Unlocking Customer Loyalty in Mobile Banking Services: The Mediating Effect of Customer Satisfaction [1]

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Abstract

Digital integration of the banking sector amplifies seamless operation that streamlines remote banking services, boosting client satisfaction and enhancing loyalty. Descriptive and explanatory designs have been employed to investigate the factors affecting the loyalty of customers in adopting digital banking services. The primary sources of cross-sectional data were accumulated by disseminating a structured questionnaire to purposively sampled 355 mobile banking service users in Kathmandu, Nepal. The data analysis was accomplished by adopting SEM with SmartPLS version 4.1.1.4. The findings of the study depicted a positive and significant effect of service quality and service security on customer satisfaction. Similarly, a positive and significant influence of customer satisfaction was found on customer loyalty. Moreover, the partial mediation effect of customer satisfaction was found between the service quality, service security, and customer loyalty. These findings can be useful to endorse favorable policies and stabilize secure digital banking operations, fostering customer satisfaction.

***Keywords*:** Customer satisfaction, digitalization, loyalty, mobile banking

JEL Classification: G21, M15, M31, O33

Introduction

Banking sectors in this digital era have been chronically confronted with a fragile competitive market atmosphere, endeavoring to construct sustainability. The perpetual

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success of banks relies on an extensive strategic move embracing client-oriented corporate policy compatible with customer values. In this regard, market penetration of the financial institutions in initiating advanced digital banking services lays a foundation for adequate market share, retaining client loyalty through gratification. Thus, technology-based banking services in a globalized context can mitigate volatility and deteriorate rivalry situations, leading towards the sustainability of banks. Similarly, client contentment aligns with loyalty, in which the acquisition of mobile banking addresses the dynamic requirement of clients gaining reputation and attachment among customers. Thus, financial institutions offer digitalized services to the clients to maintain productivity and contentment (Gounaris et al., 2010; Tsou & Hsu, 2017; Shahid Iqbal et al., 2018). Interestingly, technological innovation in the global market fosters a physical cashless community in which mobile banking emerged as a recently revolutionized technology, immensely established to diagnose issues of the banking sector, driving to an estimated sustainable path of business (Agarwal & Chua, 2020; Ajina et al., 2023).

The sound financial position of banking institutions can be achieved with a heavy emphasis on both client satisfaction and retention, which depicts the deeper nexus between these factors. Therefore, the execution of a systematized mobile banking service contributes as a central gravity for customer loyalty with enriched satisfaction (Shaon & Rahmn, 2015; Dandis et al., 2021). Interestingly, the consideration of the vital role of digital banking services is unavoidable, which promotes client loyalty in the market. In this regard, the financial institutions require assessing influential factors of client satisfaction and loyalty; ultimately, these are affected by service quality and service security of the digital banking facility offered by the banking sector (Islam et al., 2023).

Moreover, the service quality of digital banking is another vital factor considered as a cornerstone of financial institutions and revealed as an essential dimension to foster client gratification and loyalty among virtual banking service users (Kumar et al., 2009; Phan & Kim, 2024). Furthermore, the service feature is therefore measured by operational efficiency, credibility, convenience, standard of mobile banking service, and user-friendly nature, manifesting the core role in digital service that ultimately bridges client contentment and devotion (Ali et al., 2023; Chatterjee, 2018; Luu et al., 2024). Thus, retention of clients in a digitalized banking system relies on the ingredients of the services to meet the expectations of service users and finally provides a higher level of

satisfaction, depicting the central role of service quality to offer sophisticated techno-based rich services (Suri, 2017).

Additionally, an integration of service security in a mobile banking system is a crucial factor that creates credibility among its users, extending happiness and retention of clients (Schierz et al., 2010). Thus, online banking services must maintain a secure environment, developing strong security as it significantly influences the situation of user gratification and attachment among its users, representing the superior quality along with service security associated with a digital banking platform. Thus, mobile banking needs to foster safety and security features, keeping away from dangers and unpredictable circumstances, which stands as a benchmark to enhance client satisfaction and loyalty (Marafon et al., 2018; Leong et al., 2020).

In the Nepalese context, research on factors that link with the contentment of users in digital bank systems of financial institutions in urban areas of Kathmandu discovered client satisfaction (Thakuri et al., 2023). Another investigation on measuring the alignment between the standard of online systems, engagement of clients, and inclination of users in the banking sector of Nepal investigated customer satisfaction and loyalty (Joshi, 2023). Similarly, a study on "online banking service practices and its impact on e-customer satisfaction and e-customer loyalty in the developing country of South Asia-Nepal" assessed retention and gratification of customers (Gautam & Sah, 2023). In addition, a study held on "the effect of mobile banking on customer satisfaction in commercial banks in Nepal" examined client contentment (Ghimire &Dhakal, 2023). Finally, research conducted on "customer satisfaction of service quality: Assessing mobile banking practices" investigated client happiness (Adhikari & Gyawali, 2023). Earlier evidence assessed several determinants of customer perception in global and Nepalese contexts discovering the factors influencing client loyalty through client satisfaction as a mediating effect that remained adequately unexplored. This research attempts to investigate the effect of mobile banking services on customer loyalty, assessing the mediating effect of customer satisfaction.

Literature Review

Service quality and customer loyalty

Service users experiencing a higher quality associated with a product or service lead toward client loyalty (Bolton & Drew, 1991; Anderson & Fornell, 2000; Anderson & Sulliva, 1993; Shi & Shang, 2020). Therefore, the frequency of re-use and consistent use of services as a loyal customer relies on the standard of the services offered by the

business entities (Mittal & Kamakura, 2001). Evidence revealed service quality as a crucial aspect in shaping the behaviour of clients, and it influences patron trustworthiness that links with loyalty (Mahadi, 2019). Based on the evidence, the subsequent hypothesis can be developed:

H1a: Service quality positively influences customer loyalty to embrace mobile banking.

