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The Effect of Automation of Banking Services on Customer Satisfaction

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Abstract. *Automated banking is one of the key services used by banks to facilitate the delivery of services that meet consumer expectations, thus boosting the country's economy. Major technological advancements have been witnessed in the banking industry due to the introduction of international standards in the operational norms of banking geared towards the betterment of client service quality. The aim of this research was to assess the effects of automation of banking services on customer satisfaction for different private banks in Khulna city. The study adopted a case study research design. Data was collected using questionnaires. The total reliability of the questionnaire, measured using a Cronbach's alpha coefficient, was 0.897. The sample size was 100 respondents. Data were analyzed using descriptive and inferential statistics using Statistical Package of Social Sciences (SPSS) software, version 20.0. Findings were presented in the form of tabulations (percentages, mean and standard deviation). From the findings, the automation of banking services such as mobile banking usage, internet banking usage, and automated teller machine usage was found to have a significant effect on customer satisfaction.*

Keywords: *Mobile banking, internet banking, automated teller machine, customer satisfaction*

1. Introduction

Technology has made a tremendous impact on service companies in general and the financial services sector is no exception. The application of information and communication technology strategies to banking services, specifically the concepts, techniques, policies, and implementation of those strategies has become a subject of fundamental importance and concern to all banks and indeed a prerequisite for local and global competitiveness in the banking industry. The use of Big Data to analyze customer insights has been helpful (Siahaan & Prasetio, 2022). Conversion from a manual-based ledger system to systemized processes and the changeover to internet-based facilities has given a new facet to the banking sector. Competition in the banking sector has increased over the last few years. To stay competitive, banks are espousing novel tools and techniques to attain customer retention and satisfaction, such as automated services. Diminishing margins are a concern for all banks globally. Banks worldwide are striving to decrease costs and increase margins in order to remain sustainable in this competitive environment. Automation is a critical channel for selling virtually all bank services (Isuri, 2009). Customer satisfaction leading to gaining loyal customers can be achieved by delivering high-quality services (Gronroos, 2000). Service quality and customer satisfaction have been often identified as significant predictors of business performance. Shostack (1985) defines a service encounter as "a period of time during which a consumer directly interacts with a service." Automated service quality is defined as the customer's overall evaluation of the services provided through electronic

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channels, such as the internet, telephone, and Automated Teller Machines (ATMs) (Santos, 2003).

Quality issues regarding automated services in the context of banking have become important because of their potential influence on attractiveness, customer retention, profitability, positive word-of-mouth, and competitive advantages (Moutinho and Smith, 2000; Nguyen and Leblnac, 1998; Santos, 2003). The use of technology has already enabled most banks in Bangladesh to introduce innovative products to their customers in forms such as ATM facilities, mobile/telebanking, web banking, "anytime and anywhere" banking. Technological solutions implemented by banks have had a positive impact on customers. The aim of this research was to determine the effect of mobile banking, internet banking, and ATM use on customer satisfaction at private banks.

2. Literature Study/Hypotheses Development

Customers are the biggest influencers in the operation of an organization. It is therefore imperative to measure how services offered by a company meet or exceed customer expectations, as these measurements are fundamental performance indicators in business.

In environments where there is great competition for customers, the call for customer satisfaction is viewed as the main differentiator and is, therefore, a major strategy employed by businesses. This strategy has been a subject of great interest to organizations that want to be market leaders in the field and researchers alike (Barnes, 2013).

Spielman ET. Al, (2008) explains that a measurement of customer fulfillment gives a clear indication of how a successful organization can provide quality products and/or services to the public. The customer assesses statements in relation to their need, perception, and expectation of the performance of the service which is being measured. It is a general belief that a business that offers high-quality service is one who meets its customer's desires while remaining economically stable and competitive in the market.

Customers' perception of service quality is determined by the size and direction of the gap that exists between what the customers expect to be given in service to that of what he or she perceives to have been received from the service purchase (Jakumar, 2005). Customer loyalty is a factor in gaining customers for a business (Utami & Chaldun, 2019). In modern economies, the service sector plays a significant role in manufacturing and other sectors. Personnel in service industries are concerned about client satisfaction and the quality of their services. This calls for delivering services efficiently and in a way that meets the expectations of their clientele.

