Pak. j. life soc. Sci. (2024), 22(1): 1091-1104 E-ISSN: 2221-7630;P-ISSN: 1727-4915

Pakistan Journal of Life and Social Sciences
www.pjlss.edu.pk

https://doi.org/10.57239/PJLSS-2024-22.1.0074

RESEARCH ARTICLE

Exploring the Nexus of ATM Service Quality, Customer Satisfaction, and Loyalty in the Private Banking Sector in Bangladesh

Md. Amdadul Hoque[1*], Ferdous Jahan[2], Fahmida Begum[3]

[1] Associate professor, Department of Finance and Banking, Comilla University, Cumilla, Bangladesh and PhD Research Fellow, Putra Business School, Universiti Putra Malaysia (UPM), Selangor, Malaysia.

[2] Assistant professor, Department of Finance and Banking, Comilla University, Cumilla, Bangladesh.
[3] Assistant professor, Department of Accounting and Information Systems, Comilla University, Cumilla, Bangladesh.

ARTICLE INFO

Received: May 9, 2024

Accepted: Jun 19, 2024

Keywords

Service quality

ATM

Customer Satisfaction

Customer loyalty

Bangladesh

***Corresponding Author:**

fahmidabegum.du@gmail.com

ABSTRACT

The study's primary objectives are to look at the link between service quality, customer satisfaction, and customer loyalty in ATM services provided by private commercial banks in Bangladesh. A cross-sectional study has been conducted with a structured questionnaire to collect data from 300 ATM users of private banks in Bangladesh. The collected data was tested using structural equation modeling (SEM) techniques with SMART PLS-4.0. The study found that service quality variables like functionality, enjoyment, security, customization, design, and convenience are significantly correlated with customer satisfaction, However, assurance is insignificantly linked to customer satisfaction. The study also revealed that customer satisfaction substantially affects customer loyalty. The study's findings are expected to act as valuable inputs to bank management to take appropriate measures to reduce the service quality gaps of ATM to fulfil customer expectations. This study contributes to the existing literature by uniquely focusing on the interplay between ATM service quality, customer satisfaction, and loyalty in the context of Bangladesh's emerging economy. Emphasizing the need for context-specific strategies, it addresses a research gap regarding self-service technology service quality (SSTQUAL) in Bangladeshi private banks, providing valuable insights for formulating effective and tailored strategies.

INTRODUCTION

Service organizations provide a wide variety of offerings, from full-service to self-service. These services needed full-time or part-time service personnel according to the level of automation. Inadvertently, higher labor costs and the global turnover of employees have led companies to look for harmless and more economical alternatives, for example, self-service. With substantial transformation and development of IT, self-service technology (SST) has been transformed, enabling customer engagement during service performance. The competitive environment of the global banking sector has changed because of the restructuring of financial systems, increasing technology penetration, the increased rivalry between banks and other financial service providers, and evolving client preferences (Gupta & Xia, 2018). Due to technological advancements and rising demand for financial services, Bangladesh's banking industry has undergone significant transformation in recent years. One crucial aspect of this transformation is the proliferation of automated teller machines (ATMs), which play a pivotal role in enhancing customer convenience and accessibility to banking services. As Bangladesh positions itself as an emerging economy, the private banking sector has

become a key player in shaping the financial landscape of the country. So, understanding the interrelationships between ATM service quality, customer satisfaction, and customer loyalty is paramount for private banks to thrive in this competitive environment.

ATM service quality is a multifaceted concept encompassing various dimensions, such as reliability, responsiveness, security, and efficiency. Recent studies (Krisna, 2023; Khan et al., 2024) have highlighted the importance of ATM service quality in influencing customers' perceptions and experiences. In the context of Bangladesh, where the majority of the population relies on banking services to meet their financial needs, the quality of ATM services becomes a critical factor in ensuring customer satisfaction. Moreover, customer satisfaction is a key determinant of the success of any business, including the banking sector. The quality of ATM services directly impacts customer satisfaction, as customers often form their opinions based on the convenience, speed, and reliability of ATM transactions (Ashfaq et al., 2023). In Bangladesh, where consumers are becoming increasingly discerning and demanding, private banks need to pay meticulous attention to the factors that contribute to customer satisfaction, with a specific focus on ATM services.

In addition, exploring customer satisfaction and loyalty in the context of an emerging economy like Bangladesh is of paramount significance. Because the socio-economic dynamics, cultural nuances, and technological adoption patterns in such countries differ from those in developed economies. Recent studies (Ananthi & Chandrasekar, 2023; Tater & John, 2023) have underscored the importance of tailoring strategies to meet customers' unique needs and expectations in emerging markets. Investigating the interplay between ATM service quality, customer satisfaction, and loyalty in Bangladesh provides valuable insights for private banks to formulate effective and context-specific strategies. Furthermore, customer loyalty is a strategic goal for banks to build a sustainable customer base. The relationship between ATM service quality and customer loyalty has been widely acknowledged in the literature (Alam et al., 2023; Rahman et al., 2023). According to Aslam and Frooghi (2018), the quality of service is a critical factor in consumer loyalty and satisfaction. The SERVQUAL model established by Parasuraman et al. (1988) was used in several studies to investigate the influence of service quality on bank customer satisfaction in both developed and developing countries throughout the world (Butt & Aftab, 2013; Herington & Weaven, 2009). Earlier, several types of research were conducted worldwide to explore the link between ATM service quality and customer satisfaction (Shim et al., 2021; Proença & Rodrigues, 2011), with some of the studies being conducted in Bangladesh (Aslam et al., 2018; Islam et al., 2007; Mahmud et al., 2015). Despite Bangladeshi banks' impressive acceptance and adoption of SSTs, these studies disclose relatively little about Bangladesh's ATMs' service technology and service quality. Moreover, regarding SSTs like ATM services in Bangladesh, less attention has been paid to the relationship between service quality dimensions, customer satisfaction, and customer loyalty. Because SSTs are so crucial in the banking industry, the scope of the study needs to be widened. So, the primary purpose of this study is to find out how ATM service quality, customer satisfaction, and customer loyalty are connected in the case of private commercial banks in Bangladesh.

