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Does the Type of Banking have an Impact on the Overall Service Quality of Online Banking?

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Abstract

The world is continuously changing with the usage of technology. Technological developments have affected the operations in all the sectors of the economy and the banking sector is no exception. The customers have started preferring non-conventional ways of banking like online banking over conventional ways of banking. Additionally, competition within the banking industry has also grown to intense levels. All these have led banks to become customer-centric and focus on customer relationships and retention. One of the ways to achieve customer retention is through the improvement in the overall service quality of online banking. This paper has analyzed the factors influencing the overall service quality of online banking by the survey of 1014 online banking users through Confirmatory Factor Analysis (CFA). Next, a comparative study of public and private sector banks in India was done by multiple regression analysis. The paper concludes that all the independent factors of the model do influence the overall service quality of online banking of both types of banks but the individual factor influence differently with the different bank types.

Keywords: Online banking, Overall service quality, Confirmatory factor analysis, Multiple regression analysis, Public and private banks.

Introduction

The initiative of mechanized transactions in banking in India was taken in the year 1965. This facilitated the balance check and updating transactions at teller counters by

centralized computers. In the early 1980's, the new feature of transactions reconciliation in the branches was added to the Indian banking system. In the late 1990's, Indian banking has taken initiative towards digital banking (Srivastava). Through this initiative, traditional transactions which were done by visiting the banks were now could be processed digitally. These transactions include bank account opening, fund transfer, payment of bills, etc. This new mode of transactions received a boost with the introduction of mobile phones which were launched in India in the year 1995. The usage of digital banking further got more users when gradually the tariffs of internet plans were reduced. These digital banking transactions could be done from anywhere by anyone and at any time just through the connections of a device like a desktop or a laptop or mobile or tab having an internet connection. In the research report of 2020, it was mentioned that the internet users in India will reach 600 million by the year 2021. Further, an article in The economic times in the year 2017, mentioned that online banking was used by 51% of bank customers of India (Economic Times, 2017). In addition to these India has also witnessed changes in demographic and social trends. Due to all these changes, banks in India have become more customer-centric and are now focussing more on their services [1].

Banking in India and competition

The advancement of technology and competition in banking has led to constant positive changes during the last decade. The combination of technology and financial innovation has led to the creation of various banking services such as credit cards, debit cards, digital banking to name a few. This new technological phase in banking has also increased the scope of banking and has led to the creation of many opportunities. The transactions with banks have gradually been more convenient and easier and with this, the customers are served better. The banking industry has become more transparent in terms of improved tracking, real-time query solving, and also increasing the number of delivery channels. To achieve and/or maintain the business, banks are gradually adopting a customer-centric model. Therefore banks in India of all different types such as private, public, regional, co-operative, etc. have initiated to offer more services that can ease the transactions of customers with banks. Though the initiatives are taken by most of the banks, the difference persists in the number of initiatives to the types of banks. Also, there still exists a scope of improvement with the existing initiatives of the banks.

Service quality and customer liking

To achieve success in online banking services, customer retention and their liking play a crucial role. At the same time, these two factors could not be considered that important when banks want to measure the success of their financial products. Now to measure these two factors for measuring the success of the service quality of online banking different researchers have different cum similar approaches. In one of the research, nine different factors were identified and analyzed to measure the service quality of online banking. Another study carried out in Bangladesh took five factors to measure the service quality of internet banking. Some researches were conducted by adding categorical factors and comparing different categories of that factors for measuring online banking services through the application of different models.

Based on the existing literature, it can be summarised that the common factors taken for measuring customer liking for services of banking are tangibility, empathy, reliability, responsiveness, competence and assurance. Again as all these factors are subjective and it depends upon the customer's perception, there is a gap in terms of actual service quality. Also, customer liking and customer's perception level of expected service

quality have an inverse relationship [2]. Further, the studies conducted so far for the measurement of service quality in the banking industry have been conducted by considering either offline services or/and few online services. Few studies have considered an exhaustive list of services of online banking but that is conceptual. Therefore the gap still exists to test these models empirically considering different geographical regions and different categorical factors.

