Scope
Volume 13 Number 3 September 2023

Assessing Customer Satisfaction of Mobile Financial Services in Bangladesh: A SERVQUAL and structural Equation Model Approach

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Abstract
The objective of this article is to assess the level of customer satisfaction of mobile financial services by utilizing the well-known SERVQUAL model and employing a structural equation model. An effective survey questionnaire was developed to collect data from Bangladeshi participants. This research selected participants via convenience sampling. For the analysis employing covariance-based structural equation modeling, 550 of the distributed questionnaires that were completed and usable were selected. Among the nine dimensions of the extended SERVQUAL model, the results indicated that visibility, reliability, responsiveness, empathy, security, user interface, and service recovery have a significant effect on customer satisfaction, whereas assurance and customization do not. This research addresses a gap in the literature by showing how mobile financial service providers may enhance service quality, increasing customer satisfaction and usage intent.
Keywords: SERVQUAL Model, Customer Satisfaction, Mobile Financial Service, Structural Equation Model (SEM)

1. Introduction

Mobile Financial Services (MFS) have radically altered the global financial landscape in recent years (Sultana, 2023). The term "MFS" refers to the many different types of digital financial transactions that may be performed using a mobile device (Shaikh et al., 2022; Inan et al., 2023). MFS has become an essential component of the digital economy due to the extensive adoption of smartphones and the increasing penetration of mobile internet, which have facilitated its growth (Rouf & Babu, 2023). These services provide consumers with the ease of completing transactions and obtaining financial information at any time and from any location.Understanding consumer satisfaction has become crucial for businesses and financial institutions (Arcand et al., 2017).Customer satisfaction level with these services plays a crucial role in influencing their loyalty, frequency of use, and inclination to suggest the services to others. The growth and prosperity of an MFS provider relies heavily on the satisfaction of its customers, who are more likely to remain loyal and promote the brand. Customer satisfaction is a fundamental idea in contemporary marketing concept and application, highlighting the need of providing consumers with satisfaction while simultaneously achieving profitability (Yi & Nataraajan, 2018). In order to optimize customer satisfaction, it is essential for mobile financial service organizations to prioritize the delivery of services that exhibit exceptional quality. Service quality models like SERVQUAL are commonly used to understand customer satisfaction to a deep level. According to Parasuraman et al. (1985), the SERVQUAL model provides a reliable framework for customer service quality assessment. The majority of research has primarily concentrated on the utilization of these five established dimensions of service quality to assess the customer satisfaction level (Bahadur et al., 2018; Ghimire, 2021; Lee et al., 2016; Mutinda, 2020; Omar, 2015). But mobile financial services are closely associated with mobile technology, necessitating heightened security measures, user interface optimization, tailored customization, and effective service recovery mechanisms. In this study, the SERVQUAL model has been augmented with four supplementary dimensions (namely security, user interface, customization, and service recovery) to measure the customer

satisfaction level of mobile financial service organizations. These dimensions are in addition to the five standard dimensions of service quality (assurance, reliability, visibility, responsiveness, and empathy).
Mobile financial services provide significant convenience and accessibility to their users. However, it is important to prioritize customer satisfaction in order to ensure the sustained success of these services in the long run (Twum et al., 2023). By focusing on key service quality dimensions such as visibility, reliability, responsiveness, assurance, empathy, security, user interface, and customization, and service recovery, MFS providers are able to provide customers with a positive and satisfying experience. Customers who are satisfied are more likely to maintain their loyalty, recommend the services to others, and contribute to the development and success of the mobile financial services industry. Consequently, the purpose of this study is to examine the customer satisfaction of mobile financial services utilizing the SERVQUAL model and structural equation model (SEM) to investigate the relationships between service quality dimensions and overall customer satisfaction.

2. Literature Review

2.1 Theoretical Foundation

The SERVQUAL method is suitable for mobile financial service firms' service quality and customer satisfaction assessments. The use of identical parameters to measure service qualityand customer satisfaction assumes that they are interrelated (Parasuraman et al., 1988) and customer satisfaction is prerequisite for service quality (Negi, 2009). The SERVQUAL scale has been used in most service quality studies over the last two decades. Parasuraman et al. (1985) identified 10 service quality factors: dependability, responsiveness, ability, access, courtesy, communication, security, credibility, comprehension, and tangibility, based on extensive focus group interviews. The same authors (1988) then developed the SERVQUAL instrument, which analyzes five perceived service quality dimensions after two scale refinements. SERVQUAL assesses consumers' perceptions and expectations of the five service quality factors. Five elements are tangible, reliable, responsible, assurance, and empathetic. Management professionals and academics alike have come to recognize the value of the SERVQUAL model as a reliable method for measuring service quality as well as customer satisfaction in a wide range of service settings and industries(Ali & Reza, 2017; Almomani, 2017; Guo et al., 2008; Hassen, 2022; Kaushal, 2016; Panda & Kondasani, 2017). It is essential to note that the original SERVQUAL elements may not be applicable across all service businesses (Ladhari, 2009). Despite the existence of certain controversial aspects, SERVQUAL has gained extensive utilization among service sectors, but with certain adaptations to ensure its applicability within the specific context of each business. It requires modification by adding or rephrasing items to suit the context of a particular study or organization (Leisen &Vance, 2001; Parasuraman et al., 1988). Almomani (2017) and Kilbourne et al. (2004) excluded the assurance dimension from their study because two of its items were inapplicable to the healthcare sector. Moreover, in some industries, such as the automobile service industry or the airline industry, it may be necessary to add a sixth dimension that measures customer wait times to the original five (Ladhari, 2009). In light of this, the SERVQUAL model must be adapted or supplemented to the specific service context.
Consumer satisfaction with mobile financial services in Bangladesh is investigated, especially in relation to nine dimensions of service quality (tangibles, responsiveness, empathy, assurance, dependability, user interface, security, service recovery, and customization). The SERVQUAL model's original five dimensions have been expanded with four more that suit to the needs of Bangladeshi users of mobile financial services. The other four aspects (user interface, security, service recovery, and customization) were chosen on the basis of research in the field.

