronbach’s Alpha	Cronbach’s Alpha if item is deleted	Mean	Standard Deviation
User Interface	6	0.858		3.84	0.73
Information in the e-banking channel is well-organised			0.825		
Information needed from the interface is always available			0.856		
E-banking channel interface appearance is aesthetically attractive			0.843		
My bank’s interface is clear and understandable			**0.862**		
E-banking interface loads its pages fast			0.842		
Information obtained from the interface is always timely			0.818		
Ease of Use	4	0.806		4.01	0.72

My bank's e-channels are simple to use.			0.782		
It is easy to find what I need in the e-channel.			0.745		
The e-channel links are easy to operate.			0.762		
It is easy for me to complete a transaction quickly with e-banking.			**0.822**		
Reliability	5	0.836		3.60	0.71
My online transactions with the bank are always accurate.			0.834		
E-banking makes accurate promises about the services being delivered			0.822		
My bank's e-channels are always available anytime I want to use them.			0.787		
The site launches and runs fast.			**0.856**		
Pages of the e-channel do not freeze after I enter my account information.			0.806		
Security and Privacy	5	0.872		3.75	0.66
My bank protects information about my online transactions.			0.803		
My bank does not share my personal information with other websites.			**0.883**		
My bank protects information about my credit card.			0.863		
Transactions conducted with e-banking are secured.			0.870		
My bank ensures that l do not lose my money.			0.828		
Convenience	5	0.743		4.11	0.67
E-banking saves me time.			0.676		
E-banking saves me money.			0.700		
E-banking provides different range of services			0.695		
E-banking can be used at any time of the day			0.635		
Maximum withdrawal limit per day is convenient and adequate			**0.757**		
Personalisation	5	0.837		3.61	0.70
E-banking customizes information to match my e-banking needs			0.807		
My bank understands my specific e-banking needs			**0.854**		
E-banking gives me individual attention.			0.779		
E-banking recognizes me by name			0.814		
E-banking provides me with information and products according to my preferences			0.780		
Fulfillment	3	0.834		3.92	0.78
E-channels provide confirmation for transactions			0.830		

The services delivered through e-banking effectively address my banking needs			0.667		
I have confidence in e-banking			0.746		
Responsiveness	7	0.737		3.63	0.61
E-banking provides feedback on transactions that are not processed or rejected.			0.708		
The bank gives prompt responses to my online requests.			0.632		
The bank quickly resolves problems encountered with my online transactions			0.635		
It compensates me when my transaction is not completed but deductions were made.			0.603		
My bank is easily accessible by the telephone numbers on the site.			0.624		
My bank has customer care available online.			0.620		
E-banking offers me the ability to chat with a bank staff for direction			**0.828**		
Perceived E-Banking Service Quality	5	0.829		3.87	0.70
Using e-banking is usually a pleasant experience			0.813		
I am happy with the performance of e-banking			0.821		
E-banking satisfies most of my banking needs			0.824		
E-banking problems are settled to my satisfaction			***0.879***		
Overall, I am pleased with e-banking services			0.809		

Source: Pilot Study (2024)

As shown in Table 1, all the variables achieved a Cronbach's alpha coefficient above 0.7, with the highest value represented by security and privacy (0.872), while responsiveness has the lowest coefficient (0.737). Pallant (2010) noted that Cronbach's alpha coefficient of 0.7 or higher denotes a good internal consistency. However, Hair et al. (2007) recommended an upper limit of 0.9. The results also indicated the items to be deleted for the instrument to be more reliable. Based on the feedback received from the respondents and the reliability analysis carried out, the questionnaire was revised.

The revised questionnaire was created using Google Forms and administered to 384 e-banking users in Osun State, Nigeria. An invitation soliciting participation in the study was sent to WhatsApp of identified e-banking users. A filter question was put in place to ensure that only e-banking users participated in the survey. At the end of the survey, 171 responses were received. The study employed Structural Equation Modeling (SEM). Wong (2013) noted that a sample size between 100 and 300 is sufficient for path modeling. Thus, the response of 171, representing 44.5%, was considered sufficient for the analyses.

