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Assessment of Customers' Satisfaction in Mobile Banking Services: The Mediating Role of Ease of Use

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Abstract

Mobile banking has reshaped the financial industry worldwide by offering user-friendly and efficient banking solutions through mobile devices. In Bangladesh, the use of mobile banking has notably risen due to developments in technology, higher mobile phone usage, and a rising need for useful financial services. Mobile banking services have played a crucial role in promoting financial empowerment, especially among the countryside and distant unbanked population. Therefore, the aim of this research was to examine the factors affecting customers' satisfaction in mobile banking services in the mediating role of ease of use. Quantitative type research was applied and the study used descriptive research design. A standardized questionnaire was used to collect 402 data points from Bangladeshi customers using a purposive sampling method. A partial least square structural equation modeling (PLS-SEM) approach was used to evaluate the data and test the hypotheses. The PLS-SEM analysis method demonstrated that perceived usefulness, cost of service, responsiveness, and ease of use have a positive impact on customers' satisfaction in mobile banking services. The findings also showed that the ease of use has a significant role in mediating the relationship between three factors (perceived usefulness, security and trust, and responsiveness) and customers' satisfaction in mobile banking services. This research adds to theoretical discourse by examining the transformation of customers' satisfaction with mobile banking services in the perspective of Bangladesh.

Keywords: Mobile banking; Customers' satisfaction; Determinants; PLS-SEM; Bangladesh

1. Introduction

Mobile banking is a financial service that allows customers to conduct banking transactions remotely using a mobile device. It is a major technical advancement that gives customers easy access to their financial institutions. Mobile banking is a category of financial services where customers use mobile communication techniques and devices to perform financial transactions electronically. Mobile banking, often known as m-banking, is a cutting-edge financial technology that offers customers banking services that are easier, faster, simpler, and more effective (Nupur, 2010; Shankar & Datta, 2018). According to Karjaluo et al. (2021), mobile banking or m-banking refers to the practice of conducting financial transactions, making purchases, and paying bills through wireless portable devices. The application of mobile banking services has perceived a dramatic rise as a direct result of a number of initiatives, both planned and unplanned, that has contributed to the rise. At this time, banking

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institutions, private as well as public, are using the most recent technological advancements and applying very violent marketing methods. The most recent technological advancements have had a considerable bearing on the provision of financial services. Customers are now able to reach their banks whenever they need to through mobile banking and online banking systems (Islam et al., 2019). The aim of promoting mobile banking services is to create a cashless, paperless, and faceless society in which citizens are digitally empowered. With the widespread availability of smart phones in modern times, mobile banking services have become increasingly important in the 21st century. With just a few clicks, customers may send money to anyone, anywhere on the globe, eliminating the barriers of distance, paper bills, and time (Kar, 2021). In Bangladesh, one of the largest and most important parts of the business is the banking field. M-banking services present Bangladesh with a significant opportunity to eliminate the financial gap that exists between various groups of people, enhance service delivery, find solutions to challenges related to growth, boost transparency and accountability, enhance productivity, and reduce the expenses connected with business (Mujeri, 2017). Even though mobile banking is growing steadily in Bangladesh, safety issues are still the key barrier to the sector's progress. Mobile banking, also called "m-banking," is a new technology that makes banking easier, faster, more comfortable, and more efficient for customers (Nupur, 2010; Shankar & Datta, 2018).

In recent years, customers have put mobile banking as the best option (Rahman et al., 2017). According to Khan et al. (2021), Bangladesh has started using the services of mobile banking now that they have more options, like being able to check one's account balance and move money between accounts. Mobile banking has changed the way banks work. This is because of the growth of mobile communication strategies and the work with mobile service providers. Due to improvements in mobile contact and working together with providers of mobile services, mobile banking has changed the way banks work. Because of this, mobile banking technology is better for both people and banks (Uddin & Begum, 2023). As both the number of people who use mobile banking and the number of companies that offer it grow quickly, there are several important factors that are affecting customer happiness in this business. Some factors are very important, and others aren't as important, but they all affect how happy customers are and which service provider they choose. Mobile banking is an electronic banking system that enables individuals to access their bank accounts via SMS (which is supported by telecommunication networks), the bank's mobile banking website (which is accessible via the internet), and applications for smart phones. When using mobile banking, you can pay invoices, make withdrawals, and make deposits. The interaction between a customer and a financial institution via a portable device, such as a smartphone or personalised computer assistance, is referred to as "mobile banking" (Al-Gasawneh et al., 2022). According to Zhou (2011), mobile banking refers to the usage of mobile terminals in conjunction with a wireless application protocol in order to access banking networks. According to Mallat et al. (2004), the evolution of mobile financial services has been important and will continue to be so. This occurs as a result of the consistent development of mobile communication technology as well as the widespread use of mobile phones. Because mobile banking is extremely relevant to the sensitive financial information of users, the subject of whether or not would embrace mobile banking services has received a great deal of scholarly interest. This is because mobile banking is very relevant to the sensitive financial information of customers. Although there has been considerable investigation on mobile banking and its



impact on customer satisfaction, there are still notable deficiencies that have not been addressed (Sun et al., 2015).

After studying the majority of the relevant literature on customers satisfaction in mobile banking services, it is clear that maximum researchers tried to access the impact of several factors (perceived usefulness, security and trust, cost of service, and responsiveness) on purchase intention, mobile banking engagement, electronic purchase intention, buying behaviour, purchasing behaviour, purchase decisions, and customers satisfaction and loyalty from the perspectives of all over the world, but this research has been tried to focus on examining the factors affecting customers' satisfaction in mobile banking services in the mediating role of ease of use in Bangladesh which remained as an unexplored field.

The general objective of this research was to examine the factors affecting customers' satisfaction in the mobile banking services while also considering ease of use as a mediator. Specific objectives: To investigate the level of customers' satisfaction based on demographic profiles; To explore the factors affecting customers' satisfaction in mobile banking services; To assess the impact level of different influential factors (perceived usefulness, security and trust, cost of service, and responsiveness) on customers' satisfaction in mobile banking services; To examine the mediating role of ease of use between other factors and customers' satisfaction in mobile banking services.