LITERATURE REVIEW

Numerous studies have been carried out by researchers worldwide to illustrate different aspects of automated teller machines (ATMs) service quality. Researchers' views on the efficiency and performance of automated SQ have diverged in the past. In this regard, Adil et al. (2020) investigated the key features of ATM service quality in the Indian banking industry and the connection between service quality, e-satisfaction, and e-loyalty. The study found that security and gratification have become very important to Indian ATM service users. Besides, Goet J. (2020) conducted a study on customer satisfaction with ATM service in the Nepalese banking sector and discovered a substantial association between fee reasonableness, ATM preference, service use, and past purchase behavior and customer satisfaction. Furthermore, Islam M. (2018) has undertaken a study to determine what kinds of services customers expect from a bank before setting up an ATM booth in Bangladesh and

found that customers' expectations from ATM service providers are safety, suitability, comfort, fast service, and lower fees. Likewise, Aslam et al. (2018) investigated how ATM service quality influences customer satisfaction and loyalty and discovered that comfort, persistence, convenience of use, safety, and secrecy all impacted ATM user satisfaction. Although convenience and responsiveness are positively associated with customer satisfaction, the study also found that they are not significant. Moreover, Khan and Abdullah (2019) investigated the effect of ATM service quality on customer satisfaction and loyalty in banks in Iraq and found that reliability, convenience, ease of use, security, fulfilment, and responsiveness have significant effects on customer satisfaction. In a similar vein, Islam et al. (2021) investigated the effect of varying service quality on customer satisfaction and its impact on customer loyalty to ATM services. The findings reveal that visibility, responsiveness, and employee commitment all positively and substantially affect customer satisfaction. Nevertheless, reliability and service availability have little impact on consumer satisfaction with private banking ATM services in Bangladesh. Except for respondents' profession, no other demographic component is statistically connected with customer satisfaction.

The previous literature reveals only a few ideas about the influence of service quality attributes of ATMs on customer satisfaction and loyalty. However, there is a connection between service quality, client satisfaction, and customer loyalty in the retail banking market of Bangladesh (Siddiqi, 2011). Some researchers point out that satisfaction and loyalty are connected. Satisfaction is, thus, a component of the overall dimension of desire and perceived execution. Desires are based on past involvement with equivalent or comparative circumstances, explanations made by friends, or different partners (Prabhu et al., 2019; Jam et al., 2019). However, several previous studies (Chandra, 2023; Islam et al., 2020) have sought to establish the influence of ATM service quality on customer satisfaction as well as explore the interrelationship among ATM service quality, customer satisfaction, and customer loyalty in the private banking sector in Bangladesh. Still, these investigations are inadequate in scope, either due to a limited research area, a lack of an appropriate model, a small sample size, or restrictive representation. To fill this research gap, the researchers are inspired to conduct the study to explore the interrelationships between ATM service quality, customer satisfaction, and customer locality in the private banking industry in Bangladesh.

Conceptual Framework and Hypothesis Development

As per previous research, the idea of evaluating SQ at SST is still in its early stages. As a result, recognized research studies in the domains of service models (Parasuraman et al., 1985, 1988; Haryono, 2015) and automated service offerings (Santos, 2003; Sadiq et al., 2019) provided the foundation for developing a model in the current study. The SSTQUAL model dimensions, including functionality, enjoyment, security, customization, assurance, design, and convenience, are crucial in investigating the impact of ATM service quality on customer satisfaction. Recent studies highlight the significance of these dimensions in shaping customer perceptions and experiences. Likewise, functionality ensures that ATMs perform their intended tasks efficiently, influencing overall satisfaction (Liang et al., 2020). Similarly, enjoyment reflects customers' emotional responses, indicating that positive experiences contribute to satisfaction (Li et al., 2021). Moreover, security is paramount in financial services, and customers associate secure transactions with higher satisfaction levels (Choi et al., 2022). In addition, customization caters to individual preferences, enhancing satisfaction by providing personalized services (Sánchez-Torres et al., 2022). Besides, assurance instills confidence in customers regarding the reliability and trustworthiness of ATM services, positively impacting satisfaction (Hassan et al., 2021; Jam et al., 2016). Also, design aesthetics contribute to the overall experience, influencing customer satisfaction (Luo et al., 2023). Finally, convenience is a crucial determinant, as easy and accessible ATM services positively correlate with customer satisfaction (Kashif et al., 2023). In summary, the SSTQUAL model dimensions offer a comprehensive framework to assess ATM service quality and its impact on customer satisfaction,

with recent studies underscoring the relevance of these dimensions in the evolving landscape of financial services.