Service quality models and banking

In 1989, the Technology Acceptance Model (TAM) considered factors such as ease of use, usefulness and attitude to take adoption decisions. Few researchers have found some limitations with TAM and added new factors such as social view and psychological aspect necessary for decision making. Few other types of researches included the impact of demographic factors on decision-making concerning technology usage. Some other researches focused on perceived reliability, self-efficacy and cost in addition to the factors included in TAM. The research done in the year 2003 included the joint factors such as social cognitive and motivational through the combination of TPB and TAM models and named this model as The Unified Theory of Acceptance and Use of Technology (UTAUT) model. Further in the year 2012, the extended version of UTAUT named the UTAUT2 model was developed that had three new factors such as price value, habit, and hedonic motivation. The model was extended by adding factors namely privacy, trust, and security. These factors were proved with the help of empirical analysis.

The research conducted in 2019 combined two models Trait Hierarchical Model (THM) and Optimum Stimulation Level Theory (OSLT) to analyze mobile banking usage. In one of the research carried out in Ghana, the social cognitive theory was applied to understand internet banking adoption. Behavioral intentions towards mobile banking were studied by extending and revising the existing two models namely UTAUT and TAM. A conceptual model was developed combining two models namely UTAUT2 and the D and M IS success model to study mobile banking usage. The case-based research was carried out studying e-banks of Iran and the CRM system impact and a conceptual model was developed that explains the adoption of m-banking and the satisfaction of customers. The research in the year 2010 in China, measured online banking service quality through six factors such as speed, content, ease of use, security, design and support service [3].

Materials and Methods

Consumers' perception regarding innovative technological service usage concerning mobile banking was studied across cultures. The study used TAM model constructs and applied them to three distinct culture consumers from Egypt and US. The paper used SEM to test the model and found that the culture does have an impact on consumers' perceptions as well as intentions towards mobile banking. A research was conducted to know the actual usage of mobile banking through the survey of 227 Omani residents. The research proposed a new model by extending the DeLone and McLean information system success model. The research tested and validated the model. It was found that to understand the actual usage, consumers' satisfaction and intention are two precedents. Another research measuring the impact of service quality on customer satisfaction was conducted for the airline industry of Malaysia. The research designed the questionnaire using five dimensions of AIRQUAL and it found that all these five dimensions of service quality were important for customer satisfaction with a special focus on personnel services.

The research was done on internet banking users of Kerala and studied their perceptions. It applied the TAM model and added service quality as an external variable. The research found that internet banking had a direct impact on perceived ease of use and perceived usefulness. Further, service quality dimensions had an indirect effect on internet banking.

One of the researches studied the influence of digital design factors and the mediating impact of positive affect on customer commitment and loyalty. The research found a direct impact on positive affect and no direct effect on commitment or loyalty. The study was done to understand the banks' usage of tactics and strategies of entrepreneurship orientation for the achievement of high performance in today's digitization age. The study had surveyed 102 banks of Germany, Switzerland and Liechtenstein. The result of the study indicated a positive relationship between entrepreneurship orientation and banks' performance [4]. A survey of 206 respondents was conducted in India and tested the moderating effect of innovativeness, stress to use and social influence on the user's perceived satisfaction and recommendation to use mobile wallet services. Through this study, a conceptual model was developed to identify the most significant factors. The results of the analysis showed that three factors had a significant effect on users' intention followed by satisfaction and recommendation of mobile wallet services respectively.

A literature review was conducted to understand the best predictors for digital payment and banking adoption in Gulf countries. The research further performed weight and meta-analysis. It found out that perceived trust, security and usefulness were the best predictors for digital payment and banking adoption in Gulf countries. A research was conducted through the adaptation of the meta-UTAUT model to understand the consumer adaptation of mobile payment in India. The model was adapted with individual difference variable attitude as core construct and extended the model with consumer-related constructs such as personal innovativeness, anxiety, trust and grievance redressal. The exploratory research was done which identified and described key marketing drivers of consumer experience with non-financial transactions available on mobile banking apps. The result of qualitative analysis of in-depth interviews of respondents showed that the mobile banking app experiences and sustained usage of mobile banking apps were largely affected by consumers' level of knowledge, usefulness, and ease of use of non-financial transactions. A study was conducted to examine the effect of customers' perception of bank marketing communication on customer loyalty through a survey of 313 Nigerian bank customers. The study found that the elements of bank marketing communication which include advertising, sales promotion, public relations, and personal selling were significant predictors of customer loyalty with an exception of direct marketing.

