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Examining E- Satisfaction as Mediator between Banking Mobile Application Quality Factors and Consumers E-Loyalty

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Abstract

This research aims to evaluate the impact of quality factors of electronic banking mobile applications, including application design, reliability, and trust, on electronic loyalty of customers in Pakistan's commercial banking sector. Furthermore, the study investigates the mediating role of e-satisfaction in the relationship between quality factors of e-banking mobile apps and electronic loyalty. Data was collected from a convenience sample of 218 clients of conventional banks in Pakistan using a questionnaire based on previously published works. The results indicated that trust and reliability significantly influence e-loyalty, while the impact of mobile application design was negligible. This study adopts the Cognitive-motivational-relational theory to analyze the existing literature on e-banking through the mediating role of e-satisfaction. The research aims to provide recommendations for enhancing consumer loyalty and satisfaction in the commercial banking sectors of emerging economies. The findings of the study provide insights into the importance of quality factors of mobile applications in improving e-satisfaction, which ultimately leads to e-loyalty. The study sheds light on how mobile banking applications shape customer loyalty, particularly in terms of the impact of mobile application quality on customer satisfaction, which then drives loyalty. This is crucial for banks as customer loyalty is critical for long-term success. The findings have implications for the banking industry in emerging economies and contribute to the understanding of the relationship between mobile application quality, esatisfaction, and electronic loyalty.

Keywords: Electronic Satisfaction, Trust, Mobile Application design, Loyalty

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1. Introduction

The emergence of modern economic theory in the 18th century resulted in a period of dramatic transformation in industrial production all over the globe. Therefore, when seen in this light, the banking system is an essential component of the contemporary economy (Baum et al., 2023). This is the era of electronic banking, where customers can easily transfer funds through the exchange of electronic singles rather than exchanges of cash (Melinda et al., 2023). To gain market advantages, the banks invest a large amount of money in the use of modern technology to retain their customers. In a competitive environment, the survival of the banking sector depends on providing superior services to fulfil the needs of customers (Anouze & Alamro, 2019; Suariedewi & Suprapti, 2020). In comparison to the norm, the online user's digital application necessitates dependable and trustworthy devices. Keeping customers loyal and retaining them with electronic banking is a prominent strategy of banks (Kirakosyan & Dănăiață, 2014; Long et al., 2017; Ramesh et al., 2020). During the COVID-19 situation, the burden on electronic banking increased.

During the pandemic situation, conventional banking was almost not entertained by customers, so due to the situation, electronic banking became the medium of exchange. Pakistan was ranked fifth in the world in terms of the electronic banking pandemic. Pakistan is a developing country, and the pandemic's effects are particularly severe in developing countries. They had operated in pandemic situations at any cost in a few industries, one of which is the banking industry, which facilitates its customers under COVID SOPs (Kirakosyan & Dănăiață, 2014). Now, at that time, digital banking was promoted, and several new customers registered themselves to obtain bank services. The clients and customers use the mobile application of e-banking for their ease. (Haq & Awan, 2020; Khan et al., 2016; Sandhu & Arora, 2020). Users of mobile applications are always curious as to whether the applications are reliable or trustworthy. In the current situation, customer loyalty is harmed due to cybercrime, and most mobile applications are unreliable, reducing customer loyalty and satisfaction.

The role of trust in using the mobile application is critical because the customer is the most asset for any organization, and a lack of trust will lead to customer dissatisfaction. The design of any mobile application becomes more attractive when it is manageable and user-friendly. The motive of any service sector is to provide valuable services to retain their customers. Customers' loyalty is strengthened when they are satisfied. Unfortunately, the developing countries faced issues. There is no proper infrastructure, so this issue creates suspicion and mistrust among the users (Gill et al., 2021; Kumar & Gupta, 2020; López-Miguens & Vázquez, 2017; Vejacka & Štofa, 2017).