Service security and customer loyalty

The ingredient of service safety comprises the protection of its users from various types of loss and exploitation in the technology-driven service sector. Thus, security and privacy can be maintained as it compels compliance with the regulatory obligation to meet the desire of customers, providing transparent and risk-free online banking services that ultimately foster customer loyalty, constructing a client retention environment (Zeithaml et al., 2002; Casalo & Guinaliu, 2007).

H2a: Service security positively influences customer loyalty to embrace mobile banking.

Customer satisfaction and loyalty

Evidence advocates for the fact that satisfied service user demonstrates a trend of repeat service use, boosting an environment to cultivate loyalty (Lai, 2014). In the electronic banking sector, e-customer contentment leads to enhanced loyalty among the users (Gautam & Sah, 2023). The hypothesis has been developed for the study.

H3a: Customer satisfaction positively influences customer loyalty to embrace the mobile banking service

Service quality and customer satisfaction

Evidence manifested that the service standard favourably links with customer satisfaction, which finally mitigates the client grievances, fostering the level of satisfaction (Watto & Iqbal, 2022). In addition, the quality ingredients associated with commercial products foster customer gratification, requiring the proper attention to the entire group of its customers (Monferrer et al., 2019).

H1b: Service quality has a significant effect on customer satisfaction.

Service security and customer satisfaction

Service security interestingly links with the pleasure of clients as a security feature integrated in technology-driven services that significantly enhances the status of pleasure among the service users (Gautam & Sah, 2023). The emphasis on service security in each organization can establish an admiring atmosphere, generating a situation of customer satisfaction (Anitsal & Flinet, 2006; Collier et al., 2015).

H2b: Service security has a significant effect on customer satisfaction

Mediating role of satisfaction between service quality and customer loyalty

The evidence revealed that customer loyalty is influenced by customer satisfaction (Oh, 2022). Moreover, evidence of Islamic banking institutions revealed an inclination to standard featured services, leading to more satisfaction (Lewis & Soureli, 2006; Mahadin, 2019). In a similar way, the findings in the wireline telecom sector depicted evidence of an increasing mediating role of customer satisfaction between service standard and customer loyalty (Rajeswari et al., 2017).

H4a: Customer satisfaction mediates the relationship between service quality and customer loyalty.

Mediating role of customer satisfaction between service security and customer loyalty

The service security and privacy are considered as vital factors of technology banking services that link with client satisfaction in a favourable direction, contributing to retaining the users of such digital banking services (Aslam et al., 2019). Additional evidence revealed the mediating role of satisfaction between safety mediates the connection between satisfaction and customer loyalty (Doung et al., 2024).

*H4b: Customer satisfaction mediates the relationship between service security and customer loya*lty.

Customer satisfaction

Customer satisfaction is an integration of distinct responses containing affective and cognitive aspects to the variety of services (Bitner et al., 1994). Moreover, client gratification demonstrates the degree to which the service of the firm adequately stands to match the requirements of users (Salem et al.,2011). Additionally, the contentment of clients reflects the perceptual expression of happiness or disappointment as a consequence of comparing service attributes and actual performance (Oliver, 1980).

Customer loyalty

Customer loyalty represents an attachment of clients with a commitment to use services perpetually in the future, avoiding the different other alternatives available in the market. It depicts a closed inclination of customers towards a particular service. Similarly, the inclined users express an emotional connection to the organizational services that foster positive behavior with loyalty (Hallowell, 1996; Lenka, 2009).

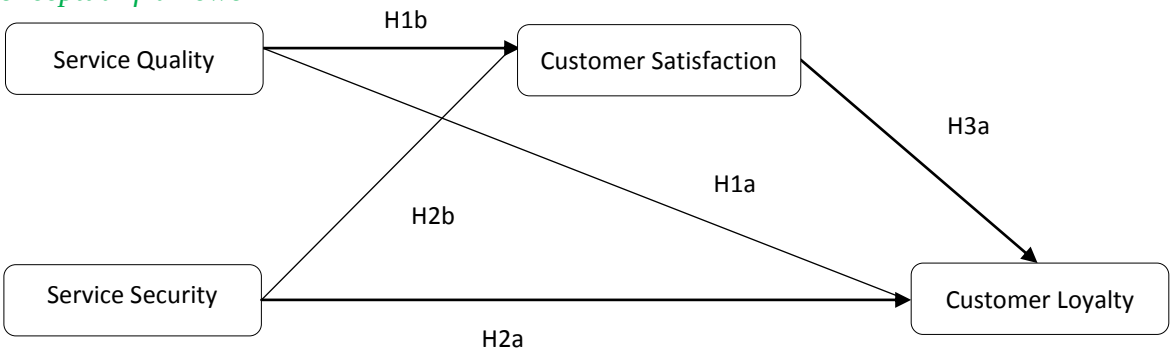
Conceptual framework

The conceptual framework depicts the direction of the research, and the research framework below exhibits a path of analysis. Thus, this framework demonstrates a

plausible link between service quality, service security, customer satisfaction, and customer loyalty. The following figure shows the conceptual framework:

Figure 1

Conceptual framework



Source: Caruana (2002), Bahadudr et al. (2018), Shahid Iqbal et al. (2018)

Methods

This investigation endeavored to uncover the influence of technology-based banking services on client loyalty. Similarly, customer satisfaction is the mediating variable of the study that investigates the mediating effect between the digital banking service, consisting of service quality, service security, and customer loyalty. Thus, the survey universe comprises the users of mobile banking services, mainly located in Lekhnath Margh, Kathmandu. The targeted size of the sample of the research was 384, as the population of the study remained unknown (Cochran, 1977). Therefore, 539 structured questionnaires were disseminated among the target respondents, and 378 questionnaires were received. However, only 355 (65.86%) questionnaires were deemed useful and utilized for the data analysis. Moreover, this research utilized the cross-sectional data collected through a purposive sampling technique. The purposive method of sampling, as a part of the non-probability sampling method, is embraced while involving knowledgeable respondents in the survey (Tongco, 2007).