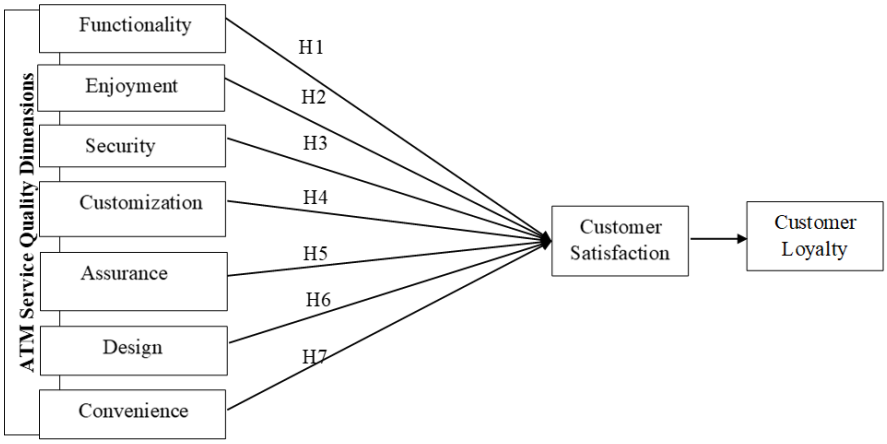

Figure 1: The Conceptual Framework

Figure 1 depicts an e-SQ conceptualization that can be converted into a causal model that includes seven SSTQUAL dimensions: functionality, enjoyment, security, customization, assurance, design, and convenience. This research suggests the following hypothesis based on the existing literature:
***H_{1-7}**: SSTQUAL dimensions of ATMs have a positive impact on customer satisfaction of ATM Banking in Bangladesh.*

***H_8**: Customer satisfaction has a substantial effect on customer loyalty in ATM Banking in Bangladesh*

METHODOLOGY OF THE STUDY

The research design of this study is explanatory and descriptive. The data were gathered through an online email and social media survey using purposive sampling. Purposive sampling is a non-probability sampling strategy that is the most effective for researching certain qualified specialists (Tongco, 2007). This research focused on ATM banking in Bangladesh because the banking sector has been growing steadily over the years, with a large number of branches and ATMs spread across the country (World Bank report, 2022; Kanval et al., 2024). According to the quarterly scheduled bank statistics of Bangladesh Bank for December 2023, 82.73 percent of bank deposits in Bangladesh are contributed by two divisions, Dhaka and Chattogram, and 56.72 percent of bank branches in Bangladesh are situated in these divisions. For this reason, three urban cities (Dhaka, Chattogram, and Cumilla) of these divisions in Bangladesh have been included as study areas. Furthermore, the focus was on these major metropolitan areas because technological progress is most pronounced in those areas of any country. A structured questionnaire has been developed based on existing literature and expert opinions to execute the survey. SST service quality literature was extensively reviewed to create the constructs and items for each construct. Several scales have been adapted from the previous study to operationalize the constructs in this analysis. The questionnaire contains two parts. The first part includes the respondents' personal information, while the second part includes observations of the model's construct. A five-point Likert scale was used to measure the respondents' opinions (from 1 "strongly disagree" to 5 "strongly agree"). The survey was conducted from June to December 2023. A total of 315 questionnaires were returned out of 500 that were distributed, for a response rate of 63.00%. The researcher subsequently compiled a dataset of records using SPSS. The researcher used a data cleansing technique to fix the dataset, which had many flawed or erroneous records, including but not limited to duplicate comments, structural issues, unfinished records, and instances of omitted data. After the data was cleaned up, a total of 300

questionnaires were compiled. PLS-SEM version 4 and SPSS for Windows version 25 have been used to analyze the data.

DATA ANALYSIS AND RESULTS

Demographics Profile Analysis of Respondents

Table 1 – Demographics Profile of the Respondents (%)

Demographic Variables		Frequency	Percentage
Gender	Male	194	64.7
	Female	106	35.3
Age Group	Less than 20 years	8	2.7
	21-30	196	65.3
	31-40	59	19.7
	41-50	25	8.3
	51-60	9	3.0
	Above 60 years	3	1.0
Occupation	Businessman	63	21.0
	Government Service	57	19.0
	Private Service	123	41.0
	Student	33	10.97
	Homemaker	12	4.0
	Others	12	4.0
Educational Qualifications	High School and below	8	2.7
	Higher Secondary	28	9.3
	University or Bachelor Degree	153	51.0
	Post-graduate	111	37.0
Monthly Income Level	Less than BDT 20,000	131	43.7
	BDT 20,001-40,000	83	27.7
	BDT 40,001-60,000	53	17.7
	BDT 60,001-80,000	14	4.7
	More than BDT 80,000	19	6.3
Length of relationship	Less than 1 year	65	21.7
	1 to 3 years	100	33.3
	3 to 5 years	57	19.0
	More than 5 years	78	26.0
Service taking frequency	Daily	19	6.3
	Weekly	119	39.7
	Fortnightly	30	10.0
	Monthly	132	44.0