It is essential to investigate e-satisfaction as a mediator between banking mobile application quality elements and consumer e-loyalty since doing so may assist in the retention and loyalty of existing customers. Companies may better understand how to enhance the quality of their mobile apps and offer more gratifying client experiences if they have a better grasp of the link between the components that contribute to the quality of banking mobile application quality and e-satisfaction. This may lead to higher client loyalty, which is helpful for organizations since it can lead to improved customer

retention, increased customer spending, and increased overall profitability. Moreover, increasing customer loyalty can lead to increased customer retention rates. In addition, businesses may get a better grasp of how to create and implement customer loyalty programs by gaining an appreciation for the connection that exists between e-satisfaction and e-loyalty on the part of consumers if they take the time to investigate this connection. E-satisfaction as a mediator between banking mobile application quality characteristics and consumer e-loyalty may assist businesses better understand how to boost customer retention and loyalty, which ultimately results in higher profitability for the business.

The relationship between electronic loyalty and electronic satisfaction of banking customers in Pakistan is strong and positive. This is since customers who use electronic banking services tend to be more loyal to the banks they are using. As a result, they tend to be more satisfied with the services they receive. Additionally, electronic banking services are becoming more popular in Pakistan, which has resulted in an increase in customer satisfaction. Customers who use electronic banking services are more likely to be satisfied because they can access banking services conveniently and quickly. They can also access a wide range of services and products, which increases convenience. This, in turn, leads to customer loyalty as customers have access to services that are tailored to their needs. Furthermore, customers who use electronic banking services in Pakistan tend to be more satisfied with the customer service they receive. Banks have invested in customer service training, which has led to improved customer service. This has resulted in increased customer loyalty and satisfaction.

Individuals pushed their money into banks and acted as guardians. Furthermore, the more customers become aware of banking issues because they are financial issues, the more dependability and trustworthiness is required in banking applications. If poor security of banking applications and mechanisms causes economic loss for customers and a bank's reputation suffers, this will have a negative impact on the bank's goodwill. As a result, financial institutions must place a particular emphasis on the quality of applications for bank accounts.

Following are some study questions that were detailed in the comprehensive review of the relevant literature:

- Is there a link between the quality and speed of mobile e-banking and how loyal e-banking customers are?
- Is there a mediator (electronic satisfaction) between the predictor (the electronic banking mobile application) and the outcome (electronic banking loyalty)?

2. Literature Review

2.1. Electronic -banking quality dynamics and Electronic-Satisfaction

The quality of electronic-banking and Electronic-satisfaction have been studied extensively in the past few years. Studies have revealed that the quality of electronic-banking services and electronic-satisfaction are very important for the success of any banking system (Belhadi et al., 2023). There are several factors that influence the quality of electronic-banking services and electronic-satisfaction. In the previous studies, the quality of electronic banking was measured through these dimensions: design layout,

privacy, security, reliability, and trust. In the context of electronic banking, trust and application design have more influence on customer satisfaction (Shankar & Jebarajakirthy, 2019). Individual perception was used in most studies to demonstrate customer beliefs about any products or services. Because there are predetermined rules, regulations, and principles for using the E-Banking application, E-Banking is error-free. Customers are more conscious and accurate when conducting financial transactions through an E-Banking application. If there is an error during or after the transaction, the individual may become hesitant and dissatisfied (El Talla et al., 2019; Kumar et al., 2020; Terzidis et al., 2013). The second attribute of electronic banking quality is the design of mobile applications. The design of any application must be easy and user-friendly. Not only individuals but also many organisations use electronic banking. This can only be used for organisation if these applications are trustworthy and provide an easy mode of use (Huang et al., 2003).

Trust is an important factor in customer satisfaction with electronic banking. Customers need to trust that their financial information is secure and that their transactions are being processed accurately and efficiently. When customers trust the electronic banking application, they are more likely to use it and be satisfied with the services it provides. Trust also leads to increased customer loyalty, as customers are more likely to continue using the application if they trust it (Heng Wei et al., 2023). Additionally, customers who trust the electronic banking application are more likely to recommend it to others, which can lead to increased customer acquisition and retention.