Research gap

As can be seen from the studies conducted so far based on the review of literature, the models have been suggested for different aspects of banking like retail banking, digital banking and mobile banking. These suggestions are given considering only a few features/services. Further, there are various models to measure the customers' satisfaction and intentions. Thus, most studies have considered dependent variables such as customer satisfaction, retention, or experience for the success of banking. This creates an opportunity to evaluate other aspects that are necessary for the banks to achieve success like customers' overall experience of service quality, especially of online banking. Thus, the purpose of the research is to understand the impact of online banking service quality on customers' overall experience through adaptation of the factors from the existing models. Next, the purpose of the research is to identify the difference/similarity of the factors that impact online banking service quality among

public and private sector banks. The review of literature also identified the gap of research in terms of the lack of inclusion of all geographical regions. Thus the current research is focused on Indian banks [5].

Objectives of the study

Considering all these, this paper measures and validates the model that measures the overall service quality of online banking of Indian banks. Based on the above literature review, the following research objectives were framed:

- To measure the impact of various factors on the overall service quality of online banking.
- To compare the factors influencing overall service quality concerning the types of banks (public vs. private) as a categorical moderator.

Results and Discussion

Research design

To test the relationship and measure the impact of various factors of service quality and derive unique solutions, the participatory process was structured in various stages. A descriptive cross-sectional study has been used as the information collected is without changing environment. This method is applied because it is used to obtain information concerning the status of describing concerning factors.

Development of instrument

Structural questionnaires have been developed to collect the response. The measurement scale of research model constructs was adopted with the help of a literature review. A special team of five experts was framed to review the methodology and scales to ensure criterion validity and relevance of the questionnaire. The seven-point Likert scale strongly disagree-strongly agree (1-7) has been applied to measure the factors. The questionnaire included eight factors related to online banking service quality such as assistance, competence, ease of use, connectivity, tangibility, security, accessibility, and overall service quality. Apart from these constructs, the questionnaire included demographic questions such as gender, types of banks, age group, income, marital status, and occupation [6].

Sampling design

The entire data collection process was classified into different phases. In the initial phase, 50 samples of online banking users' responses were used to test the reliability, and scale verification of the questionnaire. Necessary changes were made in the statement to remove ambiguity in the instruments. The initial questionnaire was designed only in the English language but to reach the various level of online banking users, the questionnaire has been translated into Hindi and Gujarati language including explanatory text on online banking services. A purposive non-probability sampling procedure has been used to satisfy the predetermined criteria of the respondents regarding age, duration of usage of online banking services, types of banks, and geographical regions.

Data has been collected through survey method from major cities of Gujarat state as the heterogeneity of population in the state are representative of the entire population of India. The sample of the current study has been collected from four major cities Gujarat state and the tier 3 cities.

Data cleaning

The initial data collection through questionnaire was of 1050 respondents. 24 questionnaires were incomplete and so the final sample size came to 1026

respondents. Out of these, 12 outliers were identified by Mahalanobis distance and were removed. The final sample size is 1014 respondents. Out of these, 590 and 424 respondents were digital banking users of private and public sector banks respectively.

Data analysis procedure

The study applied structural equation modeling quantitative methods to test the structural model. This is a very useful method to understand the measurement model, multiple regression, path analysis using a statistical process with cross-sectional data. The categorical variables frequency analysis and factor analysis were performed with SPSS 25 version while Confirmatory Factor Analysis (CFA) and path analysis were performed with AMOS-22. Sobel test was performed to check and validate the mediating effect by Willian shaper's online calculator [7].

Online banking overall service quality model

Based on the literature review, factors were adapted from different existing models of service quality in the context of measurement of online banking overall service quality. The model identifies that the Perceived Overall Service Quality (OSQ) of online banking services is dependent on online banking users' Perceived Assistance (PAS), Perceived Competence (PCT), Perceived Ease of Use (PEOU), Perceived Connectivity (PCN), Perceived Tangibility (PTA), Perceived Security (PSC) and Perceived Accessibility (PAC). Based on this assumption, the dependent variable OSQ was influenced by seven independent factors as shown in the Figure 1.

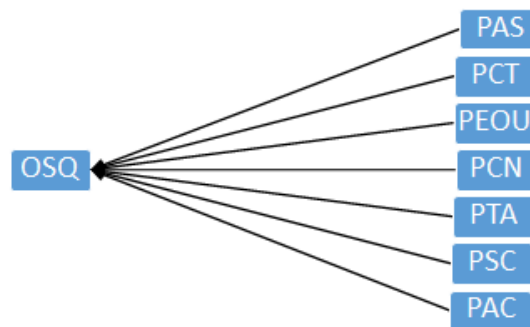


Figure 1: Online banking overall service quality measurement model.

