

Advancements in Technology and Customer's Satisfaction with online banking services

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Abstract: Technological advancements refer to computerised financial systems which can be accessed by customers through a number of electronic banking platforms without getting to speak with bank employees. The key and secondary relationships of dimensions (factors) of Technological advancements and Customer Satisfaction is explored in this paper. On the basis of previous studies about the standardized service qualities of automated services and customer satisfaction, a uniform questionnaire was developed by defining and adapting attributes. Data was gathered from a sample of Indian Clients of banks. The collected data was split into two equal-sized sub-samples. An analysis of the Technology based service quality and customer satisfaction dimensions was conducted Using SPSS 21.0 software, exploratory factor analysis (EFA) was performed on half of the collected data. Confirmatory factor analysis (CFA) was performed on the remaining half of the data using AMOS 21.0 software to validate factor structure. The proposed model's unidimensionality, reliability, and validity were empirically checked. AMOS 21.0 was also used to test hypotheses using structural equation modelling to investigate the relationship between Technological advancements and Customer Satisfaction (SEM). This research can aid bank management in determining customers' quality perceptions of Technology based services, allowing banks to develop strategies to improve service quality and customer satisfaction.

Keywords: Structured equation modelling (SEM), exploratory factor analysis (EFA), confirmatory factor analysis (CFA), Technological Advancements, Customer's satisfaction

1. Introduction

Mostly every commercial bank in the country, whether public, private, or foreign national, now offer automated banking via self-service [1]. Since the products sold by banks are virtually similar, banks are attempting to gain an advantage over competitors on other causes that may trigger a rise customer retention as well as loyalty. Instead of this, businesses with happy customers who are committed to you are most likely to recommend you to others succeed as well as competing in the future [2-3]. Almost every bank today uses technology to offer services to its customers. The acceptance of automated banking services by clients of banks is growing over time. The decline when doing business by subsidiaries and the rise in business dealings via automated self-service in multiple modes. Service quality management is of interest to both researchers and managers as this influences customer satisfaction, loyalty, and business efficiency [2,4,5]. The study of automated banking service quality is essential since it gives a strategic edge and customer appeal [4,6]. The majority of studies on the efficiency of technology-based self-service banking only look at one of the bank's automatic platforms. In these tests, the quality of service was assessed using specific channels such as ATM banking and Internet banking. Since customers can use more than one outlet for automatic banking, restricting one-sided analysis would not yield an accurate picture of level of automation in self-service banking services. To get a more complete view, large attributes affecting technology-based self-service standard of banking (TBSSB) services is grouped into dimensions in the current report, and their connection to customer satisfaction is examined.

The following is how the rest of the paper is organised: An analysis of the literature on the effectiveness of automated banking services and customer satisfaction is presented in the first section. The paper then goes into the analysis methods in addition to the poll instrument that were put to use to collect data. Finally, the observations and conclusions are discussed.

2. Literature Review

2.1 Technological Advancements in online banking

Various models for determining the standard of service has been raised over time. The key conceptualizations in the area of service efficiency literature are either emphasised the gap between interpretation and expectation [7,8,9], or on a performance-only approach [10]. Performance-only measures are more accurate and better indicators than performance-expectations in terms of service quality measures, according to [11].

2.2 Service Quality

According to a report by [12], assessing service quality using only a perception scale captures more variation in service quality than research focused on differences. Furthermore, as applied to the disconfirmation scale, the performance-based scale decreases total number of things to be delivered calculated by half. As a result, only performance measures are used in this analysis.

2.3 Relationship between Technological Advancements and Service Quality

Researchers say that, both electronic banks and conventional banks that offer e-banking services should concentrate on the dimensions of reliability, responsiveness, and access. In Internet banking, [15] suggested a service quality model. The dimensions that followed were : the service organization's image and credibility, customer perceptions of the services, customer's engagement, aspects of the service environment, and the service experience.

H1: There is a direct relationship between Technological Advancements and Service Quality.

2.4 Customer Satisfaction

Customers' evaluations of services delivered through electronic networks are referred to as "Automated service quality" [6]. [13] looked into the role of technology in Australian banking services. Performance, convenience/accuracy, usability, queue management, feedback/complaint management, and customisation were identified as six e-banking quality dimensions by the researchers. [14] developed seventeen e-banking quality factors, including responsiveness, a wide range of features/products, courtesy, dependability, accessibility, competence, reputation, ease of use, connectivity, aesthetics, customer understanding, cooperation, accuracy, continuous improvement, content, protection, and timeliness.

