Online Banking Service Quality and E-customer Loyalty: The Mediating Role of E-customer Satisfaction in Commercial Bank in Butwal Sub-Metropolitan City

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Abstract

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Purpose: This study aims to examine the impact of e-customer satisfaction on the relationship between e-customer loyalty and the quality of online banking services in commercial banks.

Methods: A modified questionnaire using a seven-point Likert scale was used to gather data from 400 clients for the study. Of those, 384 complete responses were acquired, yielding a 96% response rate. Regression analysis, correlation, parametric and non-parametric tests, and the independent sample t-test were among the statistical methods used in this descriptive and causal-comparative study design.

Results: The results indicate that the organization's website and security/privacy are the primary factors influencing e-customer loyalty. Additionally, e-customer satisfaction plays a significant mediating role in the relationship between the organization's website, user-friendliness, and e-customer loyalty. Moreover, the study reveals that e-customer satisfaction serves as a partial mediator in the connection between security/privacy and e-customer loyalty.

Conclusion: Based on the results of study, commercial banks should focus on enhancing security and privacy measures on their online banking platforms to strengthen e-customer loyalty.

Keywords: E-customer loyalty, e-customer satisfaction, security/privacy, website efficiency, and e-customer service

I. Introduction

In today's Technology has a significant impact on people's lives in the cutthroat world of today. Over the past few years, information technology has expanded and changed corporate operations, including banking transactions (Omotayo, 2020). This information technology-based development has improved banking and other financial services by giving businesses a new, simple way to interact with their clients (Raza et al., 2020). The provision of high-quality online banking services is crucial for banks aiming to maintain artfulness and encourage e-customer loyalty in an increasingly crowded market to survive in today's banking environment (Al-Ajam & Md, 2015). Fostering long-term client connections requires improving

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e-consumer happiness, which is mostly dependent on providing high-quality service (Santos, 2003).

The adoption of modern digital payment methods has become a key driver of growth and profitability in electronic commerce. As information technology advances rapidly, the importance of e-service quality continues to grow. Ensuring consistent and high-quality service has become a priority for businesses, as competition on a global scale demands continuous improvement (Zehira et al., 2014).

In the realm of online banking, e-customer satisfaction is influenced by several factors, including user-friendly platform navigation, responsive customer support, transaction security, and overall system reliability (Suki & Ramayah, 2010). Banks that focus on providing superior online banking experiences are more likely to build lasting relationships with their customers (Santos, 2003).

Financial institutions and consumers alike must comprehend the relationship among online banking service quality, e-customer satisfaction, and e-customer loyalty. When banks offer high-quality online services, customer satisfaction increases, leading to greater loyalty and reducing the likelihood of customers switching to competitors. Recognizing how service quality impacts satisfaction and, in turn, influences loyalty helps banks understand the factors that keep customers engaged with their digital banking services.

Online banking has transformed traditional banking practices by allowing financial institutions to offer various digital transactions. These services include checking interest rates, making payments, transferring funds between accounts, viewing account balances, applying for credit, accessing account statements, and making online purchases without using physical cash (Chou & Chou, 2000). The concept of "home banking" first emerged in the 1970s through touch-tone phone services (Shannak, 2013), while the 1980s saw the rise of cable television as a banking tool (Kalakota & Whinston, 1997). In 1995, the United States' first full-service online bank was Security First National Bank (SFNB) (Chou & Chou, 2000). In Nepal, Kumari Bank introduced Internet banking in 2002, followed by Laxmi Bank's launch of SMS banking in 2004. To regulate online banking, Nepal Rastra Bank established the Electronic Transaction and Digital Signature Act in 2006 (Banstola, 2008).

Banks and financial institutions facilitate electronic transactions, eliminating the need for physical banking visits (Amin, 2016). Customer loyalty is also greatly impacted by e-customer service features like website operation, efficiency, user-friendliness, security, and privacy. Improving e-customer loyalty and happiness eventually boosts company profitability (Kotler, 2011; Kotler & Keller, 2006). By encouraging innovation, spurring expansion, and enhancing internal and external competitiveness, electronic banking is transforming the financial industry (Ayinaddis et al., 2023; Yang et al., 2023).