2.2 Mobile Financial Services

The emergence of mobile financial services is a recent and significant innovation within the financial industry, offering practical benefits to both service users and providers (Zhou et al., 2021). The use of portable devices, namely mobile phones, enables customers to engage in financial services via mobile financial service (Oliveira et al., 2014; Zhou et al., 2021). These devices establish a connection between customers and a server, facilitating various activities such as making payments, conducting transactions, and accessing additional services. The assessment of customers' attitudes and intentions towards mobile

financial services has significant importance for the service providers. This evaluation enables them to gain a competitive edge by improving their comprehension of the fundamental elements that influence consumer intention to use mobile financial services (Mohammadi, 2015).

The concept of mobile financial services was first launched by City Bank Ltd., under the name of "City Wallet," in October 2009 (Proma & Jahan, 2020; Shapna et al., 2021). Dutch Bangla Bank Ltd. commenced its official operations in Bangladesh in December 2010. The inauguration ceremony took place on this day. Dutch Bangla Bank Ltd. commenced its first operations in the marketplace around May 2011. BRAC Bank Ltd. emerged as the second entrant in the banking market. Subsequently, all other banks commenced operations with an identical method. Notable advancements have been seen in the realm of financial services innovation in recent years. There are 13 active mobile financial service providers operating in Bangladesh (Mobile Financial Services, 2023). However, many mobile financial service providers, including bKash, Rocket, Nagad, SureCash, MyCash, mCash, U-cash, T-cash, Ok wallet, and Upay, have shown remarkable performance in this sector. The industry is primarily dominated by bkash, Nagad, and Rocket, as shown by their significant market share (Afroze & Rista, 2022).

The financial system is a fundamental element of contemporary civilization. The financial system has undergone significant changes, leading to the introduction of various facilities, including mobile financial services (Donner & Tellez, 2008).Increased market share and competitive pressure in the financial sector are driving the development of mobile financial services. According to research by Latifee and Tamanna (2022), this phenomena has a major impact on the economic and financial growth of nations like Bangladesh. In nations where the great majority of the population does not have access to conventional banking institutions, mobile financial services have the potential to substantially contribute to the economy of such countries. It might potentially extend its reach to low-income individuals and owners of micro- and small-sized businesses, which would have a positive impact on economic development and the reduction of poverty. Using mobile technology, government organizations find the multi-dimensional impacts of MFS, together with revenue-maximizing devices, to be beneficial. The authors are providing an overview of the essential legal and regulatory framework required to enhance the security measures of mobile financial services (MFSs) and facilitate their expansion. The proliferation of mobile financial services has facilitated the emergence of an alternative banking mode that operates independently.

2.3 Customer Satisfaction

Providing a high-quality service alone is insufficient to assure service providers' profitability and growth (Hamilton-Ibama & Elvis, 2022). In order to gain a competitive advantage over rival service providers, service firms may also emphasize consumer satisfaction. To succeed and remain competitive in the long run, organizations need satisfied consumers (Ojo, 2010). According to Oliver (1989), satisfaction may be described as a psychological state that arises from the combination of consumers' emotional responses to their expectations and their overall evaluation of the consuming experience. Satisfaction may also be seen as the difference of initial expectations and the actual performance after consumption. When the actual performance deviates from the initial expectations, dissatisfaction arises (Uzir et al., 2020). Customers are said to be satisfied when they have a positive emotional response to their own subjective evaluation of their instance, as described by the writers. When a product completely satisfies the needs and wants of its target audience, it is said to have attained customer satisfaction (Kotler & Armstrong, 2018). According to Shamsudin et al. (2019), satisfaction is a result of the trade-off between pre-consumption and post-consumption factors associated with the products or services. The importance of customer satisfaction cannot be overstated in fulfilling the diverse requirements of consumers (Yi & Nataraajan, 2018). If a business wants to survive and thrive in today's market, it must focus heavily on customer satisfaction (Yi & Nataraajan, 2018). Many academics have tried to conceive and define customer satisfaction conceptions such throughout the years since they recognize its significance. There has been a lot of study into customer satisfaction so that businesses may adapt to the characteristics of modern consumers. Among them, Fornell et al. (2010); Gharaibeh, (2023); Gunawardane, (2023); Keshavarz & Jamshidi (2018); Khadim & Islam, (2022); Khan et al. (2022); Monferrer et al. (2023); Moorthy et al. (2018); Tandon et al. (2017); andTseng (2019) are remarkable in recent years.