Finally, trust in the electronic banking application can lead to increased customer engagement, as customers are more likely to use the application more frequently and explore its features. All these factors contribute to customer satisfaction with electronic banking (Trabelsi-Zoghlami et al., 2020).

The following hypotheses can be postulated as follows:

H1: There is a positive influence of mobile electronic banking applications on the satisfaction of electronic banking customers.

H2: There is a positive influence of mobile electronic application design on the satisfaction of electronic banking customers.

H3: Trust in the electronic banking application has a positive impact on customer satisfaction with electronic banking.

2.2. Electronic-Loyalty and Electronic-Satisfaction

Electronic-Satisfaction (e-Satisfaction) is a term used to describe the use of technology to measure and improve customer satisfaction. This includes the use of customer feedback, analytics, and rewards to better understand customer needs and preferences and adjust services accordingly. Electronic satisfaction evaluates the needs and expectations of the customers for the purpose of determining what types of services to provide and help provide to customers that reach the level of perception (Chaimaa et al., 2021; Haq & Awan, 2020; Trabelsi-Zoghlami et al., 2020). Customers who are more satisfied and stay with electronic banking for an extended period They also do product buzz advertising and serve information about a specific bank to others, and they are very experienced and satisfied (Simon et al., 2016). The loyalty of any customer means the

customer will repurchase or come to get services again in the future. Individuals are retained and attached to products that satisfy them (Naqvi et al., 2022). Traditional loyalty is the foundation of electronic loyalty, and the modern age has seen the enhancement of traditional loyalty using mobile banking applications.

The statement above proposed the following hypothesis:

H4: There is the positive influence of electronic satisfaction in electronic banking and the loyalty of the customers.

2.3. Electronic Satisfaction as Mediator

To meet the level of satisfaction, the businesses are continuously trying to improve. The happiness of any customer depends upon the service quality that an individual customer receives from a particular bank, and the level of satisfaction is also important (Vijay et al., 2019). The quality of the electronic banking service is responsible for electronic satisfaction and customer commitment.

Mediation (electronic satisfaction) plays an important role in the design of mobile electronic banking applications and electronic loyalty. It helps to bridge the gap between the customer and the bank, providing a platform for customers to interact with the bank in a secure and convenient manner. Mediation also helps to ensure that customers are satisfied with the services they receive from the bank, as it provides a platform for customers to provide feedback and suggestions on how the bank can improve its services. Additionally, mediation helps to ensure that customers are aware of the various loyalty programs offered by the bank, as well as the rewards and benefits associated with them. This helps to increase customer loyalty and engagement, as customers are more likely to use the bank's services if they are aware of the rewards and benefits associated with them. Finally, mediation helps to ensure that customers are aware of the various security measures in place to protect their data and financial information, which helps to increase customer trust and confidence in the bank.

The below-mentioned hypotheses are narrated from the literature review.

H5: E-satisfaction mediates the relationship between the reliability of mobile e-banking applications and e-loyalty.

H6: There is a role of mediation (electronic satisfaction) between the design of mobile electronic banking applications and electronic loyalty.

H7: There is the role of mediation (electronic satisfaction) between trust in mobile electronic banking applications and electronic loyalty.

2.4. Cognitive, motivational relational theory

The cognitive, motivational, and relational theory is a psychological theory that places a strong emphasis on the role that cognition, motivation, and relationships play in the maintenance and growth of mental health. The idea behind this theory is that people are always engaging with their surroundings, and that the cognitive, motivational, and relational processes that people go through are what define their behavior. It indicates that an individual's capacity for learning, adapting, and developing meaningful connections is what determines their mental health and growth throughout time. The idea has been used in an attempt to provide an explanation for a wide range of

psychological phenomena, such as addiction, depression, and the development of personality. In addition to this, it has been included into the development of therapeutic methods such as cognitive behavioral therapy and interpersonal therapy.