Banking services include mobile banking, SME banking, internet banking, credit card, Short Message Service (SMS) banking, foreign currency account, ATM services, locker service, and loans and advances. In addition, corporate clients are also offered corporate banking, loan syndication, and real-time online banking. Service charges, quality of service, perceived value, and customer satisfaction are the main factors which can determine success in any service factory (Akram, 2012).

Lien and Yu-Ching, 2006, lamented that perceived price fairness influences the echelon of intangible services which has a direct one-on-one impact on customer fulfillment in the case of banks. Satisfaction of customer is the authentic expression of the status of contentment that differs from personal to person and product/service to product/service and is an evaluation of how services of an institution meet customer expectations or surpass customer expectancy.

A customer's biggest concern is always cost.

Determining prices and service charges requires the consideration and evaluation of the customer's perception of value and should not be generalized along with other factors. Customer satisfaction is subject to price and service charge awareness (Kuo et al., 2009).

A customer's psychological assessment of the utility of a product or service compared with the expectation of the utility of a product or service is known as perceived value. Online feedback can be a factor in improving product quality (Mustikarini, et al., 2021). Marketing researchers and managers have paid much attention to value perceptions with the aim of generating details on customer satisfaction and allegiance. To ascertain the value perception of customers, Lee et al. (2007) suggest considering their perceived benefits relative to sacrifice. Except for monetary sacrifice, perceived value assessment consists of the social and psychological perspective of non-monetary costs such as search cost, negotiation cost, and consumption of time. The consumption of any product or service gives a customer benefits and expectations based on their sacrifice of resources. According to Chen and Chen (2010), experience in service quality is positively and significantly persuaded by perceived value.
A review of relevant literature revealed that research in bank automation has been conducted, but not comprehensively. Previous research identified a gap between management's perception of customer expectations and service quality. That is, management was not willing or able to put in to place systems or finances that would match or exceed customer expectations.

The survey of relevant literature also revealed differences between service quality specifications and service delivery due to service personnel being poorly trained, incapable, or unwilling to meet the set service standard. The intent of this study, therefore, was to fill these gaps in the literature by studying the effects of automation on key customer satisfaction indicators at different private banks in Khulna city.

3. Methodology

In this study, a descriptive survey (quantitative) research approach was adopted to collect and analyze data. The structured closed-ended questionnaire is used to collect data from the respondents. The questionnaire contains demographic questions, independent variable statements, and dependent variable statements. The questionnaire was prepared in English. In this study, the researchers used a purposive sampling technique with a total of 100 respondents (customers) to give a fair reflection of the total population that has access to automation in banking services. The following banks (showing number of customers at each) were selected: Midland Bank (10), Exim Bank (10), BRAC Bank (10), National Bank (10), Meghna Bank (15), Southeast Bank (5), Standard Bank (13), ICB Islamic Bank (7), Al-Arafah Islami Bank (10), and Mutual Trust Bank (10).

In this type of sampling, each component in the population has a recognized, nonzero probability of assortment. The sample size must be four or five times larger than the number of the variables (Malhotra & Dash, 2013-2014). There are 20 variables, so the sample size should be between 80 and 100. Hence, the sample size was 100.

A survey instrument was used by the researchers in gathering data from the respondents. The questionnaire was divided into two parts. One part contained demographic data about the personal information of the respondents while the other contained closed-ended questions about the thesis-related issues.

A 5-point agreement Likert scale was utilized to gauge the responses of the customer-respondents. This helped the researchers determine the effect of automation due to using the survey instrument. For the demographic information in Section-A of the questionnaire, each response was assigned an ascending number which held no significance as the information acquired was nominal data.

An instrument made by the researchers of this study was used for the quantitative analysis (survey). The questionnaire was disseminated to contributors selected from the clients of banks in Khulna city. A printed copy of the questionnaire was provided directly to the respondents. Descriptive statistics were used to collect demographic information and general characteristics of the respondents to provide a descriptive profile of the respondents. Variables such as age, gender, education, and years of banking were analyzed and a descriptive analysis was performed to show the mean and standard deviation. IBM SPSS 16.0 software was used to analyze and process the data.