Source: Author's Analysis from primary data

Table 1 describes the frequency, percentage, and means of the demographic profile of 300 respondents. In this study, 64.7% of males and 35.3% of females participated. The majority of respondents (65.3%) were between the ages of 21 and 30, followed by 19.7% between the ages of 31 and 40, 8.3% between the ages of 41 and 50, and 4% over the age of 50.
Maximum respondents, i.e., 41.0% are private service holders, 21.0% are business people, 19.0% are government service, and 9.3% are students. 51.0% of respondents are bachelor's degree qualified, and 37.0% completed their post-graduation. 43.7% of respondents have an income level of less than BDT 20,000, and 27.7% of respondents earn between BDT 20,001 and 40,000.
In terms of length of relationship with ATM service, 33.3% of respondents have a relationship of 1 to 3 years, whereas 26.0% have more than five years. 44.0% of total respondents use ATM service once a month, and 39.7% of respondents use ATM service weekly.

Measurement Model

Confirmatory Factor Analysis (CFA), Composite Reliability (CR) and Average Variance Extracted (AVE)

Table- 2: CFA, CR & AVE

Constructs	Items	Standardized Loadings	CR	AVE
Functionality	FUNC01	0.836	0.860	0.672
	FUNC02	0.783		
	FUNC04	0.839		
Enjoyment	ENJ01	0.796	0.829	0.550
	ENJ02	0.785		
	ENJ03	0.669		
	ENJ04	0.709		
Security/Privacy	SEC01	0.896	0.885	0.793
	SEC02	0.886		
Customization	CUST01	0.854	0.848	0.651
	CUST02	0.810		
	CUST03	0.753		
Assurance	ASSU01	0.856	0.836	0.718
	ASSU02	0.838		
Design	DESI01	0.878	0.841	0.726
	DESI02	0.826		
Convenience	CONV01	0.856	0.849	0.737
	CONV02	0.861		
Customer Satisfaction	SAT01	0.866	0.875	0.700
	SAT02	0.869		
	SAT03	0.772		
Customer Loyalty	LOY01	0.828	0.877	0.703
	LOY02	0.851		
	LOY03	0.836		

Source: Author's Analysis from primary data

After exploring the factors through EFA, high factor loadings (>0.600) indicators are assessed for confirmatory factor analysis (CFA) to facilitate cross-validation of the model by standardized factor loadings. During CFA, composite reliability (CR) and average variance extracted (AVE) were measured for the variables shown in **Table 2**. To test the reliability of the constructs, the study used the most reliable indicator, which is composite reliability (CR). In **Table 2**, all the CRs are higher than the recommended value of 0.700 (Wasko and Faraj, 2005). In addition, the convergent validity is acceptable because the average variance extracted (AVE) values are over 0.500 (Fornell & Larcker, 1981).

Discriminant Validity and Correlation

To check whether the variables are correlated, discriminant validity was performed by SmartPLS 4. The square roots of the AVE values are greater than the corresponding correlations (Fornell & Larcker, 1981).

Table-3: Discriminant Validity and Correlation

	ASSU	CONV	LOYAL	SAT	CUST	DESI	ENJ	FUNC	SEC
ASSU	**0.847**								
CONV	0.564	**0.859**							
LOYALTY	0.616	0.546	**0.838**						
SAT	0.641	0.654	0.703	**0.837**					
CUST	0.472	0.420	0.532	0.561	**0.807**				
DESI	0.610	0.607	0.580	0.628	0.561	**0.852**			
ENJ	0.628	0.548	0.650	0.668	0.577	0.581	**0.742**		
FUNC	0.512	0.440	0.535	0.539	0.324	0.402	0.560	**0.820**	
SEC	0.661	0.506	0.597	0.664	0.538	0.509	0.605	0.469	**0.891**

Source: Author's Analysis from primary data

Table 3 illustrates the values of correlation among the variables and the squared value of AVE to check the discriminant validity. It was observed that the variable is correlated with itself only.

Multicollinearity Test

The VIF results can be seen in **Table 4**. Hair et al. (2021) state that a common threshold for VIF is 10, while Kline (1998) states that its maximum value can be 5.

Table 4: Collinearity Assessment (VIF)

	FUNC	ENJ	SEC	CUST	ASSU	DESI	CONV	SAT	LOYAL
Functionality								1.595	
Enjoyment								2.418	
Security								2.159	
Customization								1.804	
Assurance								2.432	
Design								2.181	

Convenience		1.866	
Cust. Sat.			1.000
Cust. Loyalty			

Source: Author's Analysis from primary data

Based on the results, it can be seen that the study passed the multicollinearity test.

Structural Model

The structural model reflects the paths hypothesized in the research framework. A structural model is assessed based on the R2, Q2, and path significance. The goodness of the model is determined by the strength of each structural path determined by the R2 value for the dependent variable (Briones Penalver et al., 2018). According to Wong (2013), an R-squared value of >0.75 is considered to be substantial, >0.50 to <0.75 is considered good, and >0.25 to <0.50 is weak. And the value for R^2 should be equal to or over 0.1 (Falk & Miller, 1992). Further, Q^2 establishes the predictive relevance of the endogenous constructs. A Q^2 >0 shows that the model has predictive relevance.