2.4 Mobile Financial Services and Customer Satisfaction

In recent times, a number of studies have been conducted to examine the key components and elements that may serve as predictors of consumers' satisfaction, intention, attitudes, and behavior in relation to mobile banking services (Asongu & Nwachukwu, 2018; Khan et al., 2022; Mehrad & Mohammadi, 2017; Samartha et al., 2022; Singh & Srivastava, 2018; Twum et al., 2023; Uddin & Nasrin, 2023; Wang et al., 2023). This demonstrates that mobile financial service is still a topic worthy of investigation. Baabdullah et al. (2019) emphasized the significance of monitoring the fluctuation in mobile financial service utilization over time. According to the findings, Malaquias et al. (2018) additionally stated that Brazilian banking customers who engage in mobile banking activities tend to develop a favorable perception of specific dimensions of the system, including credibility, task characteristics, social influence, and user-friendliness. Similarly, Shareef et al. (2018) did a study on the adoption of mobile banking by customers, examining it across three distinct phases: pre-adoption, adoption, and post-transaction. Their research showed that throughout all three phases of mobile banking adoption, the effect of perceived capacity and perceived usefulness was significant.

Kansra et al. (2023) conducted a research where they investigate the level of the customer satisfaction with the acceptability of mobile banking services. The study's findings disclosed that consumers were extremely pleased with mobile banking services. In a study conducted by Thilagaraj (2018), an analysis was performed to assess the level of customer satisfaction in relation to mobile banking services.Mobile banking attracts customers since it allows transactions to be completed at any time, which is convenient for them. In order to enhance the use of mobile banking, it is necessary to provide information on this financial service to customers.Kumar & Nagarajan (2019) examined mobile banking user satisfaction. The majority of consumer studies were favorable about the variables impacting mobile banking services, which brought them closer to people and made them easier to manage without delay or time limits. Bungatang and Reynel (2021) examined mobile banking quality and consumer satisfaction. Customer satisfaction, the dependent variable, is examined in connection to dependability, responsiveness, and assurance. The study shows that independent variables influence consumer satisfaction.Tam and Oliveira (2017) examined the impact of mobile banking on consumer satisfaction in addition to its adoption. Customers are more satisfied with mobile banking when they perceive that the technology, information, and service are of high quality. Similarly, Sampaio et al. (2017) argued that consumers appear to be more satisfied with mobile banking if they encounter the system's primary benefits. Additionally, customers are more satisfied with mobile banking when it meets their needs in terms of transaction speed, availability, cost, flexibility, ease of use, and relative advantage, according to studies on the topic (Yu & Nuangjamnong, 2022). Shankar et al. (2020) identified m-banking service quality dimensions. Privacy and security, customer assistance, interaction, efficiency, and content were major customer satisfaction characteristics. They found that all of these factors positively affected customer satisfaction. In Bangladesh, Himel et al. (2021) examined users' views toward mobile financial services using the utility, user friendliness, trust, and obstacles to adoption. Perceived usefulness, user friendliness and perceived trust all have a positive role in consumers' adoption of mobile banking services. Zhou et al. (2021) did a research to learn more about the elements that influence mobile banking customers the probability to stay loyal to their bank. They discovered that customization has a role in both the quality of mobile banking services and the likelihood that customers would continue using them. The study's results showed that the interface design, system quality, security assurance, and service quality were crucial in establishing the level of satisfaction and the likelihood of future loyalty among mobile banking consumers. A thorough analysis of SERVQUAL research shows that the model has been used to study service quality and customer satisfaction in telecommunications, hotels, healthcare, and restaurants. However, there have been few research on applying SERVQUAL to mobile banking in developing countries. This study aimed to address the current research gap in the mobile finance sector environment by using the expanded SERVQUAL model and a structural equation model to assess the satisfaction level customer of mobile financial service organizations in Bangladesh.

3. Research Methodology

3.1 Research Approach

The study conducted is characterized as a quantitative research approach, using logical reasoning and guided by the positivist philosophical framework. Creswell (2014) asserts that the quantitative method is appropriate for research aims aimed at identifying variables that influence the result or effectiveness of an intervention that may impact an outcome. Given the aforementioned considerations and the inherent characteristics of the investigation, the use of a quantitative research methodology is deemed suitable.

3.2 Data Sources and Data Collection

The collection of data included both primary and secondary sources. The primary data, which refers to the initial occurrence of a certain work, was collected via the use of a standardized questionnaire. The secondary data mostly included literature that was readily available in printed materials such as books, scholarly journals, newspapers, and online sources. In this research, a random selection was made of three out of the eight divisions in Bangladesh, namely Dhaka, Rajshahi, and Rangpur. Subsequently, a random selection was made of three districts, resulting in a cumulative total of nine districts, from the three divisions that were previously selected. In this study, the researchers carefully chose nine upazilas from nine districts. Information was collected from respondents selected from each of the nine upazilas. Presently 13 mobile financial service providers operate in Bangladesh (Mobile Financial Services, 2023) with bkash, Nagad, and Rocket leading with about 97% market share. So bkash, Nagad and Rocket have been considered for this study. A total of 550 participants were included in the study. The data was obtained by administering a standardized questionnaire to the participants. The survey is organized into three separate sections, designed to assess essential demographic information, as well as the expectations and impressions of the participants. In this research a Likert scale with five points was used, as recommended by Sachdev and Verma (2004), in which participants assessed each service characteristic using a scale ranging from 1 to 5. The scale's endpoints were labeled as '1' for strongly disagree and '5' for stongly agree. Lam (1997)posited that the use of a Likert scale consisting of five points has the potential to mitigate respondent annoyance and improve the overall quality of the obtained replies.