4. Results

4.1 *Demographic Analysis*

The demographics of the respondents indicate that they all use e-banking (171) 100 percent. Most of the respondents (96) 56.1 percent were males, while (67) 39.2 percent were below 25 years old. For the respondents' level of education, the majority (155), 90.6 percent, had tertiary education, while (64), 37.4 percent, were students. Concerning monthly income/allowance, (101) 59.1 percent earned less than N100,000. The analysis revealed that young people mostly use e-banking and it requires some level of education.

4.2 *Measurement Model Assessment*

The result of the measurement model was used to measure the latent or composite variables in the study. The model comprises nine components (user interface, ease of use, reliability, security and privacy, convenience, personali sation, fulfillment, responsiveness and perceived e-banking service quality) as indicated in Table 2:

Table 2. Assessment statistics

Constructs	Items	Factor Loadings	Cronbach's Alpha	Composite Reliability (CR)	Average Variance Extracted (AVE)
User Interface	U-1	0.796	0.864	0.866	0.648
	U-2	0.789			
	U-3	0.799			
	U-4	0.828			
	U-5	0.810			
Ease of Use	EU-1	0.891	0.850	0.857	0.771
	EU-2	0.931			
	EU-3	0.808			
Reliability	R-1	0.839	0.838	0.842	0.672
	R-2	0.820			
	R-3	0.845			
	R-4	0.775			
Security and Privacy	SP-1	0.906	0.902	0.903	0.774
	SP-2	0.914			
	SP-3	0.885			
	SP-4	0.811			
Convenience	C-1	0.815	0.842	0.855	0.68
	C-2	0.725			
	C-3	0.875			
	C-4	0.875			
Personalisation	P-1	0.840	0.822	0.824	0.652
	P-2	0.799			
	P-3	0.769			

	P-4	0.820			
Fulfillment	F-1	0.862	0.831	0.832	0.748
	F-2	0.889			
	F-3	0.842			
Responsiveness	RP-1	0.812	0.779	0.787	0.601
	RP-2	0.762			
	RP-5	0.712			
	RP-6	0.812			
Perceived E-Banking Service Quality	PSO-1	0.870	0.897	0.900	0.763
	PSO-2	0.858			
	PSO-3	0.858			
	PSO-4	0.908			

Source: Smart-PLS (2024)

Table 2 reveals the assessment of the measurement items in the Structural Equation Model (SEM). The listed items are those that meet the minimum factor loading threshold of 0.6 and are therefore retained for their respective constructs. Furthermore, Cronbach's Alpha and composite reliability statistics were computed to establish the internal consistency of the construct variables. The results from Table 2 imply that all the statistics are above the minimum acceptable threshold of 0.7, indicating that the retained items are consistent in jointly measuring their respective constructs. Similarly, the Average Variance Extracted (AVE) coefficients of the variables are all abov e the 50% benchmark (AVE > 0.5), which affirms their convergent validity.

4.3 *Discriminant Validity*

Table 3. Discriminant validity (Fornell-Larcker)

	UI	**EU**	**R**	**SP**	**C**	**P**	**F**	**RP**	**PSQ**
User Interface (UI)	**0.825**								
Ease of Use (EU)	0.679	**0.878**							
Reliability (R)	0.802	0.749	**0.865**						
Security and Privacy (SP)	0.773	0.706	0.810	**0.874**					
Convenience (C)	0.740	0.637	0.742	0.698	**0.807**				

Personalisation (P)	0.59 5	0.72 0	0.60 3	0.62 6	0.6 09	**0.8 20**			
Fulfillment (F)	0.61 3	0.68 9	0.73 6	0.72 4	0.7 08	0.6 04	**0. 87 6**		
Responsiveness (RP)	0.77 0	0.75 8	0.76 2	0.74 6	0.7 04	0.6 96	0. 62 9	**0. 88 0**	
Perceived E-Banking Service Quality (PSQ)	0.63 5	0.82 4	0.69 9	0.66 1	0.5 91	0.7 77	0. 65 1	0. 72 3	**0. 80 5**

Source: Smart-PLS (2024)

Table 3 reveals the square root of the AVEs (in bold) and the inter -construct correlations (unbolded). The Fornell-Larcker criterion for discriminant validity requires that the square roots be greater than any of the inter-construct correlations, and this is satisfied by the results in Table 3.

Structural Model Evaluation

A structural model was employed to show the hypothesised relationships and dependencies based on path analysis. PLS-SEM was used to evaluate the factor structure.