4. Findings and Discussion

To determine the reliability of the questionnaire, the researchers used a reliability tool. The practice of determining reliability and validity are common, particularly in quantitative research (Golafshani 2003). Reliability determines the degree of consistency between multiple variables by assessing the internal consistency or homogeneity of the items (Cooper & Schindler, 2006). Reliability establishes the validity of the research instrument during the data analysis process (Creswell, 2003).

Table 1.
Reliability Analysis Results

Variables	**Number of Items**	**Cronbach Alpha**
Mobile Banking	5	0.888
Internet Banking	5	0.837
Automated Teller Machine	5	0.861
Customer Satisfaction	5	0.869
Overall	20	0.897

Source: Data processed using SPSS 20.0

Table 1 shows the Cronbach alpha value was 0.888 for mobile banking; 0.837 for internet banking; 0.861 for automated teller machine, and 0.869 for customer satisfaction. When the Cronbach alpha score is less than 0.60, the variable shows poor reliability (Loewenthal, 2004). The alpha value of all variables was greater than 0.60; all showed good reliability. The overall Cronbach Alpha value was 0.897, which indicated very good reliability.

Demographic Analysis

Respondents were asked to provide gender, age, level of education, and how many years they banked with the bank. This information was deemed relevant in assessing the effects of automation of bank services on customer satisfaction at different private banks in Khulna city since these characteristics could have confounding effects on this relationship.

Table 2.
Demographic Profile of the Respondents

Demographic Features	Cases	Frequency	Percentage
Gender	Male	64	64
	Female	36	36
Age Group	18-25	11	11
	26-35	38	38
	36-45	32	32
	40-50	19	19

Table 2. (Continued)
Demographic Profile of the Respondents

Demographic Features	Cases	Frequency	Percentage
Education	Primary	11	11
	Secondary	16	16
	College	22	22
	University	51	51
Years of banking	1-5 years	38	38
	6-10 years	24	24
	11-15 years	21	21
	15-20 years	17	17

The results presented in Table 2 show that both males (64%) and females (36) use automated services. The distribution of age indicated that most customers were 18-25 (11%), followed by 26-35 (38%), 36-45 (32%), and 46-55 (19%). Most customers were 35 or younger, indicating a youthful population. In addition most customers had a secondary education (16%), followed by a college education (22%), university education (51%), and primary education (11%). This implied that the minimum level of education for most customers was the primary level of education. Most respondents had banked at their private bank for more than 5 years (38%), followed by less than 5 years (24%), more than 10 years (21%), and more than 15 years (17%).

Mobile Banking Usage

Five items on the questionnaire were used to examine the status of mobile banking use. According to the findings presented in Table 3, the respondents tended to agree that mobile banking use help minimize cost and errors (M = 4.00, SD = 0.651).

Table 3.
Analysis of the Respondent's Mobile Banking Usage

Descriptive Statistics			
Variables	**N**	**Mean**	**Std. Deviation**
Mobile banking services help to minimize costs and errors	100	4.00	0.65134
Mobile banking services help to access an unlimited number of accounts at a time	100	3.97	0.65836
Mobile banking is easy to use	100	3.94	0.61661
Using mobile banking enhances money security	100	3.85	0.62563
Customers save a lot of time by using mobile banking services	100	3.88	0.64008
Valid N (listwise)	100		

Source: Data processed using SPSS 20.0

Most of the customers also agreed that mobile banking services help to access an unlimited number of accounts at a time (M = 3.97, SD = 0.658). Some respondents also agreed that mobile banking usage is easy (M = 3.94, SD = 0.616). Respondents were also in agreement with the fact that mobile banking enhances money security (M = 3.85, SD = 0.625). Lastly, the respondents also agreed that they save a lot of time by using mobile banking services (M = 3.88, SD = 0.640). The implications of these results are that a majority of customers are in tune with the advancement of technology and agree with its efficiency in facilitating their transactions.