3.3 Sampling Technique and Sample Selection

Sampling is a technique used by researchers to carefully choose a sample that accurately represents the larger target population (Saunders et al., 2009). The participants were often chosen based on fortuitous circumstances, including their presence at the appropriate location and time. The current research used a non-probability convenience sampling method to choose respondents, taking into consideration factors such as ease and simplicity of data collection. The sampling technique used in this study is a non-probability approach that involves the selection of participants depending on their location and accessibility to the researcher. This methodology is appropriate for researchers to collect data based on convenience.

3.4 Data Analysis and Techniques

IBM SPSS Version 25 and Analysis of Moment Structures (AMOS) Version 24 were used to conduct statistical analyses on the gathered data. Using the structural model, IBM SPSS's AMOS (Analysis of Moment Structures) can analyze covariance structure models like structural equation model (SEM), path analysis, confirmatory factor analysis (CFA), reliability, and validity (Stewart, 1981). It is often contrasted with other statistical programs made for similar tasks. Amos has a graphical interface that is designed to be easily navigable by anyone without programming expertise. The documentation for Amos, as outlined by Arbuckle (2011), includes interactive illustrations and comprehensive guidelines for using the graphical interface.

3.5 Conceptual Framework

The overview of the SERVQUAL model aids in emphasizing the fundamental service offerings that mobile financial service provider must provide to ensure customer satisfaction. Inputs from Parasuraman et al., 1985, 1988 and Wu (2009)have helped the researcher gain a deeper understanding the perceived service quality, leading to a better understanding of customer satisfaction. On the basis of current literature and service quality models, an effort has been made to apply the inputs with certain changes and propose a model for the present research. The SERVQUAL model (Parasuraman et al., 1985) has significantly contributed to the development of the model presented in the following part. The research focuses only on identifying the most essential service quality dimensions and assessing the level of customer satisfaction of mobile financial service organizations.

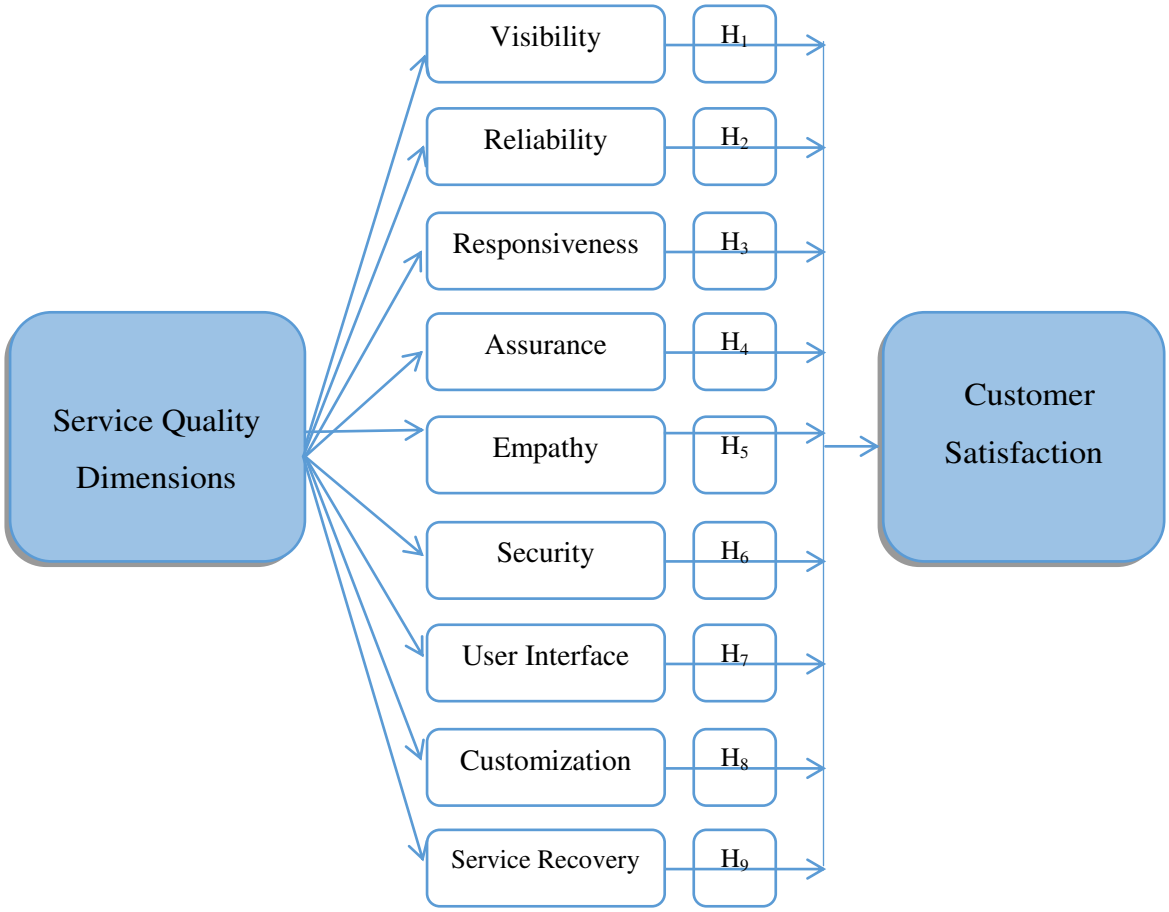

Figure: Extended SERQUAL Model (Source: Parasuraman et al., 1985)