Path Coefficient and Coefficient of Determination (R^2)

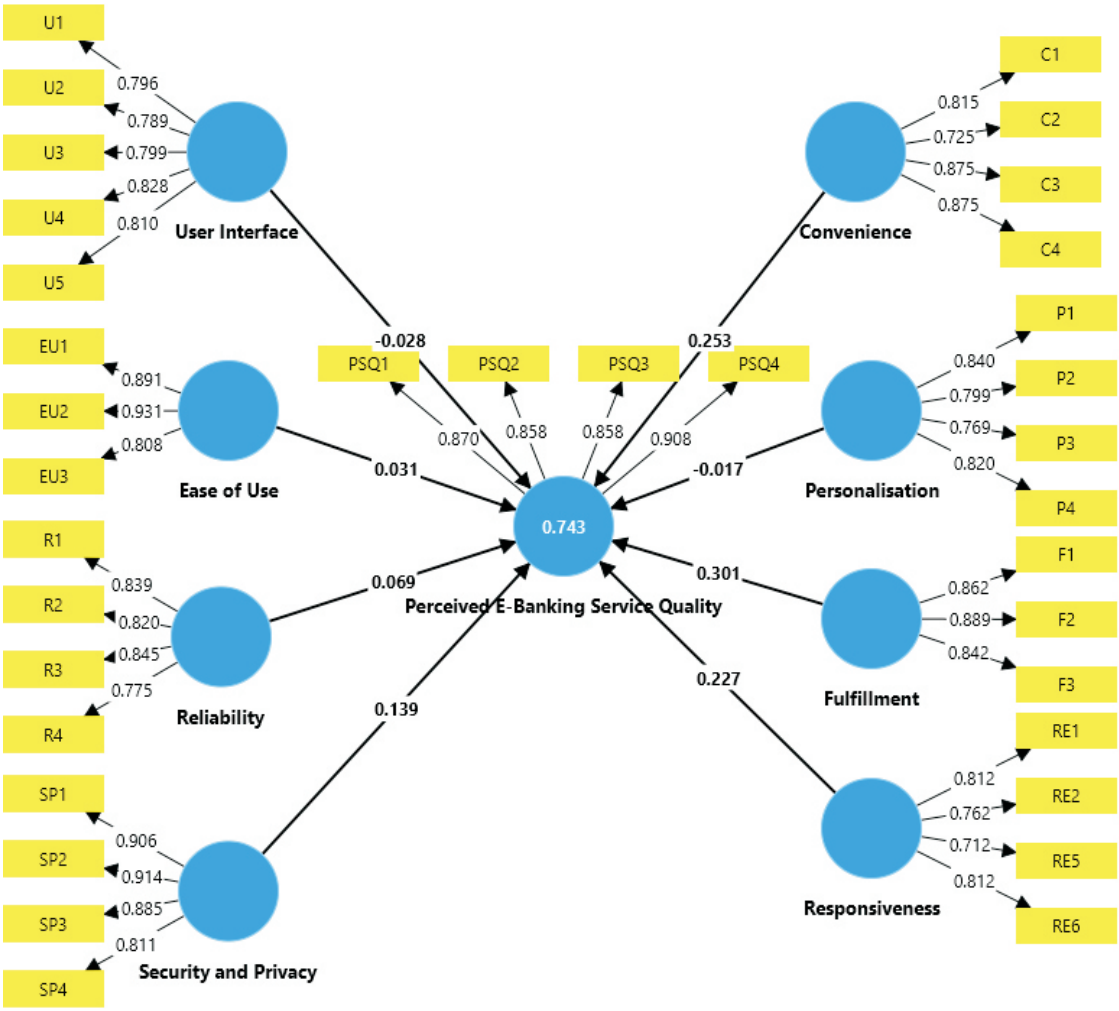

Figure 1. Path Coefficients and Coefficient of Determination (R^2)
Source: Smart-PLS (2024)

The statistical significance of the structural model link is revealed by the coefficients of the direct pathways (Figure 1). The coefficient of determination (R^2) value is a commonly used metric for evaluating structural models. This coefficient represents the cumulative impacts of all the independent factors on the dependent variable. The total model's R^2 value is 0.743, meaning that the eight dimensions of e-banking service quality jointly account for 74.3% of the variance in perceived e-banking service quality. Figure 1 also indicates that user interface and personalisation have a negative relationship with perceived e-banking service quality.