This study article is allocated into several sections. Firstly, the literature review is provided based on a past study. Secondly, the theoretical background and hypotheses development have been demonstrated. Thirdly, research methods that are applied to the current research are described. Fourthly, the paper is demonstrated with the results and analysis. Fifthly, the conclusions and implications section incorporates the consequences of present research and its linkups with the previous studies. At the end of the segment, the shortcomings and potential directions of the research are stated.

2. Review of Literature

2.1. Customers' Satisfaction

The phrase customer satisfaction is one of the business industry's best-known catchphrases and has been around for decades. According to Boonlertvanich (2019) customer satisfaction may be defined as a favorable opinion of a customer based on their utilization or use of goods or services. It assesses the accuracy and desires of customers regarding the product or its use (Ong et al., 2017). The success of any new technology, such as mobile payment services, relies heavily on customer perception and satisfaction during a service encounter. Therefore, the adoption of mobile payment services occurs only when customers have a positive perception and are satisfied with their usage of these services (Oliver, 1994). Customer satisfaction refers to the extent to which expectations are met and the quality of services provided by mobile phone service providers. Considerable investments are being made to enhance customer satisfaction, but it should be noted that simply increasing resources alone cannot guarantee higher levels of customer satisfaction (Backlund & Holmqvist, 2006). There are other factors that contribute to enhanced customer happiness. They suggest that customer satisfaction is attained by providing high-quality services that are both qualitative and quantitative in nature. These services must align with and fulfill customer expectations in order to maximise customer happiness, which can subsequently foster customer loyalty. In a study conducted by

Sendecka (2006), it was discovered that providing services that are more unique, particular, and well-suited to match the needs and expectations of customers can result in a significant increase in customer satisfaction. According to Nguyen et al. (2020), a customer will continue to be dissatisfied with a product or service if it cannot meet the customer's wants or needs; conversely, the customer will be delighted and satisfied with the product or service if it is successful. According to Anderson and Sullivan (1993), providing satisfactory service to customers might ultimately assist a business in gaining the loyalty and goodwill of its clientele. The opinions and pleasure of customers profoundly influence their intention to utilise mobile financial services (MFS). Customers' perceptions greatly affect their satisfaction with MFS, and the intended usage is a strong predictor of both perception and pleasure (Islam et al., 2024).

2.2. Perceived Usefulness

According to Davis (1989), usefulness mentions to how much an individual believes that using a specific technology would improve their own work. Prior studies have demonstrated that a system's perceived utility and ease of use are strong indicators of future users' attitudes and behavioral intentions. According to Rekarti & Hertina (2014), perceived usefulness refers to the belief individuals hold that using a specific technology will enhance their performance. Perceived usefulness refers to the subjective assessment of how valuable a technology is thought to be for its users. According to a study (Al-Gasawneh, 2022), a technology-driven platform must offer real advantages to encourage its widespread use (Davis, 1989; Kar, 2021). According to Kotler & Armstrong (2016), the study suggests that a robust method of segmentation involves categorizing buyers based on the distinct benefits they seek from a product. Customers mostly desire usefulness in the product category, particularly those who value every advantage. Additionally, it is important to identify the key brands that offer comprehensive benefits. Users can conveniently utilise online banking provided that it is user-friendly, intuitive, and does not entail excessive complexity. The perceived usefulness and acceptance of technology increase in direct proportion to its ease of use (Bashir & Madhavaiah, 2014). Zhou et al. (2007) discovered that when users perceive that online buying will enhance their efficiency, they are more likely to make repeated purchases. According to Ha & Stoel (2009), the perception of usefulness and attitude regarding online shopping has an impact on the intention to make purchases electronically.

2.3. Security and Trust

Developments in trust naturally lead to more positive user attitudes regarding mobile payments since trust can be used to gauge the degree of danger involved in making monetary transactions. Maintaining a healthy business-to-customer commercial connection is aided by trust (Peha & Khamitov, 2004). Because of the intangibility, perceived danger, and uncertainty of online transactions, trust is a crucial component in the widespread use of mobile services (Slade et al., 2014; Salo & Karjaluoto, 2007; Arif & Du, 2019). The primary challenge currently confronting banks is the matter of privacy. Privacy encompasses the provision of safeguards to protect customers' personal information. Data should be kept confidential and credit card information should be safeguarded (Firdous, 2017). Mobile payment customers possess a special private key or secret password for conducting online transactions, which enhances the perceived security of mobile banking transactions. Within these digital settings, it is necessary to uphold processes of authentication, authorization, and non-repudiation among users,



merchants, and payment providers (Shon & Swatman 1998). Maintaining trust amongst online retailers, customers, and payment processors is crucial in today's environment (Mallat, 2007; Kar, 2021). Trust refers to the level of confidence that customers place in an organisation or e-seller when engaging in online transactions. Trust engenders positive sentiments towards online purchasing, and customer trust in an e-seller exerts a substantial and affirmative impact on their satisfaction and intents of loyalty (Chiu et al., 2009).

2.4. Cost of Service

The cost of mobile banking comprises expenses for transactions, a bank fee, and a cell service fee (Achieng & Ingari, 2015). Digital means of payment empower customers to use their funds wherever and at an affordable price (Omwansa, 2009). This component represents the expense associated with employing mobile payment services when performing an activity. The cost of integrating into a platform as well as executing an exchange needs to be reduced to raise the pace at which electronic services are adopted (Mallat, 2007). Observed cost encompasses more than just the tangible financial expenses associated with utilizing mobile banking services. Integrating a new technology through accessing current services usually incurs switching costs, especially from the user's point of view. Specifically, users are unlikely to transition from one platform to another unless they perceive clear advantages that outweigh the required effort. Transaction costs, specifically the time required to complete a task, can be considered as a sort of hidden costs in mobile banking. Research has shown that the small screens of mobile telephones are viewed as hindering the process of transferring payments using mobile phones, while the small keyboard produces a sensation of clumsiness when entering data. However, mobile banking can be a convenient way to save time (Laukkanen 2007). According to Chung & Kwon (2009), particularly when a customer needs to transfer money and no other options are accessible, such as when traveling. In this context, time efficiency is regarded as convenient and can be demonstrated as a cost-saving element in comparison to alternative options (Laukkanen, 2007). Similarly, Hanif et al. (2010) highlighted that price fairness significantly influences customer satisfaction, and high cost acts as a deterrent for individuals in using mobile banking. For youthful customers in Bangladesh, who reside in a developing country, the affordability and cost-saving potential might positively impact their loyalty as customers.