3.6 Hypothesis Development

Tangibility

The tangibility dimension is directly connected to service quality in the service sector on the basis of the tangible aspects of the service sector, such as supplies, physical infrastructure, and aesthetic appeal (Parasuraman et al., 1985). Customer satisfaction in the service sector was shown to be significantly influenced by tangibles (Kant & Jaiswal, 2017; Sanjuq, 2014). According to Tiglao et al. (2020), in the mobile financial services industry, the influence of tangibility on client satisfaction is seen as high-tech equipment and an inviting atmosphere. Several more studies (Fida et al., 2020; Krishnamurthy et al., 2010; Selvakumar, 2016) have also uncovered a substantial impact in this area. Abdelhadi's (2021) research, on the other hand, found no statistically significant link between product tangibility and customer satisfaction. Thus, based on the preceding arguments, the following hypothesis has been developed:

H_1: *Tangibility positively influences customer satisfaction.*

Reliability

Devesh (2019) and Parasuraman et al. (1985) both agreed that a service's reliability may be measured by how much faith consumers have in it. According to research by Jahan and Shahria (2022), service accuracy is crucial to maintaining customers in the service sector. According to previous studies (Chuenyindee et al., 2022; Krishnamurthy et al., 2010; Kant & Jaiswal, 2017; Tiglao et al., 2020), reliability has a positive correlation with customer satisfaction. However, Islam et al. (2020) and Fida et al. (2020) found no correlation between reliability and customer satisfaction in their investigations. Reliability and customer satisfaction were shown to have a positive correlation in the setting of mobile banking services in Bangladesh by Khan et al. (2021). This has led to the development of the following hypothesis:

H_2: *Reliability positively influences customer satisfaction*

Responsiveness

Responsiveness, a service quality dimension, related to the organization's willingness and ability to assist customers and provide timely service (Parasuraman et al., 1985). Any activity is encouraged by feedback and response. Customers' immediate response to mobile financial services could be a significant influencing factor in customer satisfaction (Jahan & Shahria, 2022). The greater the service provider's responsiveness to their client, the more likely the client would be satisfied with the catered service (Chuenyindee et al., 2022). Responding quickly to customer needs has been linked to satisfied customers, according to the work of many researchers (Khan et al., 2021; Selvakumar, 2016; Kant & Jaiswal, 2017; Tiglao et al., 2020). There was no statistically significant link between responsiveness and customer satisfaction in the studies conducted by Yun and Park (2022), Famiyeh et al. (2018), and Fida et al. (2020). The foregoing discussion led to the formulation of the following hypothesis:

H_3: *Responsiveness positively influences customer satisfaction*

Assurance

Parasuraman et al. (1985) found that indices of service quality included employees' competence, expertise, civility, and capacity to create trustworthy connections with customers. According to Tumsekcali et al. (2021), assurance is an essential part of the service sector. It was also found by Chuenyindee (2022) that providing confidence increased customer satisfaction. Sam et al. (2018) also noted the significance of assurance in mobile financial service providers' service quality. The level of assurance increased as the level of customer satisfaction did (Krishnamurthy et al., 2010; Selvakumar, 2016; Kant & Jaiswal, 2017; Tiglao et al., 2020). Famiyeh et al. (2018) found, however, that assurance and customer satisfaction are not significantly related. The following working hypothesis for this investigation is based on this source:

H_4: *Assurance positively influences customer satisfaction*

Empathy

Attention in conversation, recognizing client wants, displaying friendliness, and tailoring service to each person are all examples of the empathy component of service excellence (Ennew et al., 2013). According to Parasuraman et al. (1988), consumer satisfaction may be significantly influenced by a company's ability to anticipate and meet its customers' needs and wants. Ananth et al. (2011) discovered that in the mobile banking industry, the empathy component, flexible working hours, and a greater understanding of the client's unique demands all contribute to higher levels of customer satisfaction. Sam et al. (2018) found that customers' satisfaction is affected by the care and personalized attention they receive. Empathy, according to several studies (Chuenyindee et al., 2022; Khan et al., 2021; Krishnamurthy et al., 2010; Selvakumar, 2016), has a direct and substantial influence on customer satisfaction. The research, based on the previously mentioned comments, has a working hypothesis:

H_5: *Empathy positively influences customer satisfaction*

Security

Security is regarded as the most important feature among target segments when customers decide to use mobile banking (Asfour & AL-Haddad, 2014). Ghosh and Barua (2014) defined security as the safety and security of information. However, as a result of deception and cybercrime, not only informational but also monetary concerns are closely associated with security (Kabir, 2013).Security is a method of protecting users from phishing, fraud, and hacking (Owuamanam et al., 2021). This is the level of security that mobile devices have against cracking, malware, and other criminal activities. Customers are more likely to be happy if their safety is ensured. Therefore, safety would enhance satisfaction (Jahan & Shahria, 2022). This study's hypotheses are grounded on this finding.