With the rapid rise in online banking adoption, financial institutions are striving to provide seamless and efficient digital experiences, reshaping the banking industry. The relationship between client loyalty and the quality of online banking services is well established, but little is known about how e-customer satisfaction functions as a mediator. E-customer loyalty is the study's main focus. Banks must make sure their websites provide a user-friendly interface, safe transactions, and a well-structured online presence in order to close this gap. Prior studies have looked at how customer behavior, satisfaction, and loyalty are affected by service quality in the banking industry (Butt & Aftab, 2013; Amin, 2016; Ahmad Al-Hawari, 2014). But not much has been done to increase e-customer loyalty and happiness in the financial services industry. Numerous research have examined the connection between loyalty and satisfaction as well as the association between online service quality and e-customer loyalty, according to a review of the literature. Nevertheless, significant gaps remain, particularly regarding knowledge, methodology, and cultural aspects.

This study seeks to bridge this gap by investigating how Electronic Service Quality (ESQ) impacts e-customer satisfaction and loyalty in the context of mobile banking in Nepalese

commercial banks.

a. To explore the relationship between e-customer service, organizational website, website efficiency, user-friendliness, and security/privacy with e-customer loyalty.

b To investigate the effect of e-customer service, organizational website, website efficiency, user-friendliness, and security/privacy on e-customer loyalty.

c. To assess the mediating effect of e-customer satisfaction in the relationship between e-customer service, organizational website, website efficiency, user-friendliness, and security/privacy with e-customer loyalty.

II.   Reviews

This section covers the theoretical and empirical perspectives related to the study. The theoretical review examines various theories applicable to the research topic.

Theoretical Review

Service Quality (SERVQUAL) Model

A popular tool for assessing service quality, especially in online banking, is the SERVQUAL model, which was created by Parasuraman et al. (1985). According to this paradigm, perceived service quality and e-customer loyalty are mediated by e-customer satisfaction. Customer service, organizational website operation, website efficiency, user-friendliness, security, and privacy are some of the elements that affect the quality of services provided by online banking. Reliable and responsive E-customer support ensures prompt resolution of customer queries and concerns, while security and privacy measures enhance user confidence in online transactions. Customers are more satisfied when they receive high-quality service, which strengthens their loyalty and encourages favorable word-of-mouth referrals. Consequently, the SERVQUAL model offers a thorough framework for evaluating and enhancing the quality of online banking services, establishing e-customer satisfaction as a crucial element in fostering client loyalty.

Empirical Review

Empirical research relies on observed and measured phenomena, deriving knowledge from real-world experience rather than theoretical assumptions.

Raza et al. (2020) found that customer service significantly improves when clients have positive experiences with online banking or when banking products meet their expectations. Amin (2016) also looked at the connection between e-customer loyalty, e-customer satisfaction, and e-banking service quality. According to the study, there is a good association between total service quality and four important aspects of online banking service quality that show strong reliability.

The mediating function of e-customer satisfaction in online banking procedures and customer loyalty was investigated by Gautam et al. (2023). According to their research, satisfied clients are more devoted to their banks, and high-quality service increases customer loyalty. According to the study, loyalty and customer pleasure are significantly positively correlated.

Alkhouli (2017) examined the relationship between e-loyalty and the effects of e-satisfaction and service quality on bank websites. According to the study's findings, a bank's website's technical and functional features both affect electronic service quality (E-SQ), which in turn affects customer satisfaction and loyalty.

Ghimire et al. (2021) examined how customer loyalty and service excellence are mediated by customer satisfaction. Their study shown that higher customer satisfaction and loyalty are correlated with better service quality, with satisfaction serving as a partly mediating factor in this relationship.

Tran (2023) investigated how customer satisfaction and e-loyalty in Vietnam's digital banking industry were impacted by the quality of e-banking services. Higher service quality results in more satisfied customers and enduring loyalty, according to the study, which found a substantial positive association between e-banking service quality, e-satisfaction, and e-loyalty.