2.5. Responsiveness

The term responsiveness describes the ability of those offering products or services to assist customers and offer prompt assistance (Wilson et al., 2016). Responsiveness refers to the customer's subjective experience of receiving assistance promptly and effectively when it is required (Achieng & Ingari, 2015). This assessment places an emphasis on being aware as well as being immediate when it comes to addressing customer inquiries, solicitations, concerns, and objections. According to Endara et al. (2019), the measure of responsiveness represents the speed at which staffs are able to provide adequate and timely support. According to Uddin et al. (2015), responsiveness is defined as the capacity to carry out physically and/or technologically assigned duties in a timely manner. Customers satisfaction in online business transactions may also be influenced by responsiveness. The more responsive the system is to user inputs, the less time and effort the user needs to spend to achieve their objectives, and the more likely they are to be satisfied with the service encounter. Responsiveness is particularly important when an automated transaction fails to achieve the desired outcomes

and needs human intervention due to technical or process-related issues. The prompt resolution of such issues by human intervention was found to have a beneficial effect on user satisfaction (Kar, 2021).

2.6. Ease of Use

Perceived ease of use refers to the extent to which an individual believes that utilising a specific system would require minimal effort within the framework of an organisation (Davis et al., 1989). The approximation to this construct is derived from metrics that assess the extent to which systems enable faster job completion, enhance productivity, improve performance, and boost work efficiency. The impact of perceived ease of use on attitude has been demonstrated in multiple research conducted in diverse contexts (Chau & Lai, 2003). According to Gunawan et al. (2019), the research explains that perceived ease of use refers to the level or condition when an individual perceives that utilising a specific technology does not necessitate any exertion or effort. The level of utilisation and engagement between users and the system can also serve as an indication of the system's ease of use. According to the expectancy-confirmation model of IS continuance (Bhattacharjee, 2001), ease-of-use is also regarded as a part of post adoption expectation. A study conducted by Chen et al. (2010) found that the usability of an interface and its convenience of use greatly influence the intention of Taiwanese internet users to make online purchases. Roy et al. (2001) proposed that while creating online purchasing websites, online retailers should prioritize factors such as simplicity of navigation, ease of learning, perception, and support. The evolution of electronic commerce is heavily influenced by the essential factor of ease-of-use (Flavian et al., 2006; Casalo et al., 2008).

3. Theoretical Background and Hypotheses Development

3.1. Social Exchange Theory

SET was created in the 1950s and has its foundation in psychology. It uses the basic ideas of modern economics as a basis for studying human conduct and interactions in order to figure out how complicated social structures are. SET was first made to study how people behave (Homans, 1958). Later, it was used to research how organisations perform (Blau, 1964; Emerson, 1962). Therefore, from a cost-benefit point of view, interpersonal relations are a deal where both parties gain something (Blau, 1964). The social exchange model (Salam, et al., 1998) says that people and groups work together to get the most benefits and pay the least amount of cost. According to Shiao & Luo (2012), people and groups are helped to get the most out of their benefits and spend as little as possible. When people act in accordance with social rules, they usually expect to get something in return, like personal warmth, trust, praise, and money. Thus, from a cost-effective point of view, social collaboration is a deal where both parties gain. From a cost-effectiveness point of view, they talk to each other separately, which helps in exchanges where the character gets a chance (Blau, 1964). Furthermore, social exchange theory elucidates the link between enterprises and customers by highlighting individual active behaviours and the rationale behind resource transfers (Ferm & Thaichon, 2021). To learn more about the things that affect customer happiness in Bangladesh's mobile banking business. The social exchange theory is applicable to this study because mobile banking customers also look for cost-benefit, getting better service at a minimal cost. Social Exchange Theory applies to customer satisfaction by highlighting the equilibrium of rewards and costs in service interactions. In mobile banking services, customer evaluates satisfaction by comparing perceived benefits, such as usability, security, affordability, and responsiveness,



with associated costs or efforts. The overview of the banking experience through ease of use raises the perceived value of its benefits, hence promoting a favourable trade. Consequently, customers are more inclined to experience satisfaction when they regard the service as beneficial and efficient, consistent with the premise of Social Exchange Theory that contentment arises from a favorable equilibrium in the exchange relationship.

3.2. TAM Model

According to Davis et al. (1989) and Pavlou (2003), the TAM has been recognised as the most strong, parsimonious, and effective model for acceptance of innovation behaviour. As a result, we chose this theoretical framework to be the basis for the aim of the present study. According to the TAM model, views on the usage of modern technology are a construct that can be described by two perceived variables: the utility of the technology and the simplicity with which it may be utilised. According to Davis et al. (1989), the term “perceived ease of use” refers to “the degree that a person perceives that using a specific system would be free of difficulty within an organisational context.” According to Muoz-Leiva et al. (2017), it has been demonstrated that the simplicity with which a digital service may be utilised has a substantial bearing on the pace at which it is embraced. This is something that has been demonstrated in acceptance studies such as TAM. Guriting and Oly Ndubisi (2006) state that mobile payment systems are easy to use; hence, suppliers of these services should have a favourable approach to the happiness of their customers (Kar, 2021). The Technology adoption Model (TAM) connects to this research by emphasising the significance of simplicity of use and perceived utility in shaping customer adoption of mobile banking services. These characteristics correspond with the study’s emphasis on how usability influences the connection between service features (e.g., security, cost, timeliness) and customer satisfaction. Jahan & Shahria (2021) declare that cost, responsiveness, and associated advantages significantly influence satisfaction, whereas convenience and safety exhibit a minor association.