The cognitive motivational theory (CMR) is the theory that supports the academics in this study. This theory expresses human expression regarding behaviour estimation. Emotions in our lives are linked to every event. Emotions also influence how we behave in certain situations. (Alam, 2019). The cognitive motivational theory (CMT) is used at various stages, but the theory links individuals' emotions and behaviour to service quality. Customer loyalty is an additional perspective in banking sectors (Campanella et al., 2020). This theory explained the relationship between the dimensions of two variables: electronic banking quality and mental evaluation (Yaseen & El Qirem, 2018). The emotional stimuli that influence human behaviour are the variables that influence customer loyalty (Lin & Shiqian, 2018). Figure 1 depicts the cognitive-motivational theory (CMT)-based theoretical framework. There is a gap that has been mentioned in the literature: mobile electronic banking is treated as an independent variable with three dimensions. Electronic loyalty is treated as a dependent variable in this study, and electronic satisfaction is treated as a mediator variable.

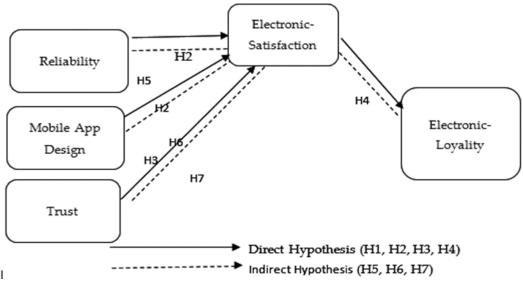


Figure 1: Research Model

3. Methodology

The purpose of this article is to propose a methodology for examining the role of e-satisfaction as a mediator between banking mobile application quality factors and consumers' e-loyalty. The proliferation of mobile technology and devices has provided banking customers with the convenience of conducting banking activities anytime and anywhere. The nature of the study is quantitative and deductive approach was used to conduct this research. Quantitative research is a valuable tool for gaining insight into a variety of areas, including demographics, public opinion, and customer behavior. Quantitative data can provide hard evidence and reliable statistics, as well as test hypotheses and uncover correlations between variables. Further, the researcher

employed positivism philosophy to conduct this research. Similar methodology was used by different researchers to conduct such types of study (Khan et al., 2022). The population of current research is based on customers of banks using mobile applications. There are seventeen conventional banks operating in Pakistan. The study's sample was drawn from five different banks. There is not a proper source available for the collection of data regarding electronic banking customers, so the researcher adopted convenience sampling techniques, which are simple and efficient for the collection of data. The total number of participants in this study was 230, and six of the 230 responses received were incomplete, so the test hypotheses were not entertained. The adaptive questionnaire was adopted after an extensive literature review. A five-point Likert scale was used to assess the items. The survey results were analyzed using the Partial Least Squares method and Structural Equation Modelling techniques, as used by SmartPLS. The data were examined on two levels: reliability and validity of Gutstein's PLS algorithm. In the other step, the significance of direct and indirect path hypotheses was checked using Bootstrap Gutstein (2007).

4. Data Analysis and Findings

4.1. Respondent Profile

According to the respondent profile, most respondents were male (69%), and their greatest degree of education was graduation, at 52 percent. This illustrates that most people in Pakistan who use mobile banking applications are men and that the literacy rate in the country is rather high. According to the age bracket, most responses are between the ages of 41 and beyond, which is indicative of their level of maturity. While their experience with mobile e-banking apps ranges between three and four years, this indicates that they have been using the application for a few years. Most responders are Habib Bank Limited customers, owing to the bank's huge branch network and extensive database of internet users.