Figure 1

Research Famework
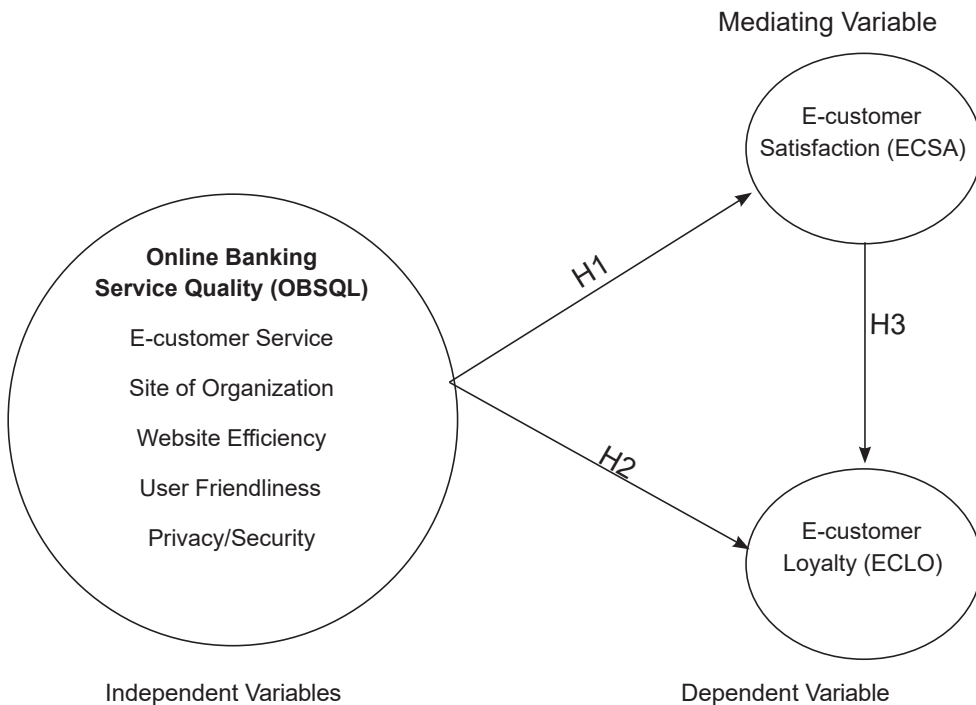
Note. Adopted from Parasuraman et al. (2005); Zeithaml et al. (2002)

III. Methodology

This study adopts a descriptive and causal-comparative research design to examine the relationship between independent and dependent variables. Various statistical techniques, including correlation and regression analyses have been conducted to analyze data. The study population consists of all respondents within the research area, specifically customers of commercial banks in Butwal Sub-Metropolitan City. The total population for the study comprise all the customers of the bank who use online banking services, which is not known hence the sample size is taken 384 using Yamane (1967) formula. The study employed a convenience sampling technique, as it is the most commonly used and efficient method for data collection compared to other sampling approaches. This method allowed for easy access to participants, ensuring a smooth data-gathering process.

This study primarily utilized quantitative data collected from primary sources. A structured questionnaire developed by Ul Haq et al. (2020) and Jawaid et al. (2021) were used to collect the data from the respondents. The questionnaire followed a seven-point Likert scale (7 = Strongly Agree, 6 = Agree, 5 = Somewhat Agree, 4 = Neutral, 3 = Somewhat Disagree, 2 = Disagree, 1 = Strongly Disagree) to capture participant responses effectively.

Initially, relevant constructs related to the selected variables were identified. Five key dimensions of online banking service quality were chosen as independent variables. A total of 35 questions were formulated, covering independent, dependent, and mediating variables. A pilot test was conducted with 40 respondents to identify and rectify any ambiguities in the questionnaire. The questionnaire were distributed physically to 400 respondents but 384 were successfully returned, yielding a 96% response rate. The collected data was analyzed using SPSS software version 20 and Smart PLS, employing multiple regression and correlation analysis for statistical evaluation.

IV.   Results and Discussion

The study's analysis and conclusions are presented in this section. This section incorporates the findings from the analysis of the gathered data using a variety of analytical tools found in the SPSS and Smart PLS software.