Table 5: R Square

	R^2	Q^2
Customer Satisfaction	0.659	0.445
Customer Loyalty	0.495	0.342

Source: Author's Analysis from primary data

Based on the results shown in **Table 5**, the R-square value of 0.659 for customer satisfaction is good. This means that the seven SSTQUAL dimensions moderately explain 70% of the variance in customer satisfaction. In addition, the R-square value of 0.495 for customer loyalty is good because it is close to 0.50. This means that customer satisfaction moderately explains 49.5% of the variance in customer loyalty. The results also show that there is significance in the predictions of the constructs.
In model fit results, the value of the standardized root mean square residual (SRMR) for the model is estimated at 0.078, and according to Hu and Bentler (1999), it must be less than 0.08. So, this Model is a perfect fit for hypothesis testing.

Hypothesis Testing

Table 6: Coefficients of paths & P values

Paths	Original Sample (O)	Sample Mean (M)	Standard Deviation (SD)	T Statistics (O/SD)	P Values	**Decision**
Functionality→Customer Satisfaction **(H_1)**	0.120	0.120	0.050	2.400	0.017	**Supported**
Enjoyment → Customer Satisfaction **(H_2)**	0.152	0.152	0.063	2.423	0.016	**Supported**
Security → Customer Satisfaction **(H_3)**	0.224	0.227	0.056	4.021	0.000	**Supported**

Customization → Cust. Satisfaction **(H_4)**	0.106	0.106	0.049	2.166	0.031	**Supported**
Assurance → Customer Satisfaction **(H_5)**	0.072	0.071	0.051	1.415	0.158	**Unsupported**
Design → Customer Satisfaction **(H_6)**	0.126	0.127	0.060	2.118	0.035	**Supported**
Convenience → Cust. Satisfaction **(H_7)**	0.243	0.242	0.051	4.738	0.000	**Supported**
Customer Satisfaction → Customer Loyalty **(H_8)**	0.703	0.704	0.034	20.645	0.000	**Supported**

Source: Author's Analysis from primary data

DISCUSSIONS OF THE RESULT

The study reveals a substantial impact of ATM functionality on customer satisfaction. The findings are aligned with previous studies (Rachman et al.,2023; Ighomereho et al., 2023; Singh, 2011), which also found that customers highly value seamless and efficient ATM operations, influencing their overall satisfaction with banking services. So, banks should prioritize regular maintenance, timely upgrades, and user-friendly interfaces to enhance ATM functionality, ensuring a positive customer experience and fostering long-term satisfaction. Furthermore, the study discloses a significant correlation between the enjoyment of ATM usage and customer satisfaction in the banking sector. This finding is consistent with prior research by (Nigatu et al. 2023), highlighting that the higher level of enjoyment during ATM transactions tended to express higher satisfaction with overall banking services. Thus, banks should focus on enhancing the user experience of ATMs to boost customer satisfaction. Implementing user-friendly interfaces, ensuring reliability, and providing clear instructions can create a more enjoyable ATM experience, fostering positive perceptions and customer loyalty. The study also exposes a significant positive correlation between ATM security measures and customer satisfaction. Customer`s value secure ATM transactions, and a robust security framework contributes to heightened satisfaction levels. These results align with researchers (Aslam et al., 2019; Khan & Abdullah, 2019), who discovered that users want ATMs to operate consistently, provide dependable services, and accurately record accounts. Therefore, banks should invest in advanced security technologies, conduct regular security audits, and prioritize customer awareness programs to enhance trust and satisfaction with ATM transactions. The study also revealed a significant positive influence of ATM customization on customer satisfaction. Customized features, such as personalized interfaces and transaction preferences, contribute to a more satisfying banking experience (Mittal et al., 2023). So, banks should prioritize and invest in ATM customization or personalization to enhance customer satisfaction. Tailoring interfaces and functionalities to individual preferences can strengthen customer loyalty and drive positive perceptions of service quality.

In addition, the research divulges a substantial beneficial effect of ATM assurance on enhancing customer contentment within the banking industry. This finding parallels a prior study conducted by Chandra (2023), which similarly discovered that customer satisfaction is directly impacted by assurances in ATM services, including security measures, unambiguous instructions, and practical customer support. Customers' confidence in the protection and dependability of ATM transactions positively influences their trust in the service, resulting in increased satisfaction and sustained usage. So, banks should prioritize enhancing assurance features in ATMs, ensuring reliability, security, and prompt issue resolution to improve overall customer satisfaction and loyalty. Regular maintenance

and technological upgrades are essential to upholding a high standard of ATM assurance. The study also discloses that ATM design significantly stimuluses customer satisfaction, with factors such as user interface, accessibility, and aesthetics playing pivotal roles. Therefore, to enhance customer satisfaction, banks should invest in user-friendly ATM designs, prioritize accessibility features, and consider aesthetically pleasing interfaces to create a positive and seamless user experience.