This survey employs a descriptive and explanatory research design. The descriptive research design is utilized in this research to adequately describe the characteristics of the situation, accumulating factual data (Siedlecki, 2020). Similarly, the explanatory design of the survey employed in the study reveals the cause-and-effect relationship (Creswell, 2005). In addition, the first cluster of the questionnaire contains demographic descriptions of respondents, and the second segment comprises five-point

Likert scale items based on the questionnaire. The Likert scale items depicts 1 = Strongly Disagree, 2 = Disagree, 3 = Neutral, 4 = Agree, and 5 = Strongly Agree.

This research adopted the service quality construct from the earlier research (Caruana, 2002; Shahid Iqbal et al.,2018), service security, customer satisfaction, and customer loyalty from (Caruana, 2002; Shahid Iqbal et al., 2018; Chikazhe et al., 2021). Moreover, the data accumulated from the respondents was managed in Excel 2016 before analyzing the data. Next, the JASP 0.19.3.0 version was used to generate descriptive statistics, and SmartPLS version 4.1.1.4 was used to perform further analysis. The study examined Cronbach's alpha and variance inflation factor (VIF) to discover the reliability and issues of multicollinearity.

Results

Profile of respondents

Table 1 represents the profile of the respondents, which encompasses a total of 355 survey participants. The participation of male respondents remained 205 (57.75%), as the leading group of participants, and the majority of respondents belong to the unmarried status, 279 (78.59%). Moreover, the age group below 20-30 found 123 (34.65 %) as the majority of respondents.

Table 1

Profile of respondents

S.N.	Variables	Characteristics	Frequency	Percentage
1	Gender of Respondents	Male	205	57.75
		Female	150	42.25
		Total	355	100.0
2	Marital Status of Respondents	Married	76	21.41
		Unmarried	279	78.59
		Total	355	100.0
3	Age Group of Respondents	Below 20 years	43	12.11
		20 to 35 years	123	34.65
		36 to 45 years	116	32.68
		Above 45 years	73	20.56
		Total	355	100.0
4	Educational Background of Respondents	Bachelor	214	60.28
		Master	133	37.46
		Above Master	08	02.25
		Total	355	100.0

5	Number of Bank Accounts Held by Respondents	Below 3	197	55.49
		3 to 5	129	36.34
		Above 5	29	08.17
		Total	355	100.0
6	Use of Banking Services	Regularly	157	44.23
		Often	156	43.94
		Occasionally	20	05.63
		Rarely	22	06.20
		Total	355	100.0

Moreover, the educational background of the respondents holding a bachelor's level of education reflected 214 (60.28 %) as higher participants. In addition, the survey participants holding several bank accounts below 3 banks depicted 197 (55.49%), with involvement of more participants. Finally, the survey participants who had experience in the use of banking services with atendency of its use them regularly showed 157 (44.23%), and using mobile banking services often depicted 156 (43.94%). Finally, a leading group of respondents belongs to the status of using mobile banking regularly, 157 (44.23 %), and the least belongs to occasional use, 20 (5.63%).

Measurement model

Mainly, the measurement models adopted in this research were a reflective model. Additionally, Cronbach's alpha was tested to measure the internal consistency in the research. Thus, Cronbach's alpha value needs to exceed the threshold level of 0.70, which reflects the robust results (Nunnally, 1978). Table 2 displays outer loading, reliability, and convergent validity, in which the value of Cronbach's alpha exceeds the threshold criterion of >0.70, which confirms that the data utilized in the research were reliable.

Table 2

Outer loading, reliability, and convergent validity

Construct	Items	Outer Loadings	CA	Composite Reliability (rho_a) (CR)	AVE
Service Quality	SQ1	0.806	0.771	0.78	0.683
	SQ2	0.833			
	SQ3	0.840			
Service Security	SS1	0.864	0.874	0.89	0.725
	SS2	0.859			
	SS3	0.807			
	SS4	0.874			
Customer Satisfaction	CS1	0.834	0.753	0.761	0.668
	CS2	0.738			

	CS3	0.799			
	CS4	0.859			
	CL1	0.788	0.822	0.827	0.654
Customer Loyalty	CL2	0.832			
	CL3	0.831			

Authors' computation using SmartPLS version 4.1.0.9

Moreover, the convergent validity was tested by the average variance extracted (AVE). The average variance extracted in convergent validity measurement requires a minimum of 0.50 and above score of AVE as the threshold limit (Hair et al., 2013). Thus, the AVE score of all constructs consisting of service quality reflected an AVE value of 0.683, service security 0.725, customer satisfaction 0.668, and AVE for customer loyalty is 0.654. Therefore, all the values of AVE exceed the threshold of 0.50, assuring the validity and acceptability from the perspective of the convergent validity test. Next, the outer loading, along with its items, revealed the value of loading factor > 0.70, which assures that all the items of each construct are valid. Furthermore, the value of composite reliability (CR) of service quality was 0.78, service security was 0.89, customer loyalty was 0.858, and the composite reliability of customer loyalty was 0.883. Thus, the value of composite reliability of all constructs was found to be>0.70, which indicates the constructs are reliable and met the assumption and requirement of the reliability threshold.