Reliability and validity

To test the relationship amongst the factors of online banking service quality, tools like sample adequacy, factor loading, reliability, composite reliability, convergent and discriminant validity were performed with and without moderating and mediating effects of factors affecting online banking service quality. In the initial part, exploratory factor analysis was performed to reduce various statements based on factor loadings and cross-loadings. The KMO test was performed to evaluate sample adequacy and the value is 0.909 which is higher than the threshold value of 0.70.

The significance value of 0.00 is very less than 0.05 which indicates sufficient samples are considered for the study. Factor loading determines the correlation between the variable items and specific factors. Higher factor loading higher than ± 0.50 are acceptable for practical significance and indicates the representative of factor. All the statements that have the factory loading value higher than 0.50 are considered for the study except three statements (Table 1) with low factor loading and cross-loadings that have been removed based on the consultation with five experts.

It is equally important to understand the method biases in the research. Harman's single factor was applied to test and evaluate Common Method Biases (CMB). All the factors were tested by using one factor with exploratory factor analysis rated principal component analysis. All the statements with one factor formed 43.12% variance explained which is below the threshold level of 50%. Therefore it has been concluded that CMB is not present in this research. The average variance extracted for each factor must be greater than a threshold value of 0.50 and the Composite Reliability Value (CRV) should be more than 0.70. All the factors of online banking service quality have a variance value between 0.55 and 0.67 (Table 1) while the CRV is between 0.853 and 0.904 (Table 1). It, therefore, indicates convergent validity assumption has not been violated and the validity is established [8].

Table 1: Convergent validity and reliability.

Factors	Item	Factor loading	AVE	Reliability cronbach alpha	Composite reliability
Assistance	Easy change of security questions	0.809	0.587	0.841	0.853
	Quick issue of debit/credit card in case of damage/lost	0.806			
	Proper support in case of transaction error	0.79			
	On-line re-generation/change of password	0.744			
	Convey of OTP through a phone call in case of non-receipt through SMS	0.657			
	Reasonability of charges on digital services offered	0.579			
	Updating on a real-time basis	0.52			
Competence	Continuity of account login while transaction execution	0.851	0.644	0.851	0.904
	Error-free processing of transactions	0.776			
	Accuracy of account information	0.739			
	Immediate receipt of OTP	0.665			
	Quick processing of transactions	0.6			
	Quick login into account	0.433			
Ease of use	Availability of voice instructions for visually impaired	0.868	0.556	0.864	0.868
	Account/Transaction information are intelligible	0.821			
	The system populates automatic information	0.79			
	Images/icons related to the type of transactions	0.772			
	Minimum steps for transaction execution	0.647			
	Clear instructions to execute transactions	0.569			
	Continuation of server connectivity during a transaction	0.496			
Connectivity	Continuous availability of internet	0.846	0.67	0.829	0.881
	Connectivity is constant during a transaction	0.801			

	Continuous working of site/application while transaction processing	0.751			
	Account accessibility with low internet connectivity	0.481			
	Availability of server response during transactions	0.429			
Tangibility	Exhaustive information	0.864	0.603	0.821	0.866
	Relevant information	0.862			
	Understandable information	0.831			
	Availability of all banking services on digital platform	0.607			
Security	Sufficient measures taken to make transactions/data secure/safe	0.896	0.627	0.731	0.886
	Automatically logging off in case of connectivity loss or during idleness of account	0.809			
	Multilevel authorization to access account	0.717			
Accessibility	Availability of digital banking payment option at merchant/service provider	0.996	0.607	0.793	0.869
	Availability of digital banking channels whenever required	0.775			
	Compatible for all devices	0.508			

Table 2: Fornell-Larcker criterion.