Furthermore, the study exposes the substantial impact of ATM convenience on customer satisfaction, emphasizing the pivotal role of accessible and user-friendly ATM services in shaping customer perceptions. So, it is recommended that banks prioritize optimizing ATM convenience to enhance customer satisfaction, ensuring easy accessibility, quick transactions, and seamless user experiences. Investing in advanced ATM technologies and strategic placement can improve customer satisfaction. Finally, the study reveals a significant positive correlation between customer satisfaction with ATM services and customer loyalty in the banking sector. The findings align with prior research (Aslam et al., 2019; Eakuru & Mat, 2008; Kaura et al., 2015), demonstrating that customer satisfaction is contingent upon fulfilling customer service expectations. Customers form these expectations through prior experiences with analogous or identical circumstances and referrals from acquaintances or friends. Customer loyalty is predicated on contented clients being loyal and, as such, being more likely to maintain their relationships with the same service providers. Therefore, banks should prioritize enhancing ATM service quality to maximize customer satisfaction and bolster customer loyalty. Investments in technology, security measures, and continuous monitoring of customer feedback are recommended to meet evolving customer expectations and sustain a loyal customer base.

Implications of the Study

Theoretical implications: The study contributes to the existing literature by utilizing the SSTQUAL model to comprehensively assess the dimensions of ATM service quality in the context of private commercial banks in Bangladesh. The identification of specific dimensions such as functionality, enjoyment, security, customization, design, and convenience as significantly correlated with customer satisfaction enhances the theoretical understanding of the intricate relationship between service quality and customer perceptions. Additionally, the study advances theoretical knowledge by revealing that assurance, although part of the service quality framework, is insignificantly linked to customer satisfaction, prompting further exploration of this nuanced relationship. Furthermore, the substantial influence of customer satisfaction on loyalty underscores the criticality of nurturing favorable encounters to promote long-lasting connections and loyalty among clientele who utilize self-service technologies within banking environments.

Managerial implications: The study provides valuable insights for bank management in Bangladesh, emphasizing the significance of enhancing service quality in ATM services. By highlighting the specific dimensions that significantly influence customer satisfaction and, subsequently, customer loyalty, the findings serve as practical guidance for strategic decision-making. The recommendation for implementing policies to improve customer satisfaction and service quality underscores actionable steps for bank management to address identified gaps. Ultimately, the study's managerial contributions empower banks to tailor interventions that align with customer expectations, fostering long-term loyalty and competitiveness in the dynamic banking landscape in developing countries like Bangladesh

CONCLUSION, LIMITATIONS AND FUTURE RESEARCH DIRECTION

In summary, this research provides insights into the complex interconnections among customer loyalty, satisfaction with ATM service quality, and private commercial banking in Bangladesh. It was

determined that customer satisfaction was substantially impacted by the identified dimensions of convenience, customization, security, enjoyment, and functionality; this underscores the critical role of these dimensions in determining the overall customer experience. Nevertheless, the lack of a statistically significant correlation between assurance and customer satisfaction indicates that there may be room for enhancement within the service framework as a whole. The study highlights the considerable influence that customer contentment has on cultivating customer loyalty within ATM services. Despite the valuable insights gained, it is essential to acknowledge certain limitations. The study focused on specific urban cities, limiting the generalizability of the findings to rural areas. Additionally, the use of non-probability convenience sampling may introduce some sampling bias. Future research could address these limitations by incorporating a more diverse sample and expanding the study's scope to encompass a broader geographical context. Moreover, exploring the role of technological advancements and digital interfaces in shaping ATM service quality and customer satisfaction would provide a more comprehensive understanding of evolving banking landscapes. Therefore, more studies will be required if the results and consequences are generalized to nations other than Bangladesh with distinct cultures and financial legislation. Future research must study the link between other service quality aspects and customer satisfaction, loyalty, and retention in various SSTs (Internet banking and mobile banking), comparing traditional commercial and Islamic banks' service quality across cultures. Overall, this study serves as a foundation for future research endeavors to further refine strategies for enhancing ATM service quality and customer loyalty in the dynamic banking environment of Bangladesh.

REFERENCES

Adil, M., Nasir, M., Sadiq, M., & Bharti, K. (2020). SSTQUAL model: assessment of ATM service quality in an emerging economy. *International Journal of Business Excellence*, *22*(1), 114-138.

Ananthi, C., & Chandrasekar, M. R. (2023). Technology adoption and its role in enhancing customer satisfaction in banking sector. *EPRA International Journal of Research and Development (IJRD)*, *8*(7), 157-164.

Ashfaq, M. A., Haq, N., Arshad, U., & Farooq, M. (2023). Towards a Trustworthy and Efficient ETL Pipeline for ATM Transaction Data. *Sukkur IBA Journal of Computing and Mathematical Sciences*, *7*(2), 9-24.

Aslam, W., & Frooghi, R. (2018). Switching behavior of young adults in cellular service industry: An empirical study of Pakistan. Global Business Review, Vol.19, No.3, pp.635-649.

Aslam, W., Tariq, A., & Arif, I. (2019). The effect of ATM service quality on customer satisfaction and customer loyalty: An empirical analysis. *Global Business Review*, *20*(5), 1155-1178.

Bangladesh Bank Annual Reports (2023), Quarterly Scheduled Banks Statistics (October-December 2023), Bangladesh Bank.