3.3. Hypotheses Development

Bhattacharjee (2001) recommended that customers are more likely to purchase an offering when they regard its usage as advantageous. This implies that the perceived usefulness of something has an essential bearing on customer buying preferences. According to Luarn and Lin (2005), there is a direct correlation between an increase in perceived usefulness and a higher number of transactions. As customers perceive a higher level of usefulness in a service or product, they also tend to increase their level of involvement and the frequency at which they make transactions. According to the findings of one study (Heijden, 2003), one’s intent to use something is influenced by how useful they view it. Research has shown that a good attitude towards using an online application is significantly boosted by the application’s clarity, simplicity, and navigational ease (Heijden, 2003; Kar, 2021). According to Marinkovic & Kalinic (2017), the perceived usefulness of mobile commerce is a primary factor in determining customer satisfaction. Therefore, it is expected that,

H1: Perceived usefulness has a positive impact on customers’ satisfaction.

H2: Perceived usefulness has a positive impact on ease of use.

The customers sense of safety and confidence in the protection of his or her private information will suffer as a result. In order to offset customers worries about privacy and

security, businesses engaging in e-commerce are looking for practical, effective ways to boost customers' trust in them (Muoz-Leiva et al., 2017). According to Chiu et al. (2009), there is a positive correlation between the level of trust customers have and their level of satisfaction. Security is of utmost significance when it approaches to virtual transactions. According to Ghosh & Barua (2014) provided a definition of security as the state of being safe and protected from harm or danger with regards to information. However, in reality, both information and monetary matters are intricately connected to security due to the risks of fraud and hacking (Kabir, 2013). Therefore, it is expected that,

H3: Security and trust have a positive impact on customers' satisfaction.

H4: Security and trust have a positive impact on ease of use.

Studies in this area suggest that the perceived cost of mobile banking significantly reduces users' willingness to use it (Luarn & Lin, 2008; Wessels & Drennan, 2010). Essentially, people are hesitant to use mobile banking services when they have to pay for them, highlighting their strong sensitivity to spending (Wessels & Drennan, 2010). Literature suggests that higher expenses per deal, communication expenses, and subscriber expenses often impact the usage of electronic services in personal and corporate contexts (Chatterjee & Kar, 2020). A study conducted by Koenig-Lewis et al. (2010) indicated that when both tangible and intangible costs are included, the impact of fees on the intent of users to use mobile banking is inconclusive. The perceived financial cost is the most influential element in Bangladesh when it comes to both adopting and continuing the use of mobile banking (Siddik et al., 2014). Therefore, it is expected that,

H5: Cost of service has a positive impact on customers' satisfaction.

H6: Cost of service has a positive impact on ease of use.

Vencataya et al. (2019) found that responsiveness is a significant predictor of customer satisfaction in the banking industry. This study emphasizes the importance of prompt and efficient handling of customer inquiries and problems in influencing customers' opinions of the quality of service. The results indicate that being timely is not just a minor part of customer service, but a crucial factor in determining customer satisfaction in the banking industry. According to Lin (2013), customers of mobile payment systems thought that since transactions as well as payments were completed through digital means, it responded to their needs more quickly than any other ancient method that is put into use for financial transactions. Feedback and responsiveness foster engagement in all activities. The prompt response from the cell provider, bank, or agent can significantly affect customer satisfaction. Therefore, it is expected that,

H7: Responsiveness has a positive impact on customers' satisfaction.

H8: Responsiveness has a positive impact on ease of use.

If a technology is seen as user-friendly, individuals will opt to adopt it. The use of user-friendliness in the context of research implies that customers see internet-based apps as flexible and easy to learn and use (Ramli & Rahmawati, 2020). The ease of use of a digital service has been shown to have a significant influence on its rate of acceptance, which is something that has been shown in adoption literature such as TAM. According to Guriting &



Oly (2006), the fact that mobile payment systems are simple to use should encourage a favourable attitude towards overall satisfaction with the service. According to Choi et al. (2017), the two most important characteristics that contribute to the effectiveness of an application for mobile devices are its ability to be personalised and its simplicity of use. The other is a method for describing how customers evaluate the overall quality of the system. According to what was found in the study by Hamid et al. (2016), users will be more eager to comprehend the characteristics of a system and continue to use it if it is reasonably easy to operate. Dholakia and Zhao (2010) identified that the two crucial factors for receiving positive evaluations in online commerce are the ease of discovering desired items and the clarity of product information. In their study, Liao & Shi (2009) discovered that the ease-of-use of a product or service has a beneficial influence on customers in Hong Kong. However, Ha and Stoel (2009) found that the level of user-friendliness did not have an impact on one's attitude towards online buying. Hernandez et al. (2009) also contended that the effect of ease-of-use is only substantial in the short term and does not have a notable impact on future purchases, particularly among young people. In addition, Razaei et al. (2014) conducted a study on Malaysian customers and discovered a lack of significant correlation between Perceived ease-of-use and desire to purchase. Therefore, it is expected that,

H9: Ease of use has a positive impact on customers' satisfaction.

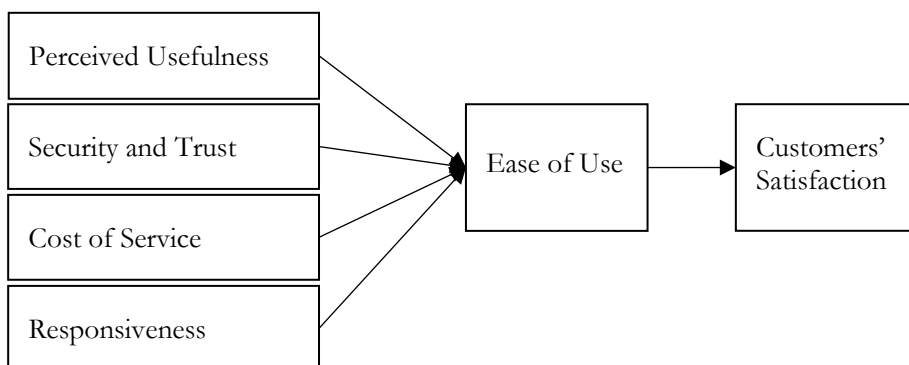
H10a: Ease of use positively mediates the relationship between perceived usefulness and customers' satisfaction.