2.5 Relationship between Technological Advancements and Customer Satisfaction:

Participation of customers and provision of services have the greatest influence on service assessment amongst those factors. [4] commissioned an analysis to identify the vital determinants of automated service efficiency, which included attributes from three major banking services channels (ATM, Telephone Banking, and Internet Banking), as well as attributes from two additional dimensions (Perceived Price and Core Service). Automated banking concept model of service quality was suggested in paper. Previous study & quantitative assessments [16] used open-ended exploratory interviews to suggest seven Internet banking efficiency dimensions: ease, auxiliary features, personal finances, stability, discovery, investment, and status. According to the writer, banks that have Electronic banking facilities should be more attentive to young consumers. [17] discovered that in the banking industry, there is a clear correlation between technology and service quality. In Nigeria, [18] conducted research on electronic banking. He discovered the main factors that influence internet banking. He set out a method for measuring people's attitudes toward e-banking. Queue management, stability, usability, user friendliness, fund transfer, and time were all major factors discovered by the researchers. According to the survey findings, 88 percent of respondents believe that e-banking is a scalable and convenient method of banking. [19] suggested e-Fulfillment, Device availability, performance, precision, accessibility, protection, comfort, ease of use, complaint solving, cost effectiveness, communication, and reimbursement as dimensions affecting service quality.

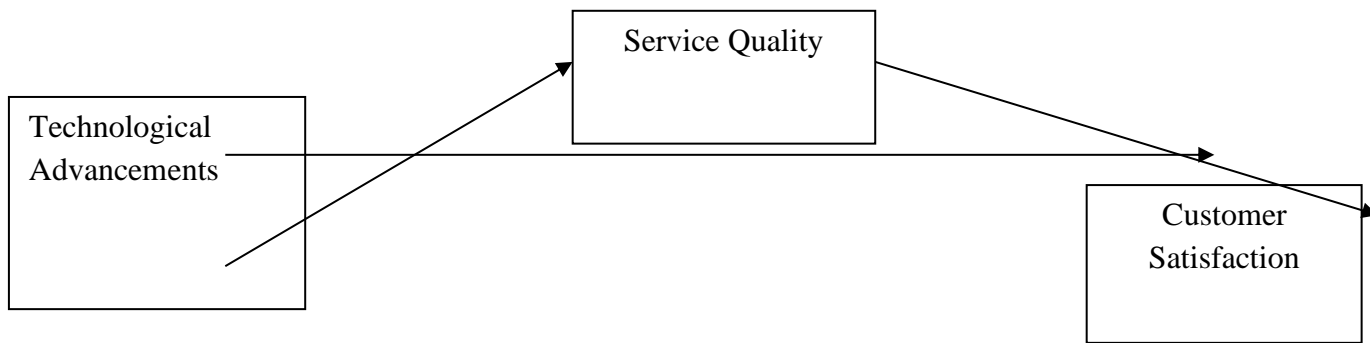
H2: There is direct relationship between Technological Advancements and Customer Satisfaction.

2.6 Relationship between Service Quality and Customer Satisfaction

Customer satisfaction applies to thoughts or judgments regarding a commodity after it has been consumed [20]. Satisfaction is treated as a multi-item build in this analysis [3,21,22]. Good service efficiency leads to satisfied client relationships [23], and higher customer loyalty leads to increased sales and word-of-mouth referrals [24,25]. As a result, research into the relationship between service quality and customer loyalty is critical. Many reports have looked at the effect of service efficiency on consumer loyalty. Customer loyalty is considered to be influenced by service efficiency in automatic banking [3,21,26]. However, the majority of these research looked at the impact of a particular technology on customer loyalty, such as ATM banking [27,28] and Internet banking [22,29,30]. According to a study of the literature, the majority of automated banking service content studies focus on the quality of one electronic banking system and exclude other relevant automated banking service channels. As a result, broad attributes influencing the efficiency of technology-based self-service banking (TBSSB) services are described in this report. The association between TBSSB service efficiency and customer satisfaction is investigated using these attributes.

H3: There is direct relationship between Service Quality and Customer Satisfaction.

3. Conceptual Framework:



4. Objectives of Study

- I. To study the impact of technological advancements on service quality.
- II. To study the impact of technological advancements on customer satisfaction.
- III. To study the impact of service quality on customer satisfaction.

5. Methodology

5.1 Scale Development

A questionnaire consisting of 25 items was built up based upon certain dimensions of technological advancements, services’ quality, and customers’ satisfaction and data was collected from 350 respondents who are the customers of different banks in Delhi-NCR. E-SERVQUAL and TAM has been used while constructing the questionnaire.

6. Data Analysis and Results

6.1 Reliability and Validity Analysis

6.1.1 Exploratory Factor Analysis

Coefficient Alpha Test (Cronbach's alpha) was used to measure the reliability of items. The measure's outcome (above 0.70 is acceptable) is seen in table-2, which is very fine. The Kaiser Meyer–Olkin (KMO) statistic was used to assess sample adequacy further. Table-1 shows the findings.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.845
	Approx. Chi-Square	2021.21
Bartlett's Test of Sphericity	df	2
	Sig.	.000

Table 1

6.1.2 Confirmatory Factor Analysis

The validity test was performed by running CFA in AMOS v21. CFA was run with all the three constructs: Technological Advancements (TA), Service Quality (SQ) and Customer Satisfaction (CS).

6.1.2.1 Convergent Validity:

The dataset has been determined to be convergent because the CR and AVE measurements have exceeded the acceptable limit. The range of acceptability for CR is 0.781 to 0.892, which is higher than the range of acceptability for 0.7, as seen in Table 2, and AVE is higher than the range of acceptability for 0.5, with a range of 0.705 to 0.753.