4.2. Assessment of Measurement Model

The measurement model assesses the items' validity and reliability. In the present study, there are five constructs: electronic satisfaction, trust, electronic loyalty, and reliability. The variables along with their items are indicative of prior research. To assess reliability and internal consistency, composite reliability is applied. Simultaneously, the AVE quantifies the items' validity. The discriminant validity of constructs in the model was determined using the Fornell and Larcker (1981) technique.

4.2.1. Reliability, internal consistency and convergent validity

Table 2 summarizes the validity and reliability statistics for SmartPLS. The finding that the loadings of all five variables are greater than 0.45 reveals that there is internal consistency in all constructs. All constructs have composite reliability scores greater than 0.7, suggesting that there are no reliability issues with them. While the value of AVE is greater than 0.5, the present study's variables are valid, and the model is valid and reliable for future examination.

Table 1: Demographic profile of respondents

Demographic variables	Frequency	Percentage	
Gender			
Male	155	69%	
Female	69	31%	
Education			
Intermediate	9	4%	
Graduation	117	52%	
Master	69	31%	
Others	29	13%	
Age			
20-30 years	59	26%	
31-40 years	79	35%	
41 years and above	86	38%	
Experience using electronic banking			
1-2 years	49	22%	
3-4 years	95	42%	
5 years or above	80	36%	
Banks			
ABL	31	14%	
HBL	59	26%	
MCB	51	23%	
ABL	41	18%	
UBL	42	19%	

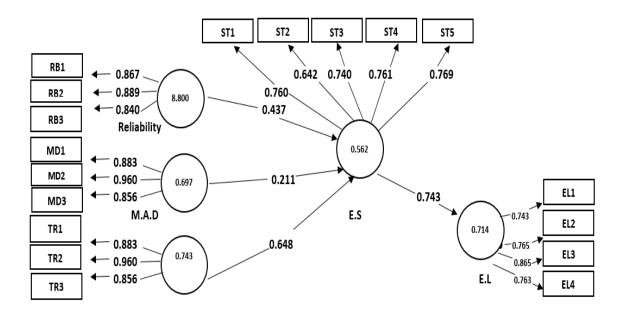


Figure 2: The Measurement Model

Table 2: Internal consistency, reliability, and convergent validity

Construct	Items	Loadings	CR	AVE
Reliability	RB1	0.867	0.862	0.800
	RB2	0.889		
	RB3	0.840		
	RL4	0.876		
Mobile App Design	MD1	0.883	0.845	0.697
	MD2	0.960		
	MD3	0.856		
Trust	TR1	0.883	0.771	0.743
	TR2	0.960		
	TR3	0.856		
E-Satisfaction	ST1	0.760	0.746	0.562
	ST2	0.642		
	ST3	0.740		
	ST4	0.761		
	ST5	0.769		
E-Loyalty	EL1	0.743	0.825	0.714
	EL2	0.765		
	EL3	0.865		
	EL4	0.763		

Note: CR =Composite reliability, AVE =Average variance extracted

4.2.2. Discriminant validity

According to Fornell and Larcker (1981) discriminant validity used to see there is no interrelation between construct in model. This approach examines a matrix in which the AVE values are specified in diagonal positions that should be greater than the values in the columns and rows. For instance, in Table 3, all the diagonal values of the square root of AVE are greater, indicating that the model has no issue regarding discriminating validity.

Table 3: Fornell and Larcker Criterion

	EL	ST	MD	RB	TR
Electronic Loyalty (EL)	0.794				
Electronic Satisfaction (ST)	0.698	0.775			
Mobile App Design (MD)	0.603	0.616	0.798		
Reliability (RB)	0.570	0.739	0.601	0.863	
Trust (TR)	0.628	0.681	0.633	0.598	0.816

Note: *EL, ST, MD, RB, TR = Electronic loyalty, electronic satisfaction, Mobile application design, Reliability, Trust*

4.3. Structural Equation Model Assessment

The theoretical model is made up of the relationships among the variables that correspond to the model's hypothesis as reviewed during the structural model assessment. To assess the model's direct and indirect paths, the researcher used the bootstrapping approach. The importance of the relationships was determined using T-values, beta values, and P-values, as well as the effect size and the R squared value.