H_6:*Security positively influences customer satisfaction*

User Interface

The extent to which the mobile financial service organizations can meet the needs of their customers is defined as the user interface. It could include things like usability and usefulness (Kabir, 2013). It also refers to how convenient the service is to use, how easy it is to navigate, and how simple it is to transfer money (Owuamanam et al., 2021). Customers are happier when they have easier access to services (Flavian et al., 2004). According to a study conducted by Ladhari et al. (2011), user interface (as one of the elements of service image) significantly impacted customer satisfaction in both direct and indirect ways. The following hypothesis has been advanced based on the preceding discussion:

H_7: *User Interface positively influences customer satisfaction.*

Customization

Customers would also prefer to use services at their own pace and convenience (Islam et al., 2020). Simply put, service provider organizations are becoming more used to customizing their offerings (Parasuraman et al., 2005; Swaid & Wigand, 2009). To be competitive, service organizations must understand exactly what their customers want. They must also keep an eye on what their competitors are doing. They will have a much better chance of success if they offer more tailored products or services to the people they're trying to reach, whether it consumers or potential ones (Yu & Nuangjamnong, 2022). Customization or personalization played a significant role in customer satisfaction of mobile banking (Geebren et al., 2021). The preceding reviews suggest the following hypothesis:

H_8: *Customization positively influences customer satisfaction*

Service Recovery

It refers to a systematic process in the world of business that takes place after the offering of services to end users. Every service provider organization works hard to ensure that services are delivered correctly, but failures are unavoidable. Services are frequently delivered quickly in response to customer requests. Thus, the satisfaction of customers depends on how service providers recover from service failure (Owuamanam et al., 2021). Organizations are strengthening their service delivery procedures to suit the needs of their customers. In light of this, several research (e.g., Parasuraman et al., 2005; Kumar, 2017) have concluded that service recovery is strongly linked to service provider quality and satisfaction among customers. In light of what has been said above, the following hypothesis has been made:

H_9:*Service recovery positively influences customer satisfaction*

Table 1: Demographic Profile of the Respondents

Particulars	Description	Frequency	Percentage	Cumulative Percentage
Gender	Male	451	82	82
	Female	99	18	100
Age	16 – 25 Years	169	30.7	30.7
	26 – 35 Years	245	44.5	75.5
	36 – 45 Years	118	21.5	96.7
	46 – 55 Years	17	3.1	99.8
	Above 55 Years	1	0.2	100
Education	Below SSC	41	7.5	7.5
	SSC	54	9.8	17.3
	HSC	146	26.5	43.8
	Graduate	187	34.0	77.8
	Post Graduate	122	22.2	100
Occupation	Unemployed	8	1.5	1.5
	Student	151	27.5	29
	Service	260	47.3	76.3
	Business	97	17.6	93.9
	Agriculture	14	2.5	96.4
	Others	20	3.6	100
Monthly Income (BDT)	Less than 10,000	149	27.1	27.1
	10,001 – 20,000	140	25.5	52.6
	20,001 – 30,000	126	22.9	75.5
	30,001 – 40,000	88	16.0	91.5
	Above 40,000	47	8.5	100
Mobile financial service user's profile	bKash	184	33.5	34.5
	Rocket	183	33.3	66.8
	Nagad	183	33.2	100
Profile of Respondents' Frequency of Making Transaction	Daily	68	12.4	12.4
	Weekly	318	57.8	70.2
	Monthly	164	29.8	100.0
Profile of Respondents' Frequency of Using the Services	Less than a year	141	25.6	25.6
	1-5 years	312	56.7	82.4
	6-10 years	90	16.4	98.7
	Above 10 years	7	1.3	100.0

Respondents to mobile financial services exhibit nearly all demographic characteristics, including gender, age, education, occupation, and monthly income. Using straightforward percentages for the pertinent criteria, the sample's demographics were analyzed. The demographic characteristics of the respondents (n=550) are represented numerically and as percentages in a table. Based on the demographic data provided by the respondents (see Table 1), it can be seen that out of the total sample, 260 individuals were employed in service-oriented occupations. Furthermore, the predominant gender within this group was male, with the majority falling within the age bracket of 26 to 35 years. Furthermore, it was found that a total of 149 participants reported salaries below BDT 10,000, whereas the bulk of the respondents had a doctorate degree. A total of 318 participants reported engaging in weekly transactions, while the majority of respondents said that they had been using the services for a period ranging from 1 to 5 years.

4. Results and Discussion

4.1 Results

The present research used structural equation modeling (SEM) as a statistical technique to analyze the data and evaluate the hypotheses. The test was conducted using the Amos-24 data analysis instrument because it enables a real-time evaluation of both the measurement model and structural model. This technique plays a crucial role in assessing the reliability and validity of the measurement model, as well as elucidating the theoretical connections between constructs in the structural model. Furthermore, the analysis includes the assessment of various model fit indices, which serve to validate its robustness.

4.2 Measurement Model Assessment

Convergent validity is conducted in order to assess the extent to which the elements being examined within a construct are theoretically interconnected. Confirmatory factor analysis (CFA) and average variance extracted (AVE) are widely recognized as crucial indicators of convergent validity in empirical research. The convergent validity of all measurement items was strongly demonstrated, as evidenced by the results presented in Table 2.