H10b: Ease of use positively mediates the relationship between security and trust and customers' satisfaction.

H10c: Ease of use positively mediates the relationship between cost of service and customers' satisfaction.

H10d: Ease of use positively mediates the relationship between responsiveness and customers' satisfaction.

Figure 1. Research model



4. Research Methods

4.1. Research Design, Sampling and Data Collection

This study employs a quantitative nature and a descriptive research design. The respondents of this research included 402 customers who have already used mobile banking services frequently in Bangladesh. In the study, the unit of analysis was the individual customer. The research was carried out using a quantitative survey technique, with data collected using a structured questionnaire. To test the hypotheses, a purposive sampling technique was conducted. This online survey was used to collect data from customers of several online sites, and it was also used in other studies (Hossain et al., 2024; Khan et al., 2024; Hossain, 2022; Hossain et al., 2020). The questionnaire was provided to them, and they were asked to agree or disagree with each statement based on their mobile banking experience.

4.2. Measurement Development

The scale items for assessing the customers' satisfaction in mobile banking services were adopted from Boonlertvanich (2019), Kar (2021), Muoz-Leiva et al. (2017), Chatterjee & Kar (2020), Lin (2013), Heijden (2003) and Choi et al. (2017) where the items were found reliable and valid. Table 1 displays the latent constructs and their observed variables. The first section of the questionnaire contains general customers' information such as gender, age, occupation, education, income, and bank name. The second section includes questions about customers' satisfaction in mobile banking services. On a 5-point Likert scale ranging from strongly disagree to strongly agree, customers were asked to rate their level of agreement or disagreement. A pre-testing period of 50 customers was conducted prior to the finalization of the questionnaire.

Table 1. Measurements

Constructs	Measured Variable	Sources
Perceived usefulness	Efficiency in finance management	Boonlertvanich (2019), Kar (2021), Muoz-Leiva et al. (2017), Chatterjee & Kar (2020), Lin (2013), Heijden (2003), and Choi et al. (2017).
	Provides valuable features	
	Assist in performing transaction	
Security and trust	Personal information is secure	
	Security measures implemented	
	Privacy of financial data	
	Protection from unauthorized entry	
Cost of service	Reasonable compared to benefit	
	Good value for money	
	Cost is convenient	
Responsiveness	Responds promptly	
	Timely updates	
	Addresses concerns	
	Responsive customer support	
Ease of use	Easy to operate	
	Effortless transaction	
	User friendly interface	
	Quickly adaptable	
Customers' satisfaction	Provides useful features and functions	
	Services are reasonable	
	Dependable and responsive	
	Customers are satisfied	



4.3. Data Analysis

The raw data that were generated through questionnaire surveys were examined through SmartPLS software (version 4.0). Structural Equation Modeling (SEM) was applied for the verification of the conceptual model to ensure the model's fitness. This research applied percentile measures and frequency distribution, primarily for the sample distribution and using mean and standard deviation. This study examines descriptive statistics. Furthermore, it uses collinearity statistics to examine and test the multicollinearity of all the independent variables. Additionally, Cronbach's Alpha and Composite Reliability (CR) were applied to ensure the reliability of the data and items of the scale. To verify the Fornell–Larcker Criterion and the Heterotrait–Monotrait ratio (HTMT), discriminant validity was applied also.

5. Results and Analysis

5.1. Descriptive Statistics Analysis

The mean and standard deviation scores were used to analyze all of the aspects. The factors were ranked according to their calculated mean values. As shown in Table 2, security and trust produces the greatest mean score ($M=4.0871$), while cost of service generates the lowest mean score ($M=3.2973$). All factors except security and trust, and responsiveness generated moderate mean scores.

Table 2. Descriptive statistics analysis

<i>Constructs</i>	<i>Mean</i>	<i>Std. Deviation</i>	<i>Rank</i>
Perceived usefulness	3.8889	.91345	3
Security and trust	4.0871	.93552	1
Cost of service	3.2973	1.00433	5
Responsiveness	4.0050	.95649	2
Ease of use	3.8315	1.01380	4

5.2. Multicollinearity Test

A multicollinearity test is used to see whether the independent variables are highly correlated among themselves. The collinearity among the predictor constructs affects the estimated path coefficients (Hair et al., 2019). Variance inflation aspect above 5 and tolerance below 0.10 indicates a presence of inter-predictor constructs collinearity (Hair et al., 2019). As illustrated in Table 3, the results of collinearity statistics showed that all VIF and tolerance values are within an acceptable range. It indicated that multicollinearity would not interfere with independent variables' ability to interpret the outcome variable.

Table 3. Multicollinearity test

Constructs	Customers' satisfaction		Ease of use	
	Tolerance	VIF	Tolerance	VIF
Perceived usefulness	.897	1.115	.922	1.084
Security and trust	.910	1.099	.941	1.063
Cost of service	.922	1.084	.923	1.084
Ease of use	.921	1.086		
Responsiveness	.971	1.030	.978	1.022

5.3. Measurement Model Analysis (Outer Model)

Hair et al. (2019) delineate that “measurement model is a component of a theoretical path model that contains the indicators and their relationships with the constructs; also called the outer model in PLS-SEM.” To check whether the items are loaded on their respective constructs, a confirmatory factor analysis (CFA) is used (Hair et al., 2019). For conducting structural equation modelling, SmartPLS software package version 4.0 had been used (Ringle et al., 2019).

5.3.1. Unidimensionality

Each item being tested must have a sufficient factor loading rate that corresponds to the underlying construct, which proves that constructs are one-dimensional. The recommended item factor loading value for each construct is 0.70 or higher, according to Hair et al. (2019). This construct's components have been kept and taken into consideration, as seen in Table 4, where the factor loading for all items is more than 0.70. A new standard for evaluating one-dimensionality has been defined.