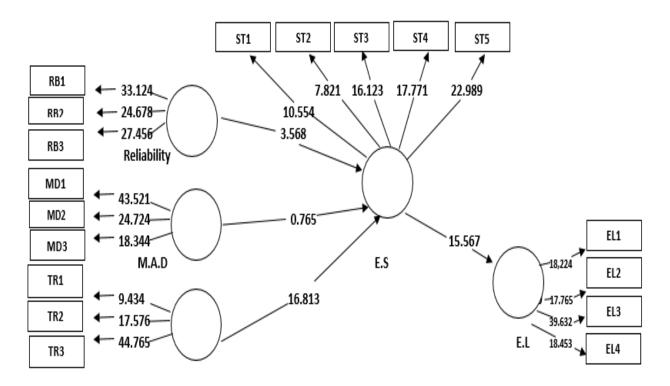


Figure 3: Structural Model

4.3.1. Testing of Direct Hypothesis

The hypothesis is summarized in Table 5. The reliability of the electronic satisfaction scale is evident at first, as evidenced by the findings (B= 0.243, t = 4.104, p = 0.002), which indicate a significant and positive relationship between the observed variables. According to hypothesis 2, there is a non-significant relationship between mobile application design and e-satisfaction, as the findings (B= 0.142, t = 0.629, p = 0.089) show that mobile application design has no effect on customer satisfaction. Hypothesis 3 indicates a significant positive association between TR and ST (B= 0.549, t=0.050, p=0.003). Lastly, Hypothesis 4 indicates a significant positive association between ST and EL (B= 0.699, t = 0.056, p = 0.000).

Table 5: Direct Hypotheses Testing

Hypothesis	Relationship	Std. Beta	Std. Error	T value	P Values	Decision
H1	RL -> ST	0.243	0.061	4.104	0.002	Supported
H2	$MD \rightarrow ST$	0.142	0.059	0.629	0.089	Not Supported
H3	$TR \rightarrow ST$	0.549	0.050	12.992	0.003	Supported
H4	ST -> EL	0.699	0.056	16.543	0.000	Supported

Note: *EL, ST, MD, RB, TR = Electronic loyalty, electronic satisfaction, Mobile application design, Reliability, Trust*

4.3.2. Mediation Variables Analysis

The current research used the bias-corrected parameters technique exhausting Bootstrap to examine the mediating effect of electronic satisfaction on the predictor construct. The findings indicate that hypotheses (5) five and (7) seven are supported, whereas hypothesis number (6) six is refuted.

Table 6: (Mediation analysis) Indirect Hypotheses testing.

Hypothesis	Relationship	Std. Beta	Std. Error	T value	P Values	Decision
H5	RL -> ST ->, CL	O.177	0.049	4.222	0.000	Supported
H6	MD -> ST ->, CL	O.028	0.039	0.499	0.559	Not Supported
H7	TR -> ST ->, CL	O.501	0.041	0.188	0.022	Supported

Note: EL=Electronic Loyalty, RL=Reliability, ST=satisfaction, TR=Trust, MD= Mobile application design

5. Discussion

The findings of current research indicated that all the independent variables have significant and positive impact on dependent variable. The findings of current research are in line with the findings of previous researches as most of the researchers also find similar findings (I. Khan et al., 2023; Zhang et al., 2023). Moreover, the present research also indicated that trust mediate the relationship between the independent and dependent variables. The findings of current research are in line with the findings of previous researches as most of the researchers also find similar findings (Khan et al., 2023).