Table 3
Discriminant validity

	Heterotrait Monotrait Ratio (HTMT)				Fornell-Larcker Criterion			
Variables	CL	CS	SQ	SS	CL	CS	SQ	SS
CL					**0.818**			
CS	0.808				0.641	**0.809**		
SQ	0.695	0.741			0.548	0.604	**0.827**	
SS	0.661	0.601	0.643		0.552	0.52	0.531	**0.851**

Table 3 depicts discriminant validity comprising the heterotrait-monotrait ratio (HTMT) and the Fornell-Lacker criterion, which reflected the score of the square root of average variance extracted (AVE). These tests were employed to measure the discriminant validity. Thus, the Fornell-Larcker criterion value of customer loyalty was 0.818, customer satisfaction was 0.809, the value of service quality was 0.827, and the value of service security was 0.851. Each value of the latent variable needs to exceed or

be more than an interconnection between this latent variable (Fornell & Larcker, 1981). Thus, the results in this study meet the threshold criteria, which reflect the discriminant validity of the study. Moreover, the Heterotait monotrait ratio in these results remained within the limit of 0.85 as it is fundamentally required for discriminant validity (Kline, 2011).

Table 4

Cross-loading of items

Items	CL	CS	SS	SQ
CL1	**0.788**	0.478	0.350	0.411
CL2	**0.832**	0.575	0.489	0.522
CL3	**0.831**	0.511	0.502	0.401
CS1	0.530	**0.834**	0.446	0.513
CS2	0.520	**0.738**	0.429	0.403
CS3	0.451	**0.799**	0.375	0.509
CS4	0.566	**0.859**	0.431	0.523
SS1	0.570	0.488	**0.864**	0.428
SS2	0.457	0.320	**0.859**	0.388
SS3	0.357	0.404	**0.807**	0.482
SS4	0.465	0.526	**0.874**	0.510
SQ1	0.508	0.567	0.381	**0.806**
SQ2	0.339	0.413	0.396	**0.833**
SQ3	0.479	0.488	0.535	**0.840**

Table 4 reflects the cross-loading of items to assess the discriminant validity. The cross-loading score of each item of its construct is higher than the value of items of another construct. This result showed that the criterion for discriminant validity was met (Fornell & Larcker, 1981).

Table 5

Varianceinflation factor

Items	VIF
CL2	1.500
CL3	1.469
CL4	1.583
CS1	2.009
CS2	1.504
CS3	1.810

CS4	2.074
SS1	2.314
SS2	2.495
SS3	2.102
SS4	2.406
SQ1	1.343
SQ2	1.981
SQ3	1.870

Table 5 shows the variance inflation factor (VIF) to measure the collinearity. The collinearity statistics assess the issues of multicollinearity among the independent variables employed in the study. The items of customer loyalty (CL), customer satisfaction (CS), service security (SS), and service quality (SQ) revealed the value of the variance inflation factor below. 5. These results of VIF manifested that there is no issue of multicollinearity, as the value of VIF below 5 confirms the existence of multicollinearity issues (Hair et al., 2011).

Structure model

The structure model employed in the study to discover the model fit tests the explanatory power. Similarly, this structural model also tests the proposed hypothesis of the research. The following results are interpreted below to assess the structural model.

Table 6

Explanatory power and model fit

Explanatory Power with R2			Model fit with SRMR and NFI			
Endogenous Latent Variables	R^2	R^2 adjusted		Saturated model	Estimated model	Recommended Value
CL	0.493	0.488	SRMR	0.085	0.085	≤ 0.08
CS	0.42	0.417	NFI	0.738	0.738	≥ 0.75

Table 6 shows the explanatory power and model fit results. The R^2 value of customer loyalty stands at 0.493 percent, and customer satisfaction revealed an R^2 value of 0.42 percent. This result showed that the research variables, especially the independent variables consisting of service quality and service security, explain 49.30 percent of the variation in customer loyalty for embracing mobile banking services, with loyalty and customer satisfaction accounting for 42.00 percent. It means that both variables, customer loyalty and customer satisfaction, manifest moderate explanatory power, as an R^2 value above 0.33 is considered to depict moderate explanatory power (Chin, 1998). Moreover,

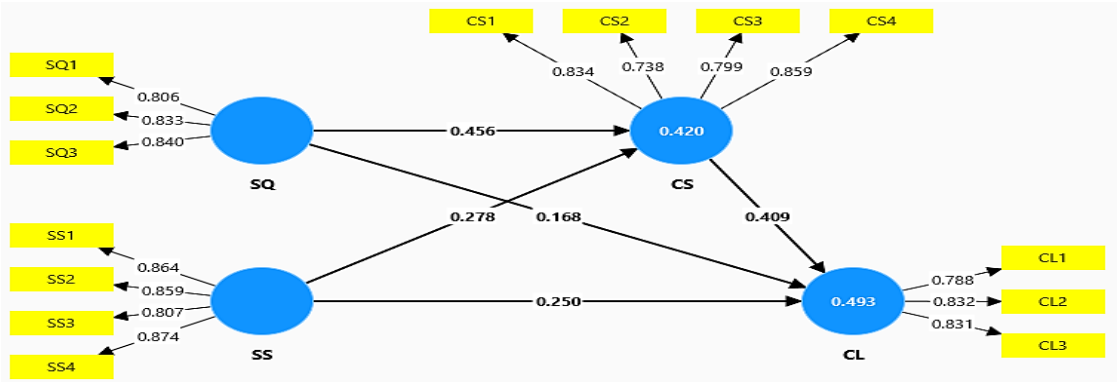
the model fit result derived from the analysis demonstrated the SRMR saturated model with 0.085 and an estimated model value of 0.085. Similarly, the NFI saturated model value showed 0.738, with the estimated model value of 0.738. The SRMR value standing below the range of 0.10 or 0.08 demonstrates a good fit for the model (Hu & Bentler, 1999). Thus, the SRMR value of these results reflects a good fit based on the benchmark of Hu and Bentler. Next, the NFI value should also fall between 0 and 1, which advocates an acceptable fit (Ding et al., 1995). Thus, the results of NFI in this study, with the value of 0.735, advocated it as an acceptable fit, revealing its value below 1.