5.3.2. Construct Reliability Tests

An evaluation of data dependability and internal consistency of each latent construct has been suggested as construct reliability. Composite dependability (CR) and Cronbach's alpha were two popular tools for evaluating construct reliability. The dependability values of the concept should be 0.70 or higher, according to Hair et al. (2019). All of the Cronbach Alpha and Composite Reliability (CR) values are in the acceptable range, as shown in Table 4, according to Hair et al. (2019). In this way, it guaranteed that the parameters for further research would be reliable.

Table 4. Measurement model summary

<i>Construct</i>	<i>Items</i>	<i>Factor Loading</i>	<i>AVE</i>	<i>CR</i>	<i>Cronbach's α</i>
Perceived usefulness	PU1	0.836	0.612	0.825	0.712
	PU2	0.730			
	PU3	0.777			
Security and trust	ST1	0.872	0.751	0.923	0.889
	ST2	0.880			
	ST3	0.893			
	ST4	0.819			
Cost	COS1	0.727	0.606	0.860	0.789
	COS2	0.759			
	COS3	0.887			
	COS4	0.732			
Responsiveness	Res1	0.947	0.716	0.908	0.882
	Res2	0.737			
	Res3	0.945			
	Res4	0.729			
Ease of use	EU1	0.850	0.661	0.886	0.831
	EU2	0.847			
	EU3	0.733			
	EU4	0.818			
Customers' satisfaction	CS1	0.880	0.772	0.931	0.904
	CS2	0.895			
	CS3	0.811			
	CS4	0.924			



5.3.3. Convergent Validity Tests

The values of the average variance extracted (AVE) above 0.50 (Hair et al., 2019) were used to explain the convergent validity of the latent construct. The AVE value of 0.50 or higher suggests that the latent factors account for around 50% or more of the variation in the observed items. All the AVE values were, accordingly, appropriate and therefore valid for further study, as shown in Table 4.

5.3.4. Discriminant Validity Tests

To guarantee discriminant validity, the underlying constructs must not have any significant association or overlap. According to Hair et al. (2019), researchers looked at the correlation coefficients and square root of average variance extracted (AVE) constructs to determine discriminant validity. Table 5 showed that when looking at the constructs off the diagonal, the similarities were less than what was reported on the diagonal in terms of the square roots of the average variance extracted (AVE). Hence, discriminant validity is shown to exist in the research constructs.

Table 5. Discriminant validity tests: Fornell-Larcker Criterion

	Customers' satisfaction	Cost of service	Ease of use	Perceived usefulness	Responsiveness	Security and trust
Customers satisfaction	0.879					
Cost of service	-0.173	0.779				
Ease of use	-0.295	0.084	0.813			
Perceived usefulness	-0.189	0.214	0.251	0.782		
Responsiveness	0.144	0.091	-0.107	0.078	0.846	
Security and trust	0.203	-0.193	-0.229	-0.210	0.026	0.866

Table 6. Discriminant validity tests: Heterotrait-Monotrait Ratio (HTMT)

	Customers' satisfaction	Cost of service	Ease of use	Perceived usefulness	Responsiveness	Security and trust
Customers' satisfaction						
Cost of service	0.180					
Ease of use	0.318	0.096				
Perceived usefulness	0.207	0.287	0.263			
Responsiveness	0.161	0.140	0.128	0.127		
Security and trust	0.206	0.221	0.253	0.246	0.043	

5.3.5. Heterotrait-Monotrait Ratio

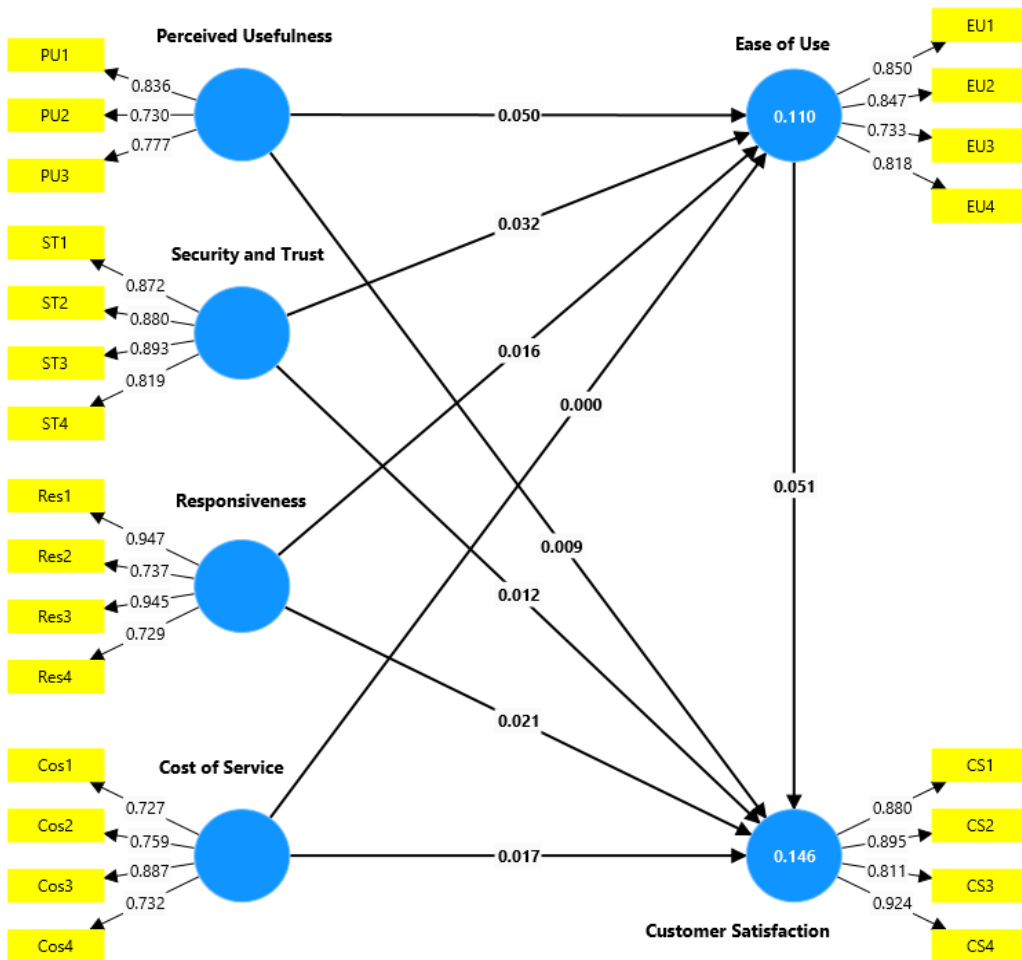
The absence of significant relationship or overlap between the underlying constructs is a prerequisite for discriminant validity. In order to establish discriminant validity, researchers consulted the square root of average variance extracted (AVE) constructs and correlation coefficients (Hair et al., 2019). When comparing the constructs off the diagonal, as shown in Table 6, the similarities were lower in terms of the square roots of the average variance

extracted (AVE) compared to what was reported on the diagonal. Therefore, the research constructs are demonstrated to possess discriminant validity.