Table 2: Factor Loadings, Composite Reliability, AVE and Cronbach's Alpha (α)

Variables	Factor loadings	Composite Reliability (CR)	Average Variance Extracted (AVE)	Cronbach's Alpha
Service Recovery		0.735	0.518	0.75
SER1	.737			
SER2	. 786			
SER3	.832			
Visibility		0.761	0.520	0.75
VIS1	.721			
VIS2	.854			
VIS3	.770			
Reliability		0.701	0.510	0.74
REL1	.709			
REL2	.755			
REL3	.780			
Responsiveness		0.742	0.519	0.73
RES1	.818			
RES2	.744			
RES3	.737			
Assurance		0.710	0.587	0.77
ASS1	.722			
ASS2	.778			
ASS3	.716			
Empathy		0.792	0.568	0.74
EMP1	.748			
EMP2	.875			
EMP3	.821			
Security		0.748	0.501	0.71
SEC1	.750			
SEC2	.820			
SEC3	.832			
User Interface		0.709	0.519	0.83
USI1	.757			

USI2	.830			
USI3	.718			
Customization		0.834	0.627	0.73
CUS1	.834			
CUS2	.872			
CUS3	.882			
Customer Satisfaction		0.848	0.584	0.84
CST1	.801			
CST2	.806			
CST3	.766			
CST4	.758			

The findings indicate that the standardized factor loading generally exceed or equal 0.70. This value is regarded as the critical level (Carmines & Zeller, 1979; Hair et al., 2010). In addition, the average variance extracted (AVE) values ranged from 0.501 to 0.627, exceeding the suggested threshold of 0.50 (Hair et al., 2010). Construct reliability quantifies the precision with which operationalization measures the desired variables. This reliability may be evaluated using composite reliability (CR) and Cronbach's alpha. CR values ranged from 0.701 to 0.848, which is greater than the recommended value of 0.70 (Hair et al., 2010), as well as the Cronbanch alpha value of 0.7. These results validated the measurement model's accuracy (Hair et al., 2010).Discriminant validity and model fit results are in Table 2. Discriminant validity measures how different a measurement model is from variables it should not be connected to theoretically or conceptually. The square root of the average variance extracted (AVE) and construct correlation values was compared to assess discriminant validity. The square roots of the average variance extracted (AVE) for all components in the diagonal row were larger than the correlations between constructs. Thus, the measurement model has excellent discriminant validity.

Table 2: Discriminant Validity Indices

	SER	VIS	REL	RES	ASS	EMP	SEC	USI	CUS	CST
SER	**0.697**									
VIS	0.141	**0.721**								
REL	0.192	0.208	**0.626**							
RES	0.357	0.354	0.259	**0.700**						
ASS	0.240	0.275	0.295	0.329	**0.622**					
EMP	0.108	0.186	0.127	0.182	0.188	**0.754**				
SEC	0.155	0.146	0.117	0.167	0.190	0.149	**0.705**			
USI	0.122	0.190	0.265	0.313	0.267	0.032	0.175	**0.670**		
CUS	0.010	0.019	-0.009	0.068	0.034	0.082	-0.003	0.082	**0.792**	
CST	0.318	0.409	0.253	0.457	0.334	0.263	0.235	0.276	0.109	**0.764**

The Amos 24.0 software was utilized in order to assess a covariance-based structural equation model, with the purpose of investigating the interrelationships among constructs in our proposed study model. Various studies were done to determine how well the measuring model worked as a whole.

Table: 3 Model Fit Indices

Indices	Model Fit Obtained Value	Recommended Value	Reference
CMIN/DF	1.473	<3	Hair at al., 2010
GFI	0.94	≥.80	Doll et al., 1994
AGFI	0.92	≥.80	Doll et al., 1994
NFI (Delta 1)	0.90	≥.90	Hair at al., 2010
IFI (Delta 2)	0.96	≥.90	Hair at al., 2010
CFI	0.96	≥.90	Hair at al., 2010
RMSEA	0.029	≤.08	Browen & Cudeck, 1993

In table 3 the results shown that the chi square value was 573.126 with 389 degrees of freedom ($p < 0.001$), with a ratio of 1.473. Additionally, various fit indices were examined, including the goodness-of-fit index (GFI) which was determined to be 0.94, the adjusted GFI which was found to be 0.92, the confirmatory fit index (CFI) which had a value of 0.96, the normed fit index (NFI) which yielded a value of 0.90, and the root mean square error of approximation which was calculated to be 0.029. All of these values indicate that the model is fit for further analysis (Browen & Cudeck, 1993; Doll et al., 1994; Hair et al., 2010).

4.3 Structural Model Assessment

Table 4 displays the results, including the accepted and rejected hypotheses, as well as the hypothesized paths, values, errors, p values, and p-values for the parameters. The evaluation of the relationship between components was conducted by examining the standardized path coefficients (β values) and significance values (p values) associated with each construct.

Table 4: Hypotheses Testing

Path Analysis			Estimate(β)	S.E	P	Decision
Visibility	→	Customer Satisfaction	.251	.057	***	Accepted
Reliability	→	Customer Satisfaction	.885	.698	***	Accepted
Responsiveness	→	Customer Satisfaction	.246	.047	***	Accepted
Assurance	→	Customer Satisfaction	.097	.043	.062	Rejected
Empathy	→	Customer Satisfaction	.156	.045	***	Accepted
Security	→	Customer Satisfaction	.113	.055	**	Accepted
User Interface	→	Customer Satisfaction	.102	.055	**	Accepted
Customization	→	Customer Satisfaction	.088	.033	.057	Rejected
Service Recovery	→	Customer Satisfaction	.168	.047	***	Accepted

Seven of nine hypotheses were supported. Visibility, reliability, responsiveness, and empathy strongly predict satisfaction ($\beta = 0.251$, $p < 0.001$), supporting Hypotheses H_1, H_2, H_3, and H_5. Security ($\beta = 0.113$, $p < 0.05$), user interface ($\beta = 0.103$, $p < 0.05$), and service recovery ($\beta = 0.168$, $p < 0.001$) positively

increased customer satisfaction, supporting H_6, H_7, and H_9. However, assurance and customization do not affect customer satisfaction, thus rejecting H_4 and H_8.