Table 1

Measurement Items Assessment

Variables	Items	Loadings	VIF	Mean	SD	Mean of construct	SD of construct
E-customer loyalty	ECL1	0.776	1.783	5.492	1.579	5.242	1.6
	ECL2	0.816	2.224	5.648	1.527		
	ECL3	0.877	2.827	5.562	1.525		
	ECL4	0.870	3.425	4.948	1.682		
	ECL5	0.772	2.481	4.560	1.687		
E-customer Satisfaction	ES1	0.861	2.419	5.104	1.702	5.3144	1.6516
	ES2	0.826	2.242	5.133	1.797		
	ES3	0.856	2.439	5.445	1.544		
	ES4	0.796	1.960	5.768	1.586		
	ES5	0.783	1.799	5.122	1.629		
Security/ Privacy	SNP1	0.875	3.081	5.951	1.384	5.6138	1.5912
	SNP2	0.900	3.818	5.844	1.462		
	SNP3	0.907	3.945	5.719	1.609		
	SNP4	0.754	1.900	5.094	1.762		
	SNP5	0.784	1.742	5.461	1.739		
Site of Organization	SO1	0.730	1.553	5.159	1.719	4.9682	1.6796
	SO2	0.897	3.403	5.122	1.571		
	SO3	0.808	2.286	4.711	1.799		
	SO4	0.873	2.761	5.081	1.531		
	SO5	0.739	1.638	4.768	1.778		
	UF1	0.833	2.485	3.628	1.926		

User Friendliness	UF2	0.836	3.074	3.172	1.847	3.7968	1.9168
	UF3	0.905	3.264	3.724	1.892		
	UF4	0.889	3.390	3.799	1.973		
	UF5	0.798	2.002	4.661	1.946		
Website Efficiency	WE1	0.896	3.247	4.661	1.946	4.2834	1.9168
	WE2	0.881	3.116	4.266	1.965		
	WE3	0.845	2.482	4.375	2.051		
	WE4	0.840	2.440	3.914	1.941		
	WE5	0.920	4.253	4.201	1.981		
	ECS1	0.765	1.683	5.859	1.541	5.1082	1.644
	ECS2	0.900	3.479	5.122	1.571		
E-customer Service	ECS3	0.815	2.287	4.711	1.799		
	ECS4	0.866	2.741	5.081	1.531		
	ECS5	0.738	1.652	4.768	1.778		

Table 1 presents the measurements and validity of the outer model, including its mean, standard deviation (SD), variance inflation factor (VIF), and standardized outer loading. A total of 35 scale items were used to assess seven latent variables. Each item's strong contribution to measuring the corresponding variable is confirmed by the fact that all outer loading values surpass the 0.70 criterion (Sarstedt et al., 2017). Additionally, there are no problems with multicollinearity among the scale components, as all VIF values are less than five (Hair et al., 2022). This confirms the absence of multicollinearity. Additionally, the mean and SD of all measurement items fall within an acceptable range for a 7-point Likert scale dataset. Therefore, the measurement items meet the criteria for reliability and validity, making them suitable for further evaluation.

Table 2

Construct Reliability and Validity Assessment

	Cronbach's alpha	Composite reliability(rho_a)	Composite reliability(rho_c)	Average variance extracted(AVE)
E-customer satisfaction	0.882	0.885	0.914	0.681
E-customer Service	0.876	0.883	0.910	0.671
E-customer loyalty	0.880	0.886	0.913	0.678
Security/privacy	0.899	0.903	0.926	0.716

Site of organization	0.869	0.877	0.906	0.660
user-friendliness	0.906	0.915	0.930	0.728
Website efficiency	0.925	0.930	0.943	0.769

The validity and internal reliability of the constructs utilized in this investigation are shown in Table 2. All constructs have Cronbach's Alpha values above the conventional cutoff of 0.705 (Bland & Altman, 1997), indicating the scale's dependability and internal consistency. Additionally, Composite Reliability (CR) values, such as rho_a and rho_c, above the 0.70 threshold, supporting construct validity and reliability (Saari et al., 2021; Hair et al., 2022). Average Variance Extracted (AVE) values over the 0.50 cutoff point further support the constructs' convergent validity (Hair et al., 2022). Consequently, the results validate that every quality criterion measure is fulfilled.