5.4. Structural Model Analysis (Inner Model)

After testing and validating the full measurement model, the structural model has to be assessed (Hair et al., 2019). The decision regarding acceptance and rejection of the proposed hypotheses through significant and insignificant relationship can be determined by structural model analysis (Schumacker & Lomax, 2004; Byrne, 2013). A bootstrapping procedure with a subsample of 5000 had been applied in this current study for estimation of the model (Ringle et al., 2015).

Figure 2. Structural model



5.4.1. Structural Model Estimates (Direct Effects)

The structural model analysis includes the paths, path coefficients, t values, p values, and path coefficient results. A two-tailed t-test with a level of significance of 5% was used to test the



hypotheses that had been developed. The coefficients are statistically significant if the measured t-value is greater than the critical value of 1.96. According to the results in Table 7 and Figure 2, the path coefficients of four latent constructs, including perceived usefulness, cost of service, responsiveness, and ease of use had a positive and significant impact on customers' satisfaction in mobile banking services. It was determined that the previously proposed theories, specifically H1, H5, H7, and H9, were accepted. Customers were only slightly more satisfied with mobile banking services after implementing security and trust measures. As a result, H3 was rejected. Ease of use was positively and significantly affected by perceived usefulness, security and trust, and responsiveness. It is found that the proposed hypotheses, H2, H4, and H8, were accepted. Since the effect of cost of service on ease of use was minimal, H6 was insignificant.

Table 7. Structural model estimates (Direct effects)

Path	T-values	P-values	Results
H1: Perceived usefulness-> Customers' satisfaction	2.233	0.026	Significant
H2: Perceived usefulness-> Ease of use	5.306	0.000	Significant
H3: Security and trust-> Customers' satisfaction	1.874	0.061	Insignificant
H4: Security and trust-> Ease of use	4.544	0.000	Significant
H5: Cost of service -> Customer satisfaction	2.361	0.018	Significant
H6: Cost of service-> Ease of use	0.280	0.779	Insignificant
H7: Responsiveness -> Customer satisfaction	2.651	0.008	Significant
H8: Responsiveness-> Ease of use	2.256	0.024	Significant
H9: Ease of use -> Customers' satisfaction	5.993	0.000	Significant

Note: $p^* < 0.05$, based on the two-tailed test; $t = 1.96$

5.4.2. Structural Model Analysis (Indirect Effects)

The indirect impacts demonstrate a mediator function of ease of use. According to the results in Table 8 and Figure 2, the path coefficient of ease of use played a crucial role in mediating the positive association between three parameters and customers' satisfaction in mobile banking services. The factors that were supported in this study were perceived usefulness, security and trust, and responsiveness. Thus, hypotheses H10a, H10b, and H10d were confirmed. There was no substantial and favourable relationship between customers' satisfaction and the cost of service mediated by ease of use. Unfortunately, H10c is not compatible or endorsed. In addition, research demonstrates that security and trust have a little direct impact on customers' satisfaction. However, there is a substantial impact when considering the mediating link between security and trust, and customers' satisfaction.

Table 8: Summary of structural model analysis (indirect effects)

Path	T-Value	P-value	Results
H10a: Perceived usefulness -> Ease of use -> Customers' satisfaction	3.913	0.000	Significant
H10b: Security and trust -> Ease of use -> Customers' satisfaction	3.684	0.000	Significant
H10c: Cost of service -> Ease of use -> Customers' satisfaction	0.275	0.783	Insignificant
H10d: Responsiveness -> Ease of use -> Customers' satisfaction	2.136	0.033	Significant

Note: $p^* < 0.05$, based on the two-tailed test; $t = 1.96$

6. Discussions and Conclusions

Mobile banking services in Bangladesh have emerged as a transformative financial solution, bridging the gap between traditional banking and digital convenience. These services significantly enhance financial inclusion by reaching underserved populations, especially in

rural areas. The goal of this study was to examine the factors (perceived usefulness, security and trust, cost of service, and responsiveness) affecting customers' satisfaction in the mobile banking services while also considering ease of use as a mediator.

After studying the majority of the relevant literature on customers satisfaction in mobile banking services, it is clear that maximum researchers tried to measure the factors affecting purchase intention, mobile banking engagement, electronic purchase intention, buying behaviour, purchasing behaviour, purchase decisions, and customers satisfaction and loyalty in mobile banking services (Zhou, 2011; Lin, 2013; Hossain et al., 2020; Hossain et al, 2024, Khan et al., 2024; Hossain et al., 2022) from the perspectives of all over the world, but this research has been tried to focus on examining the factors affecting customers' satisfaction in mobile banking services in the mediating role of ease of use in Bangladesh which remained as an unexplored field.

This research discloses that significant factors such as perceived usefulness, security and trust, cost of service, responsiveness, and ease of use are crucial in driving customers' satisfaction. Among these, ease of use plays a vital role in facilitating customer engagement and customer satisfaction, acting as a mediator between other service characteristics like perceived usefulness, security and trust, and responsiveness. Despite these advancements, challenges such as improving security measures, maintaining affordability, and enhancing user experience remain critical. Mobile banking services in Bangladesh hold immense potential for revolutionizing the financial sector, fostering economic growth, and advancing digital transformation. Stakeholders must focus on continuous innovation and addressing customer concerns to sustain and enhance the sector's growth trajectory.