5.1 Conclusion, Implications, and Limitations

The goal of this research is to evaluate and improve electronic banking loyalty using high-quality electronic banking environment services. As a consequence, a strong relationship between electronic reliability and electronic satisfaction was established. Additionally, a significant link between electronic satisfaction and trust was identified. Conversely, the design of the mobile application had little effect on e-satisfaction. These results are striking, given that most individuals pay little attention to website design. Rather than that, they must evaluate trust and reliability. They are nevertheless worried about the reliability of website design. Through the mediating impact of e-satisfaction, it was determined that the indirect effect of trust and reliability on e-banking loyalty is significant. Simultaneously, the indirect path from electronic satisfaction to electronic banking loyalty was inadequate, showing that clients using e-banking services are indifferent with mobile application design.

The banking sector in Pakistan is an important part of the country's economy. It is responsible for providing financial services to individuals, businesses, and other organizations. Banking services are essential for the smooth functioning of the economy

and the development of the country. Banking services are also important for the development of consumer loyalty and satisfaction. Consumer loyalty and satisfaction are important for the success of any business. Banks in Pakistan need to ensure that their customers are satisfied with the services they provide. This can be done by providing quality services, offering competitive rates, and providing customer-friendly policies. Banks should also focus on building customer loyalty by providing rewards and incentives to customers who use their services regularly. Banks in Pakistan should also focus on providing e-banking services to their customers. E-banking services allow customers to access their accounts and perform transactions online. This makes banking more convenient and efficient for customers. Banks should also ensure that their e-banking services are secure and reliable. This will help to build customer loyalty and satisfaction.

This research contributes to the scholarly literature and has a few practical implications. This research focuses mostly on Pakistan's conventional banking industry to increase the quality of digital banking. This research will aid upper management in convincing lawmakers to support digital banking. Additionally, this research is grounded in cognitive-motivational theory to strengthen the hypothetical framework. This research emphases on the quality of Web design and reliability and its effect on customer loyalty in the Pakistani setting to promote digital banking during a pandemic. The critical components are reliability and trust, and the website design has a significant impact on the development of loyalty. These rules are beneficial in the long term since they result in commitment and satisfaction, allowing businesses to create trust with their consumers.

The policy implications for banks to examining e-satisfaction as a mediator between banking mobile application quality factors and consumer e-loyalty are as follows: 1. Banks should focus on improving the quality of their mobile applications to increase customer satisfaction and e-loyalty. This includes ensuring that the application is user-friendly, secure, and provides a good customer experience. 2. Banks should also focus on providing personalized services and features to their customers to increase customer satisfaction and e-loyalty. This includes providing tailored offers and discounts, as well as personalized customer service. 3. Banks should also focus on providing timely and accurate customer feedback to increase customer satisfaction and e-loyalty. This includes responding to customer inquiries and complaints in a timely manner, as well as providing customers with accurate information about their accounts and services. 4. Banks should also focus on providing incentives and rewards to customers to increase customer satisfaction and e-loyalty. This includes providing loyalty programs, discounts, and other rewards to customers who use their mobile applications. 5. Banks should also focus on providing a secure and reliable mobile banking experience to increase customer satisfaction and e-loyalty. This includes ensuring that the application is secure, and that customer data is protected.

The study's limited scope also serves as a guide for future research. To begin, the present finding is restricted to the setting of Pakistan, and this study is cross-sectional, with data collected at a specific point in time. This model may be used to generalize our results in the future by examining it in other developed countries. Second, in this

research, a quantitative survey approach was used. Third, finding addresses' trust, reliability, and mobile application design, with forthcoming research focusing on security and quality issues Fourth, projected customer loyalty patterns may be examined in relation to the client demographic profile.

Ethical Consideration

The authors declare that this submission follows the policies of AJSS as outlined in the Guide for Authors and in the Ethical Statement. Full consent was obtained from the participants prior to the study and all procedures were carried out in accordance with approved ethical standards.

Informed Consent

A fully informed, considered, and freely given decision about whether or not to participate in the study, without the exercise of any pressure or coercion was taken from the respondents.

Declaration of Interest Statement

The authors declare that we have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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