4.4 *Path Coefficients of the Model*

Table 4. Path coefficients

Paths	Beta	t-statistics	p-values	Decision on H_i
User Interface -> Perceived E-banking Service Quality	-0.028	0.384	0.701	Reject

Ease of Use-> Perceived E-banking Service Quality	0.031	0.348	0.728	Reject
Reliability -> Perceived E-banking Service Quality	0.069	1.105	0.270	Reject
Security and privacy -> Perceived E-banking Service Quality	0.139	1.994	0.047	Support
Convenience -> Perceived E-banking Service Quality	0.253	3.164	0.002	Support
Personalisation -> Perceived E-banking Service Quality	-0.017	0.253	0.800	Reject
Fulfillment -> Perceived E-banking Service Quality	0.301	3.250	0.001	Support
Responsiveness -> Perceived E-banking Service Quality	0.227	3.434	0.001	Support

Source: Smart-PLS (2024)

The estimates of the path coefficients of the structural model are presented in Table 4. The results show that the coefficient of the path from user interface to perceived e-banking service quality is negative (β= -0.028), suggesting an indirect relationship. However, this path's t-statistics (t-stat=0.384) is not significant at the 5% level (p=0.701). Therefore, the stated hypothesis is rejected, and it is concluded that user interface does not significantly influence perceived e-banking service quality. Furthermore, the results of the path from ease of use to perceived e-banking service quality show a positive coefficient (β=0.031), which implies a direct relationship. The t-statistic (t-stat=0.348) of this path is not significant at the 5% level (p=0.728). Therefore, the stated hypothesis was rejected, and it is concluded that ease of use does not significantly influence perceived e-banking service quality.

In addition, the coefficient of the path from reliability to perceived e-banking service quality is positive (β=0.069), indicating a direct relationship. However, the t-statistic (t-stat=1.105) of this path is not significant at the 5% level (p=0.270). The hypothesis is therefore rejected and it is concluded that reliability does not significantly influence perceived e-banking service quality. Further results reveal that the coefficient of the path from security and privacy to perceived e-banking service quality is positive (β=0.139), suggesting a direct relationship and the t-statistic (t-stat=1.994) of this path is significant at the 5% level (p=0.041). Hence, the hypothesis is accepted and the study concluded that security and privacy significantly influence perceived e-banking service quality. Similarly, the coefficient of the path from convenience to perceived e-banking service quality is positive (β=0.253), suggesting a direct relationship. The t-statistic (t-stat=3.164) of this path is also significant at the 5% level (p=0.002), which implies that convenience significantly influence perceived e-banking service quality.

The path from personalisation to perceived e-banking service quality is negative (β=-0.017), indicating an indirect relationship, and the t-statistics of this path (t-stat=0.253) is not significant at the 5% level (p=0.800). Therefore, the hypothesis is rejected, and it is concluded that personalisation does not significantly influence perceived e-banking service quality. The coefficient of the path fulfillment to perceived e-banking service quality is positive (β=0.301), suggesting a direct relationship. The t-statistic (t-stat=3.250) of this path

is also significant at the 5% level (p=0.001), Therefore, the hypothesis cannot be rejected and it is concluded that fulfillment significantly influence perceived e-banking service quality. Finally, the path from responsiveness to perceived e-banking service quality is positive (β=0.227), suggesting a direct relationship. The t-statistic (t-stat=3.434) of this path is also significant at the 5% level (p=0.001), which implies that responsiveness significantly influence perceived e-banking service quality.

5. Discussion

The study examined the influence of e -banking service quality dimensions (user interface, ease of use, reliability, security and privacy, convenience, personalisation, fulfillment and responsiveness) on perceived e-banking service quality. The direct relationship between user interface and perceived e-banking service quality brought forth the finding that user interface does not significant ly influence perceived e-banking service quality, and the relationship is negative. This finding does not support the assertion of (Chungu & Phiri, 2024; Barrutia & Gilsanz, 2009; Lee & Lin, 2005; Yang & Fang, 2004) that user interface is a significant dimension of e-banking service quality. The direct relationship between ease of use and perceived e-banking service quality indicated that ease of use does not significantly affect perceived e-banking service quality but the relationship is positive. This fin ding is in disagreement with (Chungu & Phiri, 2024; Lemma & Hailemichael, 2024; Tetteh, 2022; Beshir & Zelalem, 2020; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Narteh, 2015; Farnaz et al., 2012; Zavareh et al., 2012) that ease of use affect e-banking service quality. User interface and ease of use may not be significant in this study because most bank customers in Nigeria are now used to e-banking platforms due to the cashless policy of the Central Bank of Nigeria and the inability to get cash during the naira redesign policy.