Table 3

Correlation Coefficient

	E-Customer Service	Site of Organization	Website Efficiency	User Friendliness	Security and Privacy	E-Customer Satisfaction	E-Customer Loyalty
E-Customer Service	1	.812**	.515**	.510**	.727**	.811**	.767**
Site of Organization		1	.357**	.356**	.652**	.977**	.758**
Website Efficiency			1	.814**	.477**	.384**	.384**
User Friendliness				1	.416**	.354**	.380**
Security and Privacy					1	.666**	.789**
E-Customer Satisfaction						1	.760**
E-Customer Loyalty							1

**.Correlationissignificantatthe0.01level(2-tailed).

The correlation coefficients between a number of variables and e-customer loyalty are shown in Table 3. There is a high positive association between e-customer loyalty and e-customer service, as indicated by the correlation coefficient of 0.767. This implies that e-customer loyalty is strongly influenced by e-customer service. Likewise, there is a high positive link (r = 0.758) between the organization's website and e-customer loyalty.

This implies that the organization's website plays a crucial role in fostering customer loyalty. The correlation coefficient between Website Efficiency and e-customer Loyalty is 0.384, reflecting a weak positive relationship. Despite being weaker, this indicates that Website Efficiency still has a significant impact on E-Customer Loyalty.

Similarly, there appears to be a weak but positive association between e-customer Loyalty and User-Friendliness, as indicated by the correlation value of 0.380. This suggests that

client loyalty is influenced by an interface that is easy to use.

Additionally, there is a high positive association between security and privacy and e-customer loyalty, as indicated by the correlation value of 0.789. This emphasizes how crucial privacy and security are to boosting client loyalty,

Finally, a substantial positive correlation is confirmed by the correlation coefficient of 0.760 between e-customer Satisfaction and E-Customer Loyalty. This implies that increased customer loyalty is a direct result of enhanced e-customer satisfaction.

Table 4

Model Fit Assessment (F-square)

Variable	f-square	Effect
E-customer satisfaction->E-customer loyalty	0.043	Small effect
E-customer service->E-customer satisfaction	0.047	Small Effect
E-customer service->E-customer loyalty	0.162	Medium Effect
Security and privacy->E-customer satisfaction	0.345	Large Effect
Security and privacy->E-customer loyalty	0.400	Large Effect
Site of organization->E-customer satisfaction	0.036	Small Effect
Site of organization->E-customer loyalty	0.057	Small Effect
User-friendliness->E-customer satisfaction	0.026	Small effect
User-friendliness->E-customer loyalty	0.034	Small Effect
Website efficiency->E-customer satisfaction	0.044	Small Effect
Website efficiency->E-customer loyalty	0.035	Small effect

For the variable e-customer Loyalty, the f-square value of e-customer Satisfaction is 0.043, indicating a small effect size. Similarly, e-customer Service has an f-square value of 0.047 on e-customer Satisfaction, also representing a small effect size.

The f-square value of e-customer Service on e-customer Loyalty is 0.162, suggesting a medium effect size. In contrast, Security and Privacy have an f-square value of 0.345 on e-customer Satisfaction, indicating a large effect size, and 0.400 on e-customer Loyalty, also signifying a large effect size.

The Site of the Organization has an f-square value of 0.036 on e-customer Satisfaction, representing a small effect size, and 0.057 on e-customer Loyalty, which also falls within the small effect size category.

User friendliness has small effect sizes, with f-square values of 0.026 on e-customer satisfaction and 0.034 on e-customer loyalty. Similarly, Website Efficiency's f-square values for e-customer Satisfaction and e-customer Loyalty are 0.044 and 0.035, respectively, indicating small effect sizes.