Briones Peñalver, A. J., Bernal Conesa, J. A., & de Nieves Nieto, C. (2018). Analysis of corporate social responsibility in Spanish agribusiness and its influence on innovation and performance. *Corporate Social Responsibility and Environmental Management*, *25*(2), 182-193.

Butt, M.M. and Aftab, M. (2013), "Incorporating attitude towards halal banking in an integrated service quality, satisfaction, trust and loyalty model in online Islamic banking context," *International Journal of Bank Marketing*, Vol. 31 No. 1, pp. 6-23.

Chandra, S. (2023). Study analyzing the mediating effects of customer satisfaction in the relationship between ATM service quality and customer loyalty. *Frontiers in Business, Economics and Management*, *7*(1), 160-166.

Choi, M., Azzaoui, A. E., Singh, S. K., Salim, M. M., Jeremiah, S. R., & Park, J. H. (2022). The future of metaverse: Security issues, requirements, and solutions. Human-Centric Computing and Information Sciences, 12(60), 1-14.

Eakuru, N., & Mat, N. K. N. (2008). The application of structural equation modeling (SEM) in determining the antecedents of customer loyalty in banks in South Thailand. *The Business Review, Cambridge*, *10*(2), 129-139.

Falk, R. F., & Miller, N. B. (1992). *A primer for soft modeling*. University of Akron Press.

Fornell, C. (1981). A comparative analysis of two structural equation models: LISREL and PLS applied to market data.

Gefen, D., & Straub, D. (2005). A practical guide to factorial validity using PLS-Graph: Tutorial and annotated example. *Communications of the Association for Information systems*, *16*(1), 5.

Goet J. (2020), "Customer Satisfaction Towards ATM Service In Nepalese Banking Sector", *Management Dynamics,* Vol. 23, No. 2, pp.45-52.

Gupta, A., & Xia, C. (2018). A paradigm shift in banking: Unfolding Asia's fintech adventures. In *Banking and finance issues in emerging markets* (Vol. 25, pp. 215-254).

Hair Jnr, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis.

Hair Jr, J. F., Hult, G. T. M., Ringle, C. M., Sarstedt, M., Danks, N. P., Ray, S., ... & Ray, S. (2021). An introduction to structural equation modeling. *Partial least squares structural equation modeling (PLS-SEM) using R: a workbook*, 1-29.

Haryono, S. (2015) 'The effects of service quality on customer satisfaction, customer delight, trust, repurchase intention, and word of mouth', European Journal of Business and Management, Vol. 7, No. 12, pp.36–48.

Hassan, T. H., & Salem, A. E. (2021). Impact of service quality of low-cost carriers on airline image and consumers' satisfaction and loyalty during the COVID-19 outbreak. International journal of environmental research and public health, 19(1), 83.

Herington, C., &Weaven, S. (2009), "E-retailing by banks: E-service quality and its importance to customer satisfaction", European Journal of Marketing, Vol. 43 No. 9/10, pp. 1220–1231.

Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, *6*(1), 1-55.

Ighomereho, O. S., Afolabi, T. S., & Oluwakoya, A. O. (2023). Impact of E-service quality on customer satisfaction: a study of internet banking for general and maritime services in Nigeria. *Journal of Financial Services Marketing*, *28*(3), 488-501.

Islam, M. M. (2018). Consumers' Perceptions toward ATM Booths: A Study on Bangladesh. *Asian Journal of Multidisciplinary Studies*, *6*, 1. pp.108–120

Islam, R., Ahmed, S., Rahman, M., & Al Asheq, A. (2020). Determinants of service quality and its effect on customer satisfaction and loyalty: an empirical study of private banking sector. *The TQM Journal*, *33*(6), 1163-1182.

Jam, F. A. (2019). Crypto currency–a new phenomenon in monetary circulation. Central Asian Journal of Social Sciences and Humanities, 4(1), 39-46.

Jam, F. A., Singh, S. K. G., Ng, B., & Aziz, N. (2016). Effects of Uncertainty Avoidance on Leadership Styles in Malaysian Culture, International Journal of Advance Business and Economics Research, 14(8), 7029-7045.

Kanval, N., Ihsan, H., Irum, S., & Ambreen, I. (2024). Human Capital Formation, Foreign Direct Investment Inflows, and Economic Growth: A Way Forward to Achieve Sustainable Development. Journal of Management Practices, Humanities and Social Sciences, 8(3), 48-61.

Kashif, Z., Waqas, M., & Azhar, T. (2023). Understanding the Impact of Service Convenience on Customer Satisfaction in Home Delivery: Evidence from Karachi. Academic Journal of Social Sciences (AJSS), 7(1), pp.151-169.

Kaura, V., Durga Prasad, C. S., & Sharma, S. (2015). Service quality, service convenience, price and fairness, customer loyalty, and the mediating role of customer satisfaction. *International journal of bank marketing*, *33*(4), pp.404-422.

Khan, M. R., Pervin, M. T., Arif, M. Z. U., & Hossain, S. K. (2024). The impact of technology service quality on Bangladeshi banking consumers' satisfaction during the pandemic situation: Green development and innovation perspective in banking service. *Innovation and Green Development*, *3*(2), 100120.