4.4 Discussion

This study's overarching goal is to evaluate the extent to which Bangladeshi consumers are pleased with mobile banking services. Our research's empirical results shed light on the connection between mobile financial service quality and customer satisfaction in Bangladesh. The uniqueness of the discovery lies in the use of a structural equation model, which serves to introduce and evaluate both the measurement and structural model. The use of Structural Equation Modelling (SEM) has become a prevalent statistical methodology in several research domains (Uddin & Nasrin, 2023). This research employed the expanded SERVQUAL model, which adds security, user interface, service recovery, and customization to the primary five criteria (visibility, reliability, responsiveness, assurance, and empathy). The research found that mobile financial services have a statistically significant and beneficial impact on consumer satisfaction (Ahmadi & Narci, 2022).This study found that SERVQUAL model variables visibility, reliability, responsiveness, and empathy positively affect customer satisfaction, as do security, user interface, and service recovery. Wang et al. (2023) used an enhanced SERVPERF model and found that assurance, tangibility, responsiveness, and dependability predict customer satisfaction. Accessibility and empathy did not affect customer satisfaction. Using the SERVQUAL model, Rouf et al. (2019) revealed that service quality dimensions had an impact on customer satisfaction. Another study conducted by Uddin and Nasrin (2023) revealed that many factors, including perceived utility, confirmation of expectation, trust, service quality, system quality, information quality, and perceived cost, have been identified as significant predictors of customer satisfaction. According to Jahan and Shahria (2022), security and convenience have little impact on consumer satisfaction, whereas cost, timeliness, and relative advantage all have substantial effects. Khan et al. (2021) shown that every component of service quality, namely tangibility, dependability, responsiveness, assurance, and empathy, had positive and substantial impacts on consumer satisfaction while using mobile banking. Shankar et al. (2020) conducted a study in which they determined that privacy and security, customer support, interactivity, efficacy, and content are essential dimensions for measuring customer satisfaction. In this study, however, assurance and customization do not have a significant effect on consumer satisfaction. It is conceivable that consumers of mobile financial services do not view these two dimensions as the most influential determinants of their satisfaction.Another possible explanation could be that consumers are unaware of these dimensions.

5. Conclusion

5.1 Managerial Application

The extended SERVQUAL model, which includes dependability, assurance, tangibles, empathy, responsiveness, security, customization, user interface, and service recovery, can be used to assess mobile financial service customer satisfaction in Bangladesh. The survey findings may help management make decisions to enhance service components to boost customer satisfaction. The results also suggest that regulators should assess customer satisfaction as a measure of mobile banking performance, concentrating on service quality. Organizations may strategically manage resources and expenditures by identifying service quality factors that most affect customer satisfaction. This ensures that resources are focused on consumer priorities, which may enhance Profitability.Organizations seeking to improve customer service may benefit from this research. It's crucial to know which service quality components matter most to customers since meeting their needs and expectations increases customer satisfaction. Understanding consumer satisfaction may boost a company's competitiveness. Continuously exceeding consumer expectations is the greatest approach to stand out and gain loyal customers. The research could guide marketing and communication. Businesses may attract and keep customers by emphasizing service quality factors that most affect satisfaction. Research can help organizations create performance evaluation measures and incentive systems that match the multiple service quality factors that affect customer satisfaction.In conclusion, the findings of this study have substantial management implications for firms

operating in the mobile financial services industry. The research provides valuable insights that can be used to improve service quality, boost customer satisfaction, and ultimately enhance overall company success.

5.2 Conclusion

Assessment of customer satisfaction with mobile financial services was the main goal of this study. The study's results support the research model's ability to explain customer satisfaction with mobile financial services. Visibility, reliability, responsiveness, empathy, security, user interface, and service recovery all positively and statistically significantly affect the satisfaction of customers, except assurance and customization. The study has major academic and practical implications. This research adds to academic literature by examining mobile financial services consumer satisfaction aspects. The study uses the expanded SERVQUAL model and a structural equation model to improve understanding of mobile financial service customer satisfaction. This research has practical significance for companies looking to enhance service quality and customer satisfaction. These results also add to academic discussions on assessing service quality in the digital financial business and establish the framework for future research and strategy development to fulfill customer expectations in the dynamic mobile financial services market.

Although this research has substantial theoretical and managerial applications, it is important to acknowledge the presence of certain shortcomings that need further investigation in future studies. Due to this study's cross-sectional data collection, longitudinal research is needed to evaluate our model and improve ability for generalization. We need further research to apply our results to other countries, especially developed ones, as the study was done in a developing nation. Applying the approach to two industrialized and emerging countries and comparing the results may also work. Gender, age, and experience level were not taken into consideration in this research, despite their possible influence. Future studies may examine if any of these factors act as moderators in our model.

Author Contributions
There is a sole author of this article, and all the contributions belong to him.
Funding
There is no funding.
Competing Interests
The author declared that he has no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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