Hypothesis testing

This research employed the bootstrapping method in the analysis of data using the PLS algorithm for assessing proposed research hypotheses. Thus, this study used a total of 10000 subsamples in the analysis while investigating the significance of path coefficients.

Figure 2

Structure model



Source: Caruana (2002), Bahadur et al. (2018), and Shahid Iqbal et al. (2018)

Figure 2 depicts the findings of the proposed hypothesis, revealing the links between the research variables generated using the PLS algorithm. These results demonstrated the direction of the relationship and the effect of service quality and service security on customer loyalty, assessing the mediating effect of customer satisfaction for the mobile banking service adoption.

Table 7

Path analysis of direct result

Factors/Hypothesis	Beta	T statistics	P values	Result
H1a: SQ -> CL	0.168	2.217	0.027	Accepted

H1b: SQ -> CS	0.456	8.710	0.000	Accepted
H2a: SS -> CL	0.250	5.684	0.000	Accepted
H2b: SS -> CS	0.278	5.974	0.000	Accepted
H3a: CS -> CL	0.409	6.311	0.000	Accepted

Table 7 reveals the path analysis of direct results. The outcomes of the study revealed a favorable and significant influence of service quality on client loyalty. As the beta coefficient showed a positive influence ($\beta = 0.168$, $p < 0.05$), it means a one-unit shift in quality of service brings adistinct variation in customer inclination by 0.168 units. Thus, hypothesis (H1a) is accepted as it reflects a compatible and significant effect. Similarly, the beta coefficient showed a supportive influence of the standard of service on user happiness($\beta = 0.4568$, $p < 0.05$). It means that a rise in the standard offering of technology based system of banks enhances customer satisfaction in appreciative ways. Moreover, one unit change in the dimension of the service system brings a change in customer satisfaction by 0.456 units. As its p-value was found significant, hypothesis H1b is accepted, depicting a helpful and significant boost of service quality on customer satisfaction. In addition, the beta coefficient revealed a positive impact of service security on customer loyalty ($\beta = 0.250$, $p < 0.05$). It means that an enhancement in secured service leads to a higher customer loyalty in a favorable path.

Similarly, one unit change in service security brings the changes in customer loyalty by 0.250 units. As its p-value was found significant, the research hypothesis 2ab is accepted. Similarly, the beta coefficient demonstrated a positive influence of service security on customer satisfaction ($\beta = 0.278$, $p < 0.05$). It means that a rise in service security positively leads to an increase in customer satisfaction. Moreover, one unit change in service security brings changes in customer satisfaction by 0.278 units. Thus, hypothesis H2b is accepted, as its p-value was found significant. Finally, the beta coefficient showed an encouraging link between customer satisfaction and customer loyalty ($\beta = 0.409$, $p < 0.05$). It means an increase in customer loyalty helps in enhancing customer loyalty favourably. This shows that a unit change in customer satisfaction brings changes in customer loyalty by 0.409 units. Moreover, as its p-value depicted significant results, the hypothesis H3a is accepted.

Table 8

Path analysis of mediating results

Factors/Hypothesis	Beta	T statistics	Confidence Interval	P values	Result

			2.50%	97.50%		
H4a: SQ -> CS -> CL	0.187	4.915	0.117	0.266	0.000	Accepted
H4B: SS -> CS -> CL	0.114	4.325	0.066	0.168	0.000	Accepted

Table 8 shows the path analysis of mediating results. This research employed user contentment as a mediating variable to examine the association between service quality, service security, and customer loyalty. The beta coefficient and p-value revealed a supportive and significant interlink, which demonstrates partial mediating effects of customer satisfaction in the relationship between service quality and customer loyalty ($\beta = 0.187$, $p < 0.05$). The total effect comprises the sum of direct and indirect effects, revealing 0.168 + 0.187 = 0.355, and VAF is computed by dividing the score of the indirect effect by the total score multiplied by 100, which exhibits 0.187/0.355x100, which shows the VAF value of 52.68%. This outcome further confirms the partial mediating role of customer satisfaction between the relationship of service quality and customer loyalty. Similarly, the mediating effect of customer satisfaction in the relationship between service security and customer loyalty is depicted as a partial mediating effect between the security of mobile banking and its customer loyalty ($\beta = 0.114$, $p < 0.05$). Further, the total effect in this case encompasses 0.250 + 0.114 = 0.364. The VAF value consists of 0.114/0.364 x 100 = 31.32%, which reveals the partial mediation effect of customer satisfaction between the relationship of service security and customer loyalty as VAF ranging as (20% < VAF < 80%) in the results (Jeandry & Fajriyanti, 2023).

Discussion

The investigation of customer loyalty for mobile banking services was the key purpose of the survey, and patron gratification served as a mediating variable. Thus, users of mobile banking services were encompassed as the basis of data for the analysis. Moreover, this research investigated how superior performance in technology integration and service security of digitalized system-oriented banking services affects customer loyalty, with an investigation of the mediating role of customer gratification for exhibiting interconnection between service standard, security, and alignment of users. The findings of the study revealed a positive and significant scenario of a better service on the loyalty of clients. It reflected that as the portion of service quality integrated in mobile banking service, it led to growth to alignment of the user towards technology-

oriented service. This outcome is consistent with the previous empirical evidence (Cronin & Taylor, 1992). Service users experiencing expected higher quality associated with a product or service leads to client loyalty (Bolton & Drew, 1991; Anderson & Sulliva, 1993; Mittal & Kamakura, 2001).