Construct	Perceived tangibility	Perceived accessibility	Perceived assistance	Perceived competence	Perceived security	Perceived ease of use	Perceived connectivity
Perceived tangibility	0.777						
Perceived accessibility	0.466	0.779					
Perceived assistance	0.384	0.373	0.766				
Perceived competence	0.48	0.371	0.352	0.802			
Perceived security	0.366	0.274	0.283	0.239	0.792		
Perceived ease of use	0.309	0.358	0.126	0.357	0.288	0.746	
Perceived connectivity	0.404	0.295	0.256	0.413	0.17	0.317	0.819

As suggested by Fornell-Larcker, to establish discriminant validity, the positive square root of the Average Variance Extracted (AVE) must be higher than the correlation coefficient of a factor with all other remaining factors. Thus, AVE should be greater than Average Shared Variance (ASV) and Maximum Shared Variance (MSV). All the diagonal value square root of AVE is significantly higher than the factor's inter-correlation (Table 2). Also, AVE is sufficiently greater than the value of ASV and MSV of the measurement model. Hence, Fornell-Larcker Criterion indicates that for this study, discriminant validity is established.

In conclusion, the measurement model demonstrates good reliability, convergent validity, and discriminant validity, and common method biases were not applied [9].

Measurement model

To test the measurement model of all the factors affecting online banking service quality, Confirmatory Factor Analysis (CFA) technique has been applied (Figure 2).

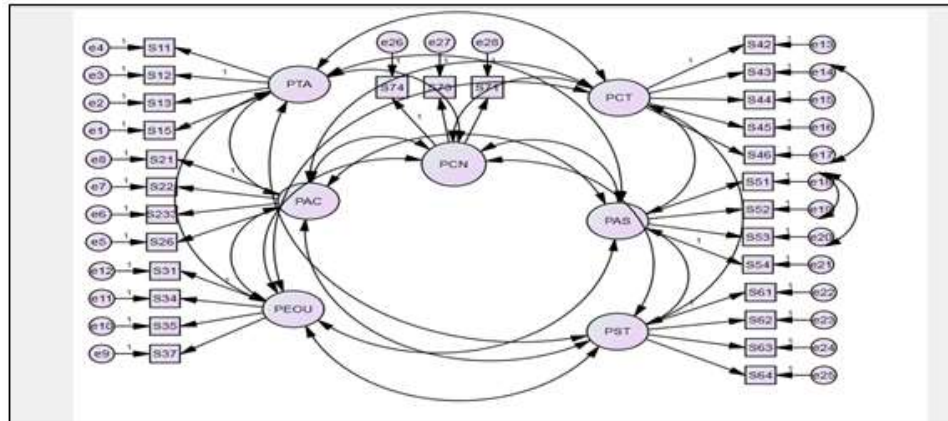


Figure 2: Measurement model.

The overall fit statistics of CFA are CFI=0.968; GFI=0.922; RMSEA=0.048; CMIN/DF=3.402; RMR=0.056; NFI=0.955 (Table 3). All these indices were within acceptable range except CMIN/DF. Hence, it can be concluded that the data fit the model very well.

Table 3: Model fit of the measurement model.

Overall model measure	Model score	Model fit	Desirable range	References
CFI	0.968	Desirable	>0.90	(Bentler and Paul, 1996)
GFI	0.922	Desirable	>0.90	(Hair, Black, Babin and Anderson, 2010)
RMSEA	0.048	Desirable	<0.10	(Hu and Bentler, 1999)
CMIN/DF	3.402	Acceptable	<3	(Bentler and Paul, 1996)
RMR	0.056	Desirable	>0.05	(Hu and Bentler, 1999)
NFI	0.955	Desirable	>0.90	(Bentler and Paul, 1996)

Structural model of public and private banks

Hypotheses: As the measurement model shows good performance, the structural model has been defined where assistance, competence, ease of use, connectivity, security, accessibility and tangibility are considered independent variables/factors. The purpose is to measure the impact of the independent variables on the overall service quality. The next purpose is to test the difference in the impact between the overall service quality of public and private sector banks. Here, the types of banks have been used as categorical moderators. The following are the hypothesis for the same:

H1: The independent factors of online banking services significantly create an impact on the overall service quality of public and private sector banks.

H2: Perceived assistance positively affects the overall service quality of online banking concerning public and private sector banks in India.

H3: Perceived competence positively affects the overall service quality of online banking concerning public and private sector banks in India.

H4: Perceived ease of use positively affects the overall service quality of online banking concerning public and private sector banks in India.

H5: Perceived connectivity positively affects the overall service quality of online banking concerning public and private sector banks in India.

H6: Perceived security positively affects the overall service quality of online banking concerning public and private sector banks in India.

H7: Perceived accessibility positively affects the overall service quality of online banking concerning public and private sector banks in India.

H8: Perceived tangibility positively affects the overall service quality of online banking concerning public and private sector banks in India.