Table 5

R-square

	R-square	R-square adjusted
E-Customer Satisfaction	0.77	0.767
E-customer loyalty	0.753	0.75

Table 5 presents that with an adjusted R-squared value of 0.767 and an R-squared value of

0.77 for E-Customer Satisfaction, Table 10 shows a significant predictive capacity. Comparably, E-Customer Loyalty has an R-squared value of 0.753 and an adjusted R-squared value of 0.75, both of which demonstrate strong predictive potential (Hair et al., 2013).
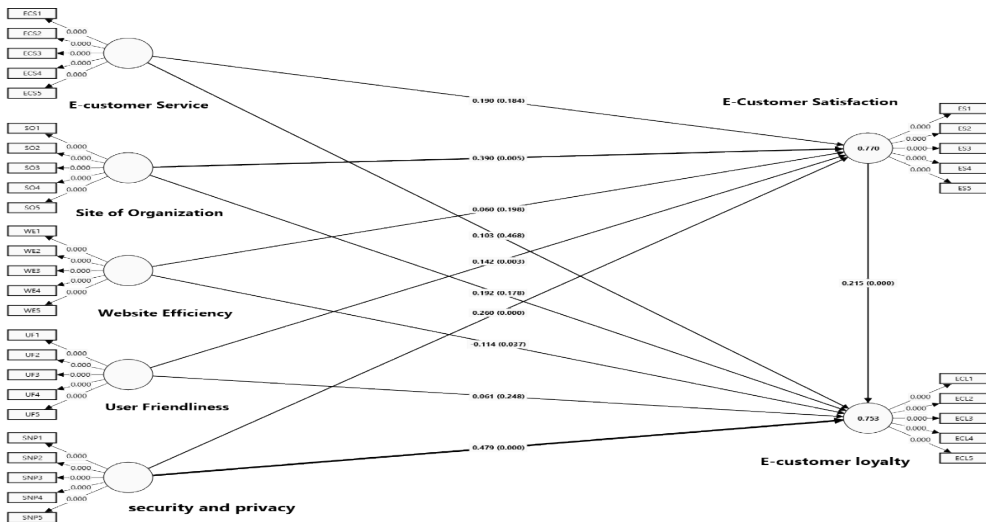
Figure 2

Structural Model Assessment (Path Diagram)

Table 6

Hypotheses Testing (Direct Effect)

	β	Mean	(SD)	T Values	P values
E-customer Satisfaction -> E-customer loyalty	0.215	0.213	0.060	3.561	0.000
E-customer Service -> E-customer Satisfaction	0.190	0.187	0.143	1.329	0.184
E-customer Service->E-customer loyalty	0.103	0.107	0.142	0.725	0.468
Site of Organization -> E-customer Satisfaction	0.390	0.392	0.137	2.841	0.005
Site of Organization->E-customer loyalty	0.192	0.187	0.143	1.346	0.178
Security and Privacy -> E-customer Satisfaction	0.260	0.262	0.038	6.825	0.000
Security and Privacy->E-customer loyalty	0.479	0.481	0.056	8.539	0.000
User Friendliness -> E-customer Satisfaction	0.142	0.143	0.048	2.953	0.003

User Friendliness->E-customer loyalty	0.061	0.060	0.053	1.155	0.248
Website Efficiency -> E-customer Satisfaction	0.060	0.058	0.047	1.288	0.198
Website Efficiency->E-customer loyalty	-0.114	-0.114	0.055	2.086	0.037

The bootstrapping findings based on 400 subsamples and the associated hypotheses are shown in Table 6 are deemed inconsequential; however some of reject null at a 0.05 significance level. The results show that E-customer loyalty and E-customer satisfaction have a positive and significant association ($\beta = 0.215$; $p < 0.05$). On the other hand, e-customer service has a marginally favorable impact on e-customer loyalty ($\beta = 0.103$; $p > 0.05$) and e-customer satisfaction ($\beta = 0.190$; $p > 0.05$). In a similar vein, the company's website significantly and favorably affects e-customer satisfaction ($\beta = 0.390$; $p < 0.05$), whereas it has a favorable but negligible impact on e-customer satisfaction in another area ($\beta = 0.192$; $p > 0.05$). Furthermore, e-customer loyalty ($\beta = 0.479$; $p < 0.05$) and e-customer satisfaction ($\beta = 0.260$; $p < 0.05$) are positively and significantly impacted by security and privacy. Additionally, user-friendliness has a positive and substantial effect on e-customer satisfaction ($\beta = 0.142$; $p < 0.05$), while it has a positive but negligible effect on e-customer loyalty ($\beta = 0.061$; $p > 0.05$). Additionally, e-customer satisfaction is positively but marginally affected by website efficiency ($\beta = 0.060$; $p > 0.05$). e-customer loyalty, however, is significantly and negatively impacted by it ($\beta = -0.114$; $p < 0.05$).