Similarly, the enhancement of service in digital banking enhances perceived value, reflecting a helpful connection to client loyalty (Mahadin, 2019). Similarly, the results of this study showed a compatible, favorable, and significant impact of the condition of service status on consumer fulfillment, depicting that a rise in better mobile banking service quality enhances customer satisfaction among virtual bank service adopters. These findings stand in the same direction as earlier research's findings, which revealed that service quality in technology-driven services significantly enhances customer satisfaction, mitigating grievances and ensuring proper attention to all customers, as demonstrated by studies by Watto and Iqbal (2021) and Monferrer et al. (2019). Consequently, outcomes stand consistent with (Zeithmal et al., 2002; Casalo & Guinaliu, 2007).

Another result demonstrated a favorable and significant influence of service quality on client happiness, advocating that fostering service quality enhances customer satisfaction among mobile banking service users. These results were found compatible with (Watto and Iqbal; Monferrer et al. 2019). In addition, the findings of this study established a positive and significant impact of customer satisfaction on customer loyalty, advocating that satisfied clients are always included in the service provider's intention to continue the services in a regular manner as loyal customers. These results integrate with the findings of a previous study (Gautam and Sha 2023). Finally, customer satisfaction mediates the relationship between service quality and customer loyalty. This finding is in a similar direction to earlier empirical evidence (Rajeswari et al., 2017; Mahadin, 2019; Oh, 2022). In addition, clients' happiness mediates the link between service security and customer attachment, depicting that service maintains customer loyalty emerges from customer satisfaction as well. This finding aligns with previous (Aslam et al., 2019; Doung et al., 2024).

Conclusion

This research endeavored to uncover the influence of technology-based banking services, comprising an assessment of the effect of service quality and service security on customer loyalty, with an investigation of the mediating role of customer satisfaction

between mobile service quality, security, and customer loyalty. The study among the users of the mobile banking service in Kathmandu, Nepal. Consequently, the results manifested a pivotal role in the service quality of digital banking services that ultimately booststhe loyalty of banking clients. Thus, the direct impact of service quality establishes a fascinating atmosphere among its users of self-technology-based services, in line with digital banking services. It can be concluded that banking institutions offering services through digital platforms need to emphasize high-quality service to retain their client. Thus, a direct link was found between service quality and customer loyalty. Moreover, the mediating role of customer satisfaction found between the relationship of service quality and customer loyalty. It means that boosting customer loyalty is fundamentally associated with customer satisfaction. Therefore, it can be concluded that fostering customer loyalty emerges from both dimensions, considering the high-quality service of the mobile banking system and the position of customer satisfaction with online banking services. Thus, banking institutions endeavoring to foster client loyalty should concentrate on service quality that fosters customer satisfaction.

Similarly, the findings of this study revealed a significant contribution of service security to customer loyalty, which showed that cultivating customer loyalty is linked to security features of services. Finally, the mediating role of customer satisfaction in the relationship between service security and customer loyalty was found to be significant. It means that client loyalty derives from both sources, service security and customer satisfaction. Thus, direct and indirect links are vital to drive customer loyalty. Therefore, banking institutions need to embrace service security and customer satisfaction equally to boost customer loyalty.

In short, it can be reflected that service quality and service security of digital banking services, directly and indirectly, through customer satisfaction, drive customer loyalty. Therefore, a heavy strategic focus is required on these dimensions to foster loyalty. Moreover, the findings of the study can be useful to banking institutions, policymakers, and other stakeholders. Service providers and policymakers can consider this evidence while developing digital platforms for online transactions, emphasizing secure services, quality, for customer satisfaction, which maintains customer loyalty. However, this research reveals limitations with a small sample size and included only two dimensions: service quality and service security, and assessed the mediating effect of customer satisfaction, covering the banking sector only. Thus, a future study can take

place with a different horizon of research areas, especially different sectors and geographical territories, comprising more factors affecting customer satisfaction and loyalty.

References

Adhikari, U., & Gyawali, S.(2023). Customer satisfaction of service quality: Assessing mobile banking practices. *JTilottama, 1*(1). https://doi.org/10.3126/jtilottama.v1i1.64561

Agarwal, S., & Chua, Y. H.(2020). Fintech and household finance. *China Finance Review International, 10*(4), 361–376. https://doi.org/10.1108/CFRI-03-2020-0024

Ajina, A. S., et al. (2023). The effect of mobile-wallet service dimensions on customer satisfaction and loyalty. *CBM 10*(2). https://doi.org/10.1080/23311975.2023.2229544

Ali, A., et al. (2023). Exploring factors affecting mobile- banking app adoption. *AJIM*, *75*(4), 773-795. https://doi.org/10.1108/aJiM-08-2021-0216

Anderson, E. W., & Fornell, C. (2000). Foundations of the American customer satisfaction index. *TQM, 11*(7), 869–882. https://doi.org/10.1080/09544120050135425

Anderson, E.W., & Sullivan, M. W.(1993). The antecedents and consequences of customer satisfaction for firms. *MS, 12*(2), 125-143. https://doi.org/10.1287/mksc.12.2.125

Anitsal, I., & Flint, D. J.(2006). Exploring customers' perceptions in creating and delivering value. *SMQ, 27*(1), 57–72. https://doi.org/10.1300/J396v27n01_04

Aslam, W., et al. (2019). The effect of ATM service quality on customer satisfaction & customer loyalty. *GBR*, *20*(5).*https://doi.org/10.1177/0972150919846965*

Bahadur, W., et al. (2018). Effect of employee empathy on customer satisfaction and loyalty. *CBM*, *5*(1), 1491780. https://doi.org/10.1080/23311975.2018.1491780

Bitner, M. J., et al. (1994). Critical service encounters: The employee's viewpoint. *Journal of Marketing*, *58*(4), 95-106.https://doi.org/10.1177/002224299405800408

Bolton, R. N., & Drew, J. H. (1991). A multistage model of customers' assessments of service quality and value. *JCR*, *17*(4), 375-384. https://doi.org/10.1086/208564