Empirical results of the structural model

To check the relation of individual factors to the overall service quality of online banking for public and private sector banks, a structural model analysis has been done. With this, the above-mentioned eight hypotheses were tested. The structural model and its statistics are included in Figure 3 and Table 4 respectively [10].

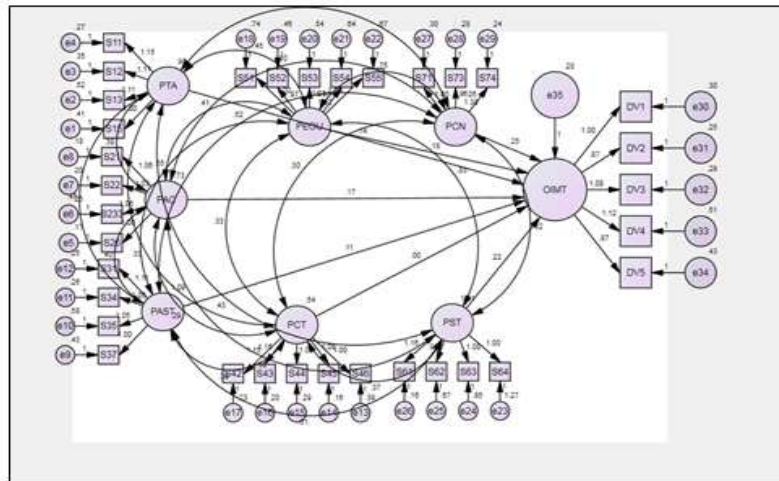


Figure 3: Structural model of public and private banks.

Table 4: Structural model summary.

Hypothesis	Private banks			Public banks		
	Unstandardized weights	Standardized weights	P	Unstandardized weights	Standardized weights	P
OSQ←PTA	0.14	0.137	***	0.114	0.118	0.005
OSQ←PAC	0.169	0.149	***	0.179	0.136	***
OSQ←PEOU	0.179	0.227	***	0.11	0.12	0.001
OSQ←PCN	0.252	0.306	***	0.303	0.353	***
OSQ←PCT	-0.004	-0.003	0.92	0.136	0.108	0.006
OSQ←PST	0.218	0.285	***	0.242	0.341	***
OSQ←PAST	0.112	0.12	***	0.043	0.044	0.233

The structural model summary indicates the standardized and unstandardized weights of both public and private sector banks. It also includes the significance level. As can be seen from the above Table 4, in public sector banks, Perceived Assistance (PAST) is found non-significant with the highest P-value of 0.233. This indicates that the factor PAST does not relate to the overall service quality of online banking in public sector banks in India. Although, PAST contribute in the various countries namely Europe, Thailand but not contribute significantly in this study.

Table 5: Model fit of the structural model.

Overall model measure	Model score	Model fit	Desirable range	References
CFI	0.93	Desirable	>0.90	(Bentler and Paul, 1996)
GFI	0.833	Acceptable	>0.90	(Hair, Black, Babin, and Anderson, 2010)
RMSEA	0.047	Desirable	<0.10	(Hu and Bentler, 1999)
CMIN/DF	3.313	Acceptable	<3	(Bentler and Paul, 1996)
RMR	0.068	Desirable	>0.05	(Hu and Bentler, 1999)
NFI	0.903	Desirable	>0.90	(Bentler and Paul, 1996)

To test the statistics for the model fit of confirmatory factor analysis, a few indicators were measured. They were CFI=0.930; GFI=0.833; RMSEA=0.047; CMIN/DF=3.313; RMR=0.068; NFI=0.903 (Table 5). It was found that CMIN/DF and GFI were not in the acceptable range and they did not pass the model fit. Also, the relation of each factor with the overall service quality of online banking was found complicated with one factor leading to the other (Figure 4). Hence the clear path relationship was found difficult to achieve [11]. PAST does not contribute significantly to the overall service quality of online banking and therefore it is required to improve the structural model. Therefore structural analysis has been done further without considering one factor namely PAST and the mediating variables/factors have been introduced. The results show the improved version of the structural model in the next section.

Improved structural model of public and private banks

The structural analysis has been performed without considering one factor PAST as it has been found not significant in the initial model run. The following figure shows the relation of various factors with the overall service quality of online banking.