Internet Banking Usage

Table 4.
Analysis of the Respondent's Internet Banking Usage

Descriptive Statistics			
Variables	**N**	**Mean**	**Std. Deviation**
Internet banking manages cash flow more effectively	100	3.77	0.69420
Internet banking provides strong security for transaction data and privacy	100	3.83	0.68246
Information on internet banking services is up-to-date	100	3.79	0.79512
Internet banking simplifies foreign currency transactions	100	3.82	0.73002
The transaction process is fast	100	3.75	0.70173
Valid N (listwise)	100		

Source: Data processed using SPSS 20.0

Five items on the questionnaire were used to examine the status of internet banking usage. According to the findings presented in Table 4, the respondents tended to agree that internet banking manages cash flow more effectively (M = 3.77, SD = 0.694). Most of the customers also tended to agree that internet banking usage provides strong security for transaction data and privacy (M = 3.83, SD = 0.682). Some respondents also agreed that information on internet banking usage is up-to-date (M=3.79, SD = 0.795). Respondents were also in agreement that internet banking simplifies foreign currency transactions (M = 3.82, SD = 0.730). Lastly, the respondents also agreed that the transaction process is fast (M = 3.75, SD = 0.702). The implication of these results is that customers are satisfied with the advancement of internet banking technology.

Automated Teller Machine Usage

Table 5.
Analysis of the Respondents' Automated Teller Machine Usage

Descriptive Statistics			
Variables	**N**	**Mean**	**Std. Deviation**
The automated teller machine cash deposit facility is optimistic	100	3.71	0.67112
The cash withdrawal facility is optimistic	100	3.74	0.7333
Automated teller machine helps to pay utility bills	100	3.75	0.67232
Automated teller machines are easy to use	100	3.67	0.69711
Cash is always available in the system	100	3.63	0.70575
Valid N (listwise)	100		

Source: Data processed using SPSS 20.0

Five items on the questionnaire were used to examine the status of ATM usage. According to the findings presented in Table 5, the respondents agreed that the cash deposit facility is optimistic (M = 3.71, SD = 0.671). Most of the customers tended to agree that the cash withdrawal facility is optimistic (M = 3.74, SD = 0.733). Some respondents

agreed that the ATM helps to pay utility bills (M = 3.75, SD = 0.672). Some respondents are agreed that ATMs are easy to use (M = 3.67, SD = 0.697). However, most respondents tended to be more neutral about the fact that cash is always available in the system (M = 3.63, SD = 0.705). The implications of these results are that as much as customers are using the ATM services there is a need to enhance the availability of cash and convenience in terms of its usage by making the procedures clearer to the customers.

Customer Satisfaction Variables

Table 6.
Analysis of the Customers' Satisfaction

Variables	N	Mean	Std. Deviation
Using an automated system helps me conduct my transactions efficiently	100	3.73	0.75015
My interaction with the automated system is clear and understandable	100	3.78	0.69019
I find it easy to get the automated system to do what I want	100	3.81	0.61455
I find the automated system easy to use	100	3.84	0.56354
Using an automated program in my job saves me time	100	3.82	0.62571
Valid N (listwise)	100		

Source: Data processed using SPSS 20.0

The study intended to establish the level of agreement on various aspects of customer satisfaction based on dependent variables. Five items on the questionnaire were used to examine the status of customer satisfaction. According to the results presented in Table 6, the respondents tended to agree that using an automated system helps them conduct their transactions efficiently (M = 3.73, SD = 0.756). In addition, most of the customers also tended to agree that their interaction with the automated system is clear and understandable (M = 3.78, SD = 0.690). Some respondents also agreed that they find it easy to get the automated system to do what they want (M = 3.81, SD = 0.615). Respondents also agreed that they find it easy to use the automated system (M = 3.84, SD = 0.564). Lastly, the respondents also agreed that using the automated system in their jobs saves time (M = 3.82, SD = 0.623). The implications of these results are that as much as the customers are satisfied with the automation of banking services there is a need to address efficiency and clarity of use to the customers.

5. Conclusion

First, among the key services of automated banking, the use of mobile banking was the greatest contributor to customer satisfaction. The efficiency and reliability of the mobile banking services significantly affected customer satisfaction. Second, in order to cultivate even higher customer satisfaction, banks should focus on the quality of service. Third, internet banking played a vital role in promoting customer satisfaction, especially if the transaction process services were performed right the first time. ATM use had a less positive effect on customer satisfaction. To enhance customer loyalty and satisfaction, banks should improve the efficiency and accessibility of ATM services. Future research should include PLS-SEM and regression analyses.

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