Caruana, A. (2002). Service loyalty: The effects of service quality and the mediating role of customer satisfaction. *EJM*, *36*(7/8). https://doi.org/10.1108/03090560210430818

Casaló, L. V., et al. (2007). The role of security, privacy, usability & reputation in the dev of online banking. *OIR*, *31*(5). https://doi.org/10.1108/14684520710832315

Chatterjee, S., Kar, A. K., & Gupta, M. P. (2018). Success of IoT in smart cities of India. *GIQ*, *35*(3), 349-361.https://doi.org/10.1016/j.giq.2018.05.002

Chikazhe, L., et al. (2021). Understanding mediators and moderators of the effect of customer satisfaction on loyalty. *CBM*, *8*(1). https://doi.org/10.1080/23311975.2021.1922127

Cochran, W.G. (1977). *Sampling techniques.* John Wley & Sons. https://tinyurl.com/ya4cnfp9

Collier, J. E., et al. (2015). Exploring situational influences on customers' self-service technology decisions. *JBR*, *68*(3). https://doi.org/10.1016/j.jbusres.2014.08.001

Creswell, J.W. (2005). *Educational research: Planning, conducting, and evaluating quantitative and qualitative research* (2nd ed.). Pearson Education. https://tinyurl.com/3xz5bv76

Dandis, A. O., et al. (2021). Enhancing consumers' self-reported loyalty intentions in Islamic Banks. *CBM*, *8*(1). https://doi.org/10.1080/23311975.2021.1892256

Dick, A. S., & Basu, K.(1994). Customer loyalty: Toward an integrated conceptual framework. *J of Academy of Marketing Sc*, *22*(2), 99–113. https://doi.org/10.1177/0092070394222001

Ding, L., Velicer, W. F., & Harlow, L. L. (1995). Effects of estimation methods, number of indicators per factor, and improper solutions on structural equation modeling fit indices. *Structural Equation Modeling: A Multidisciplinary Journal*, *2*(2), 119-143. https://doi.org/10.1080/10705519509540000

Fornell, C., & Larcker, D. F.(1981). Evaluating structural equ models with unobservable variables and measurement error. *JMR*, *18*(1), . https://doi.org/10.1177/002224378101800104

Gautam, D. K., & Sah, G. K.(2023). Online banking service practices and its impact on e-customer satisfaction and e-customer loyalty in developing country of South Asia-Nepal. *Sage Open*, *13*(3).https://doi.org/10.1177/21582440231185580

Ghimire, B., & Dhakal, A.(2023). Effect of mobile banking on customer satisfaction in commercial banks in Nepal. *Nepalese Journal of Management Science and Research*, *6*(1), 121-132. https://doi.org/10.53056/njmsr-2023.6.1.008

Gounaris, S., et al. (2010). An examination of the effects of service quality and satisfaction on customers' e-shopping. *JSM*, *24*(2), .https://doi.org/10.1108/08876041011031118

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2013). Partial least squares structural equation modeling. *Long Range Planning*, *46*(1-2), 1-12.https://doi.org/10.1016/j.lrp.2013.01.001

Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *JMTP*, *19*(2), 139-152. https://doi.org/10.2753/MTP1069-6679190202

Hallowell, R. (1996). The relationships of customer satisfaction, customer loyalty, and profitability: An empirical study. *International Journal of Service Industry Management*, *7*(4), 27–42. https://doi.org/10.1108/09564239610129931

Hu, L.T., & Bentler, P. M.(1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *A Multidisciplinary Journal*, *6*(1), 1-55. https://doi.org/10.1080/10705519909540118

Islam, H., et al. (2023). Impact of firms' size, leverage, and net profit margin on firms' profitability in the manufacturing sector of Bangladesh: An empirical analysis using GMM estimation. *Journal of Ekonomi*, *5*(1), 1-

9.https://doi.org/10.58251/ekonomi.1275742 JASP Team. (2024). JASP (Version 0.19.3) [Computer software]. https://jasp-stats.org/

Jeandry, G., & Fajriyanti, N. (2023). Financial performance as mediation is influenced by diversification and intellectual capital on sustainability performance. *International Journal of Research in Business and Social Science* (2147- 4478). https://doi.org/10.20525/ijrbs.v12i3.2483

Joshi, C. (2023). Measuring the relationship between service quality, customer satisfaction and customer loyalty in the banking sector of Nepal. *Contemporary Research:An Interdisciplinary Academic Journal*, *6*(2), 52-71. https://doi.org/10.3126/craiaj.v6i2.60248

Kline, R.B. (2011). *Principles and practice of structural equation modeling* (5th ed.). The Guilford Press. https://tinyurl.com/yed5des3

Kumar, M., Tat Kee, F., & Taap Manshor, A. (2009). Determining the relative importance of critical factors in delivering service quality of banks: An application of dominance analysis in SERVQUAL model. *Managing Service Quality: An International Journal*, *19*(2), 211-228.https://doi.org/10.1108/09604520910943198l

Lai, I.K.W. (2014). The roles of value, satisfaction, and commitment in the effect of service quality on customer loyalty in Hong Kong–style tea restaurants. C*ornell Hospitality Quarterly, 56*(1), 118-138. https://doi.org/10.1177/1938965514556149

Lenka, U., Suar, D., & Mohapatra, P. K. (2009). Service quality, customer satisfaction, and customer loyalty in Indian commercial banks. *The Journal of Entrepreneurship*, *18*(1), 47-64.https://doi.org/10.1177/097135570801800103

Leong, L. Y., Hew, T. S., Ooi, K. B., Chong, A. Y. L., & Lee, V. H. (2021). Understanding trust in ms-commerce: The roles of reported experience, linguistic style, profile photo, emotional, and cognitive trust. *Information & Management*, *58*(2), 103416. https://doi.org/10.1016/j.im.2020.103416