It was also discovered that reliability does not significantly influence perceived e-banking service quality but the relationship is positive. This finding is inconsistent with the findings of (Gazi et al., 2024; Chungu & Phiri, 2024; Subedi & Adhikar, 2024; Mwiya et al., 2022; Shankar & Jebarajakirthy, 2019; Hammoud et al., 2018; Al -Hawary & Al-Smeran, 2017; Narteh, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012) that reliability is a key factor in e-banking. Similarly, personalisation was insignificant, and the relationship with perceived e-banking service quality was negative. Reliability may not be significant because bank customers have realized that e-banking platforms are based on technology that can fail occasionally. So, the expectation of e-banking reliability is insufficient to influence their perception.

The finding of this study that security and privacy significantly influence perceived e-banking service quality substantiates the finding of (Lemma & Hailemichael, 2024; Malc et al., 2023; Mwiya et al., 2022; Beshir & Zelalem, 2020; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Hoseini & Dangoliani, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012; Farnaz et al., 2012; Kumbhar, 2011; Khan, 2010) that security and privacy is critical for e-banking because it is electronically conducted, and customers are exposed to countless security threats and customers expect that banks should be able to manage it. This study also found that convenience posit ively and significantly affects perceived e-banking service quality. This aligns with previous studies (Tetteh, 2022; Dsouza et al., 2018; Narteh, 2015; Akinmayowa & Ogbeide, 2014). This implies that bank customers expect that

e-banking should be accessible and available all the time.

Furthermore, the finding revealed that fulfillment significantly influence perceived e-banking service quality. The findings showed that the relationship i s positive. This corroborates the findings of (Lemma & Hailemichael, 2024; Malc et al., 2023; Mwiya et al., 2022; Hoseini & Dangoliani, 2015; Narteh, 2015; Zavareh et al., 2012; Farnaz et al., 2012) that fulfillment is a key aspect of e-banking service quality. In addition, it was found that responsiveness significantly in fluence perceived e-banking service quality. This finding is in agreement with (Chungu & Phiri, 2024; Subedi & Adhikar, 2024; Kassim & Mujinga, 2024; Mwiya et al., 2022; Beshir & Zelalem, 2020; Dsouza et al., 2018; Hammoud et al., 2018; Al-Hawary & Al-Smeran, 2017; Narteh, 2015; Akinmayowa & Ogbeide, 2014; Zavareh et al., 2012; Farnaz et al., 2012). This implies that bank customers expect attention and promptness when dealing with customer complaints and problems about e-banking.

6. Conclusion and Recommendations

Measuring e-banking service quality is a strategic issue for banks that want to survive in an increasingly changing business environment and competitive market space. Several e-banking service quality dimensions were highlighted and discussed based on the literature, and researchers have not agreed on the dimensions of e-banking service quality. Therefore, the study extracted eight dimensions of e-banking service quality which include user interface, ease of use, reliability, security and privacy, convenience, personalisation, fulfillment and responsiveness. However, the study established that only four which include security and privacy, convenience, fulfillment and responsiveness are critical for e-banking. These findings are significant for banks seeking to thrive in the evolving landscape of e-banking. The e-service quality dimensions identified in this study will enable bank managers to understand how customers evaluate the quality of e-banking. Based on the findings and conclusion, the study recommends the following:

i. Banks should constantly monitor the performance of e-banking channels in terms of security and privacy, convenience, fulfillment and responsiveness. This will enable them to obtain feedback on their performance on e-banking service quality and also provide a tool for improving the delivery of e-banking.
ii. Banks should continuously maintain the security and privacy of e-banking platforms by consistently improving the security architecture.
iii. E-banking channels should be convenient and accessible 24/7 as promised.
iv. Banks should ensure that the e-channels are functional for customer fulfillment.
v. Banks should be more responsive when issues arise from using e-banking. If a customer has problems completing an online transaction and the bank is unwilling to assist in addressing the issue, it can affect the perception of e-banking.

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