Khan, S., & Abdullah, N. N. (2019). The effect of ATM service quality on customer's satisfaction and loyalty: an empirical analysis. Russian Journal of Agricultural and Socio-Economic Sciences, 89(5), 227-235.

Kline, R. B. (1998). Software review: Software programs for structural equation modeling: Amos, EQS, and LISREL. *Journal of psychoeducational assessment*, *16*(4), 343-364.

Krisna, N. L. (2023). Service Quality of Brady Cronin, E-SQ, and E-CRM Models In Building Loyalty Through Nagari Bank Customer Commitment in Padang City. *International Journal of Social Science and Business*, *7*(1).

Li, F., Lu, H., Hou, M., Cui, K., & Darbandi, M. (2021). Customer satisfaction with bank services: The role of cloud services, security, e-learning and service quality. Technology in Society, 64, 101487.

Liang, X., Ma, C., Yan, X., Zeng, H., McClements, D. J., Liu, X., & Liu, F. (2020). Structure, rheology and functionality of whey protein emulsion gels: Effects of double cross-linking with transglutaminase and calcium ions. *Food Hydrocolloids*, *102*, 105569.

Luo, S., He, S. Y., Grant-Muller, S., & Song, L. (2023). Influential factors in customer satisfaction of transit services: Using crowdsourced data to capture the heterogeneity across individuals, space and time. *Transport Policy*, *131*, 173-183.

Mahmud, B., Islam, M. M., & Naher, K. (2015). Empirical study of the use of automated teller machine (ATM) among bank customers in Dhaka City, Bangladesh. *European Journal of Business and Management,* Vol *7*(1), pp. 1-15

Mittal, A., & Mittal, A. (2023). Impact of Technological Advancements on Customer Satisfaction in Retail Banking: An Empirical Study. *Journal of Informatics Education and Research*, *3*(2), pp.908-921.

Nigatu, A. G., Belete, A. A., & Habtie, G. M. (2023). Effects of automated teller machine service quality on customer satisfaction: Evidence from commercial bank of Ethiopia. *Heliyon*, *9*(8).

Parasuraman, A., Zeithaml, A. and Berry, L.L. (1985) 'A conceptual model of service quality and its implications for future research', Journal of Marketing, Vol. 49, No. 4, pp.41–50.

Parasuraman, A., Zeithaml, V. A., & Berry, L. L. (1988). SERVQUAL: A multiple item scale for measuring consumer perceptions of service quality. Journal of Retailing, Vol.64, No.5, pp.21-40.

Prabhu, M., Nabaz Nawzad Abdullah and Madan Mohan, G. (2019), An Empirical Study on the Satisfaction Level of National and International Tourists towards Natural Attractions in Kurdistan. African Journal of Hospitality, Tourism and Leisure, Volume 8 (2), 1-8.

Proença, J. F., & Rodrigues, M. A. (2011). A comparison of users and non-users of banking self-service technology in Portugal. Managing Service Quality: An International Journal, Vol.21, No.2, pp.192-210.

Rachman, N. D. A., & Hendayani, R. (2023). The effect of E-service quality on customer satisfaction of cash recycling ATM users with technology optimism as a moderating variable. *International Journal of Economics, Business and Accounting Research (IJEBAR)*, *7*(2).

Rahman, M., Islam, M. A., & Chowdhury, M. S. I. (2023). Influence of Brand Image on Customer Loyalty: A Look from Bangladesh. *Economic Research*, *7*(1), 11-24.

Sadiq, M., Adil, M., & Khan, M. N. (2019). Automated banks' service quality in developing economy: empirical evidences from India. *International Journal of Services and Operations Management*, *33*(3), 331-350.

SÁNCHEZ-TORRES, JAVIER A., and F. L. O. R. MADRIGAL-MORENO Ph D. "Marketing and Consumer Behavior during and amidst the Overcoming of a Pandemic." Innovar 32, no. 86 (2022): 8-12.

Santos, J. (2003) 'E-service quality: a model of virtual service quality dimensions', Managing Service Quality, Vol. 13, No. 3, pp.233–246.

Shim, H. S., Han, S. L., & Ha, J. (2021). The Effects of Consumer Readiness on the Adoption of Self-Service Technology: Moderating Effects of Consumer Traits and Situational Factors. *Sustainability*, *13*(1), 95.

Siddiqi, K. O. (2011). Interrelations between service quality attributes, customer satisfaction and customer loyalty in the retail banking sector in Bangladesh. *International journal of business and management*, *6*(3), 12.

Singh, S. (2011). The impact of ATM services on customer satisfaction in Indian banks. *International Journal of Financial Services Management*, *5*(2), 177-196.

Tater, D. B., & John, D. K. (2023). Factors influencing Adoption & customer satisfaction of M-banking Apps in India. *Dogo Rangsang Research Journal*, *13*(6), 7-23.

Tongco, M. D. C. (2007). Purposive sampling as a tool for informant selection.

Wong, K. K. K. (2013). Partial least squares structural equation modeling (PLS-SEM) techniques using SmartPLS. *Marketing bulletin*, *24*(1), 1-32.

World Bank. (2022). Digital Development: Development news, research, data. Available at http://www.worldbank.org/en/topic/smefinance.