Lewis, B. R., & Soureli, M.(2006). The antecedents of consumer loyalty in retail banking. *Journal of Consumer Behaviour, 5*(1), 15–31. https://doi.org/10.1002/cb.46

Luu Thi Thuy, D., et al. (2024). Enhancing satisfaction and word of mouth of young mobile banking users through system quality and individual performance. *Cogent Business & Management*, *11*(1), 2338925. https://doi.org/10.1080/23311975.2024.2338925

Mahadin, B.K. (2019). A study of factors affecting word of mouth (WOM) towards Islamic banking (IB) in Jordan. *International Journal of Emerging Markets*, *14*(4), 639–667. https://doi.org/10.1108/IJOEM-10-2017-0414

Marafon, D. L., et al. (2018). Perceived risk and intention to use internet banking: The effects of self-confidence and risk acceptance. *International Journal of Bank Marketing*, *36*(2), 277-289. https://doi.org/10.1108/IJBM-11-2016-0166

Mittal, V., & Kamakura, W. A.(2001). Satisfaction, repurchase intent, and repurchase behavior: Investigating the moderating effect of customer characteristics. *Journal of Marketing Research*, *38*(1), 131-142. https://doi.org/10.1509/jmkr.38.1.131.18832

Monferrer, D., Moliner, M. A., & Estrada, M. (2019). Increasing customer loyalty through customer engagement in the retail banking industry. *Spanish Journal of Marketing-ESIC*, *23*(3), 461-484.https://doi.org/10.1108/SJME-07-2019-0042

Nunnally, J. C. (1978). An overview of psychological measurement. In B. B. Wolman (Ed.), *Clinical diagnosis of mental disorders* (pp. 97-146). Springer. https://tinyurl.com/4fwvyazx

Oh, D.-G. (2022). How to measure service quality, customer satisfaction and loyalty of public library users: Application of library customer satisfaction index (LCSI) lite model. *Journal of Librarianship and Information Science*, *55*(3), 719-733. https://doi.org/10.1177/09610006221101193

Oliver, R.L. (1980). A cognitive model of the antecedents and consequences of satisfaction decisions. *Journal of Marketing Research, 17*(4), 460–469. https://doi.org/10.1177/002224378001700405

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1994). Reassessment of expectations as a comparison standard in measuring service quality: implications for further research. *Journal of marketing*, *58*(1), 111-124. https://doi.org/10.1177/002224299405800109

Phan Thi Hang, N., & Kim Quoc Trung, N. (2024). Service quality, customer satisfaction and loyalty: a case study in Vietnamese SMEs. *Cogent Business & Management*, *11*(1),1-15. https://doi.org/10.1080/23311975.2024.2377769

Rajeswari, S., Srinivasulu, Y., & Thiyagarajan, S. (2017). Relationship among service quality, customer satisfaction and customer loyalty: with special reference to wireline telecom sector (DSL service). *Global Business Review*, *18*(4), 1041-1058. https://doi.org/10.1177/0972150917692405

Salem, M. Z., Baidoun, S., & Walsh, G. (2019). Factors affecting Palestinian customers' use of online banking services. *International Journal of Bank Marketing*, *37*(2), 426-451. https://doi.org/10.1108/IJBM-08-2018-0210

Schierz, P. G., Schilke, O., & Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, *9*(3), 209-216.https://doi.org/10.1016/j.elerap.2009.07.005

Shahid Iqbal, M., et al. (2018). Impact of self-service technology (SST) service quality on customer loyalty and behavioral intention: The mediating role of customer satisfaction. *Cogent Business & Management*, *5*(1), 1-23. https://doi.org/10.1080/23311975.2018.1423770

Shaon, S.K.I., & Rahman, H.(2015). A theoretical review of CRM effects on customer satisfaction and loyalty. *Central European Business Review*, *4*(1), 23–36. https://doi.org/10.18267/j.cebr.108

Shi, Z., & Shang, H.(2020). A review on the quality of service and the SERVQUAL model. *In HCI in business, government, and organizations: 7th International Conference, HCIBGO 2020, held as part of the 22nd HCI International Conference, HCII 2020, Copenhagen, Denmark, July 19–24, 2020, Proceedings* (pp. 188–204). Springer International Publishing. https://doi.org/10.1007/978-3-030-50341-3_15

Siedlecki, S. L. (2020). Understanding descriptive research designs and methods. *Clinical Nurse Specialist*, *34*(1), 8–12. https://doi.org/10.1097/nur.0000000000000493

Suri, T. (2017). Mobile Money. *Annual Review of Economics*, *9*(1), 497–520. https://doi.org/10.1146/annurev-economics-063016-103638

Thakuri, N., et al. (2023). Factor affecting customer satisfaction of mobile banking services of commercial bank in Kathmandu Valley. *Interdisciplinary Journal of Innovation in Nepalese Academia*, *2*(1), 34-52.https://doi.org/10.3126/idjina.v2i1.55964

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection. *Ethnobotany Research and Applications*, *5*, 147–158. https://doi.org/10.17348/era.5.0.147-158

Tsou, H.-T., & Hsu, H.-Y. (2017). Self-Service technology investment, electronic customer relationship management practices, and service innovation capability. In marketing at the confluence between entertainment and analytics (pp. 477–481). Berlin: Springer. https://doi.org/10.1007/978-3-319-47331-4

Wattoo, M. U., & Iqbal, S. M. J.(2022). Unhiding nexus between service quality, customer satisfaction, complaints, and loyalty in online shopping environment in Pakistan. *SAGE Open*,*12*(2). https://doi.org/10.1177/21582440221097920

Zeithaml, V. A., Parasuraman, A.,& Malhotra, A.(2002). Service quality delivery through websites: A critical review of extant knowledge. *Journal of the Academy of Marketing Science*, *30*(4), 362–375. https://doi.org/10.1177/009207002236911