6.1.2.2 Discriminant Validity:

Measures taken diagonally (explained by square roots of mean variances) must be greater than measures taken straight on (correlations among construct). Table 2 shows that the construct is discriminately true because it has a higher measure of AVE than the latent variable's Max mutual variances (MSVs) and higher measures taken diagonally than measures not taken diagonally

DISCRIMINANT ANALYSIS

	CR	AVE	MSV	SQ	CP	CS
TA	0.892	0.753	0.605	0.802		
SQ	0.834	0.724	0.431	0.675***	0.789	
CS	0.781	0.705	0.414	0.635***	0.615***	0.780

7. Table 2

6.2 OVERALL FIT OF MODEL

The structural model and model fit indices have been completed. Main statistics in the measurement model reveal that all latent factors were modelled simultaneously, with CMIN(2) =247.046, degrees of freedom (df)=142, CMIN/df((2/df)=1.847, p<0.05, goodness of fit indices (GFI, AGFI, NFI, IFI, CFI) and badness of fit measurement indices (GFI, AGFI, NFI, IFI, CFI) and badness of fit measurement indices (RMR, RMESA, ECVI). GFI=0.891, AGFI=0.862, CFI=0.935, RMR=0.041, RMSEA=0.050 are the effects of the structural model.

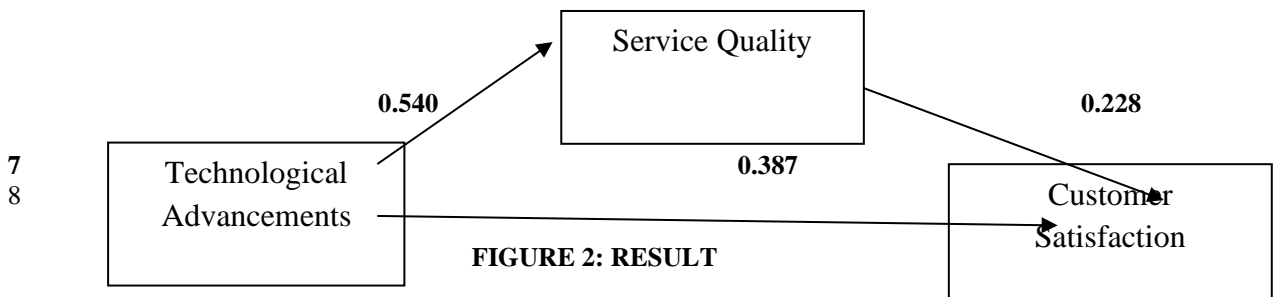
6.3 PATH'S COEFFICIENTS WITH REGARD TO FRAMEWORK

AMOS v21 was used to test the system. Many of the theories have a large p value of less than 0.01 (except H2, which has a p value of 0.049, which is less than the p value of 0.05). Both of the hypotheses are detailed in the table below, which also indicates the relationships between the variables.

Table 3 HYPOTHESE TESTING RESULTS

Hypotheses Relationship	Path Estimate	SE	CR	P	Result
H1: <--- TA SQ	0.540	0.051	8.312	***	Supported
H2: <--- TA CS	0.228	0.063	1.867	**	Supported
H3: <--- SQ CS	0.387	0.056	6.728	***	Supported

Notes: *p<0.10; **p<0.05; ***p<0.001
Source: Author's calculation



6.4 MEDIATION EFFECT:

In AMOS v21, the bootstrapped technique (Mooney et al., 1993) was used to test the mediation effect. Table 4 shows the 95 percent bias-corrected bootstrapped CIs figures for the Direct and Indirect effects. With a Direct Impact measure of 0.341 (p=0.001) and an indirect effect of 0.294 (p=0.001), Service Quality (SQ) is partly mediating the direction of Technological Advancements (TA) and Customer's satisfaction (CS) in the Model.

Mediation Table 4

RELATIONSHIP	DIRECT EFFECT	INDIRECT EFFECT	RESULT
TA → SQ → CS	0.341***	0.294***	Partial Mediation

Note: ***=p<0.01, **=p<0.05, *= "not significant"

7. Conclusion

The study was done to assess the mediating effect of service quality in relation to advancements in technology and satisfaction level of customer. EFA was done using SPSS 21 to explore the factors and three factors namely Technological Advancements (TA), Service Quality (SQ) and Customer Satisfaction (CS) were extracted. Confirmatory Factor Analysis was done using SPSS AMOS 21 to test the validity of the theoretical model. Structural Equation Modelling was also done using SPSS AMOS 21 for assessing whether proposed theoretical model is valid or not. The measurements prove the strong relationship between technological advancements & qualities of services and direct relationship between qualities of service and satisfaction level of customer. Service Quality has also strong positive impact on customer satisfaction towards online banking services. The results of model fit indices prove the fitness of the model proposed for research. The result of mediation effect shows that there is a partial mediation of service quality in relation to advancements in technology and satisfaction level of customer.

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