Customers have recently taken the top spot among customers (Nupur, 2010; Shankar & Datta, 2018). According to Rahman et al. (2017), e-banking, also known as mobile banking is a cutting-edge technology that offers customers comfortable, quick, efficient, and effective services. Bangladesh has started using the services of mobile banking now that they have more options, like being able to check one's account balance and move money between accounts. Mobile banking has changed banking because of the development of mobile communication strategies and collaboration with mobile service providers. The study of the structural model revealed notable direct impacts of perceived usefulness, cost of service, responsiveness, and ease of use on customers' satisfaction. More precisely, the factors of perceived usefulness, cost of service, responsiveness, and ease of use all had a significant and positive impact on customers' satisfaction. However, the variables of security and trust did not exert a substantial and immediate impact on customer satisfaction. This implies that although they are important factors, they may not directly influence satisfaction in the specific context of mobile banking. The level of user-friendliness was greatly impacted by the perceived usefulness, security and trust, and responsiveness. The research of indirect effects further emphasised the mediating function of ease of use. The study found that perceived usefulness, responsiveness, security and trust were positively related to customers' satisfaction in banking services. This study has also highlighted the important function of mediation in improving customers' satisfaction in banking services. However, the influence of service cost on customers' satisfaction in banking services through ease of use was shown to be insignificant, suggesting that cost factors may not have a substantial impact on user satisfaction when facilitated by ease of use. These results highlight the complex and diverse aspects of customer satisfaction in mobile banking. Responsiveness and simplicity of use are crucial elements that directly and indirectly impact



satisfaction, whereas security and trust have a significant role in moderating these effects. The cost of service, while significant, seems to have a more understated influence, potentially indicating that customers evaluate it differently in comparison to other aspects. Having a thorough comprehension of this can assist mobile banking providers in prioritising their endeavours to improve customers experience and satisfaction. Customers satisfaction in mobile banking is closely tied to its usefulness, ease of access, and affordability. When costs rise, satisfaction declines, whereas reliability and robust security increase user trust and loyalty. A user-friendly interface positively impacts satisfaction, while complexity diminishes it. Quick responses to customers issues and queries greatly boost satisfaction. This study identifies key drivers of satisfaction and loyalty, offering mobile banking providers actionable insights to improve services and foster customers delight.

6.1. Theoretical Implications

The results of the PLS-SEM analysis provide significant contributions to the theoretical understanding of customers satisfaction in mobile banking services. The study elaborates on established frameworks, like the Technology Acceptance Model (TAM) and Service Quality (SERVQUAL), by illustrating that perceived usefulness, cost of service, responsiveness, and ease of use are crucial determinants of customers satisfaction. These findings highlight the need of integrating both functional and experience elements in understanding customers satisfaction in the mobile banking sector. A crucial theoretical finding is the recognition of ease of use as a mediating factor that amplifies the effects of perceived usefulness, security and trust, and responsiveness on customers satisfaction in mobile banking services. This expands the TAM by underscoring the mediating function of ease of use, emphasizing its dual importance as both a direct factor and an accelerator of customers satisfaction via additional aspects. The findings indicate that simple interfaces and streamlined service procedures enhance the beneficial impacts of trust, responsiveness, and perceived usefulness on overall customers satisfaction. Also, incorporating security and trust into the research offers a refined comprehension of their indirect impact on satisfaction. The findings indicate that customers regard ease of use as a fundamental criterion for assessing the dependability and trustworthiness of mobile banking services, which enhances satisfaction.

Finally, this research enhances the theoretical discussion on digital banking by emphasizing the relationship among usability, trust, and service quality. It proposes that next theoretical models concentrate on mediating aspects, especially simplicity of use, to more accurately elucidate the intricate pathways resulting in customers satisfaction within technology-driven service environments.

6.2. Practical Implications

The findings of this research offer actionable insights for mobile banking service providers aiming to enhance customers' satisfaction and loyalty.

Firstly, the significant mediating impact of ease of use indicates that service providers ought to spend in developing user-friendly interfaces with easy navigation. Streamlining transaction procedures and reducing technical obstacles can substantially improve satisfaction. Secondly, to attract and maintain customers, mobile banking platforms must prioritise the provision of services that correspond with customers' actual requirements, including fast and efficient transactions, customised financial services, and additional features such as expense tracking

and savings management. Thirdly, the cost of service is a key factor affecting satisfaction. Service providers must guarantee that service rates are both competitive and transparent. Implementing tiered pricing structures or discounts can attract price-sensitive customers while preserving profitability. Fourthly, prompt attention to customers concerns and swift problem resolution are vital. Mobile banking services ought to improve customers support via live chat, AI-powered bots, and proficient human agents to resolve issues swiftly and efficiently. Fifthly, security and trust indirectly affect satisfaction by enhancing ease of use. Service providers must adopt strong security protocols, including biometric authentication and real-time fraud detection, while effectively conveying these features to customers to foster confidence. Sixthly, emphasizing usability, responsiveness, and cost-efficiency in marketing efforts can effectively distinguish services in a competitive market. Informing customers about the functionality and dependability of mobile banking services can enhance trust and encourage adoption.

Finally, by addressing these practical implications, mobile banking service providers can boost customers satisfaction, foster long-term loyalty, and expand their market presence in the emerging digital financial services sector.

7. Limitations and Further Research

Despite the contribution of this study to the existing literature of mobile banking services, this research has some limitations. Because of the non-probability (purposive sampling method) aspect of sampling applied in this research, the power of generalizability of the findings from the sample in a larger perspective is limited. Future studies may adopt a probability sampling approach with a larger sample size for higher precision of the results. The research examined the subjective perception of the customers towards mobile banking services, which may not guarantee actual mobile banking users. Therefore, a longitudinal study may be accepted in the future to see the relationship between customers' satisfaction and the loyalty of customers. The research provides a unique contribution to the existing body of knowledge by validating ease of use as a mediating variable between satisfaction and their antecedents. A future study may verify the research model in other contexts, such as in different industries or countries, and extend the model by including more mediating and/or moderating variables.

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