Table 7

Mediating Effect

Hypotheses	β	Sample mean(M)	SD	T Value	P value
E-customer Service -> E-Customer Satisfaction->E-customer loyalty	0.041	0.042	0.036	1.122	0.262
Site of Organization -> E-Customer Satisfaction->E-customer loyalty	0.084	0.081	0.034	2.477	0.013
User Friendliness -> E-Customer Satisfaction->E-customer loyalty	0.03	0.031	0.015	2.067	0.039
Website Efficiency -> E-Customer Satisfaction->E-customer loyalty	0.013	0.012	0.011	1.221	0.222
security and privacy -> E-Customer Satisfaction -> E-customer loyalty	0.056	0.056	0.018	3.174	0.002

The bootstrapping findings and the choices made on hypotheses with mediating effects are shown in Table 7. The results show that in the commercial banking industry, the website of the company has a positive and substantial mediation influence ($\beta = 0.084$; $p < 0.05$) on the association between e-customer satisfaction and e-customer loyalty. Likewise, in this association, user-friendliness shows a positive and substantial mediating influence ($\beta = 0.030$; $p < 0.05$). Furthermore, in the commercial bank, security and privacy act as a significant mediator ($\beta = 0.056$; $p < 0.05$) between e-customer loyalty and e-customer satisfaction.

While it has little direct effect on e-customer loyalty, the company's website has a major direct impact on e-customer satisfaction. Nonetheless, complete mediation is seen in this relationship since e-customer loyalty is strongly impacted by e-customer satisfaction. In the same way, user-

friendliness directly affects e-customer satisfaction but not e-customer loyalty. Full mediation is also present in this instance since e-customer satisfaction has a substantial impact on e-customer loyalty. However, security and privacy have a direct and substantial impact on e-customer loyalty and satisfaction. This suggests partial mediation in the relationship since e-customer satisfaction has a substantial impact on e-customer loyalty.

The findings of the study reveal positive effect of user-friendliness and security and privacy on e-customer loyalty and the findings is consistent with the findings of Gautam et al. (2023). But contradicts with the findings of (Amin, 2016), which highlighted that a crucial component of the quality of Internet banking services is the effectiveness of banking websites.

However, the findings of this study differ from previous research, particularly regarding the relationship between website efficiency and e-customer loyalty, which was found to be inverse. In contrast to earlier research, this study finds that the most important elements influencing e-customer loyalty are security and privacy. As a result, this study's conclusions do not entirely concur with previous research.

V.   Conclusion and Implication

This study investigated the relationship and effect of the variables of online banking service quality, e-customer satisfaction, and e-customer loyalty. Out of the variables of online banking service quality, especially site of organization, security and privacy have dominating effect on e-customer loyalty. Similarly, the relationship between the site of organization and security and privacy with e-customers satisfaction is mediated by e-customers loyalty.

This study offers valuable insights for policymakers, organizations, managers, academia, and future research. The findings can help policymakers allocate resources efficiently, ensuring economic viability and productivity in the financial sector. This study also contributes to the advancement of digital banking both locally and internationally, paving the way for more targeted future research. It also enhances financial well-being and strengthens connections between financial institutions and communities. As organizational benefit, banks and financial institutions can leverage these findings to expand their operations by attracting new customers to Internet banking while retaining existing ones. There are a number of difficulties in overseeing service quality in the financial industry. These results can help managers create successful marketing plans, cultivate enduring client connections, and obtain a competitive advantage in the marketplace. This study also play a great role for academic contributions by emphasizing the ways in which online banking services affect customer satisfaction and e-loyalty, the study offers insightful information to the academic community. E-customer service, organizational website, website efficiency, user-friendliness, security, and privacy are the five main components of banking service quality that are identified as being essential in determining the level of satisfaction and loyalty of E-customers.

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