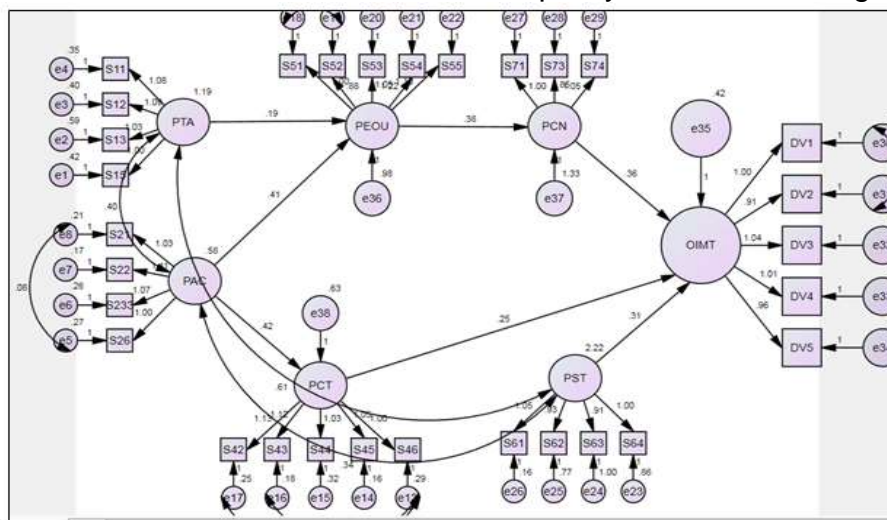


Figure 4: Improved structural model of public and private banks.

Table 6: Improved structural model summary.

Path	Private banks			Public banks			Alternate hypothesis decision	Difference
	Unstandardized weights	Standardized weights	P	Unstandardized weights	Standardized weights	P		
PEOU←PTA	0.312	0.249	***	0.193	0.194	***	Accepted	Yes

PEOU←PAC	0.437	0.302	***	0.41	0.286	***	Accepted	No
PCN←PEOU	0.531	0.537	***	0.382	0.339	***	Accepted	Yes
PCT←PAC	0.435	0.485	***	0.421	0.372	***	Accepted	No
OSQ←PCN	0.373	0.514	***	0.364	0.463	***	Accepted	No
OSQ←PCT	0.206	0.179	***	0.245	0.218	***	Accepted	Yes
OSQ←PST	0.334	0.498	***	0.309	0.477	***	Accepted	No

Considering the results of structural model outcomes, perceived tangibility, perceived accessibility, and perceived security have been used as Independent factors. Perceived ease of use, perceived competence, and perceived connectivity have been used as mediating factors as shown in the path (Table 6). The purpose is to measure the direct and indirect impact of all the factors in overall service quality. To analyze the moderating effect of proposed variables and relationships, multi-group analysis has been performed. A test has been applied comparing regression coefficient between structural models considered in pairs using modified t-test for independent samples for the public and private sector banks [12]. As can be seen in the path analysis (Table 6), the first and second paths indicate, perceived tangibility and perceived accessibility have a direct and positive influence on perceived ease of use to online banking service quality. The third and fourth paths indicate a direct and positive influence of perceived ease of use and perceived accessibility on perceived connectivity and perceived competence to online banking service quality, respectively. Path fifth, sixth and seventh indicate a direct and positive influence of perceived connectivity, perceived competence, and perceive security respectively on overall service quality to online banking service quality.

The improved structural model summary indicates that all the alternate hypothesis has been accepted and all the factors are significant both in the public sector and private sector banks. Further, paths one, three, and six significant difference in public and private banks while the significant difference in public and private sector banks was not found for the remaining paths. As can be seen from the path (Table 7), perceived ease of use, perceived connectivity, and perceived competence have been considered as mediating factors considering the past contributions. In the first path, perceived ease of use is mediating factor between perceived tangibility and perceived connectivity and the beta value too observed significant contribution in the proposed relationship for both private and public sector banks. Similarly in the second, third, fourth, fifth, and sixth paths mediating factors have been considered and significant contribution has been found in the proposed relationship. Further, it is observed that mediating effects in the private sector banks are marginally higher than that of public sector banks [13].

Table 7: Indirect relationship.

Path	Private banks (β)	Public banks (β)	Alternate hypothesis decision
PCN←PEOU←PTA	0.166	0.074	Accepted
PCN←PEOU←PAC	0.232	0.158	Accepted
OSQ←PCT←PAC	0.106	0.096	Accepted
OSQ←PCN←PEOU	0.198	0.139	Accepted
OSQ←PCN←PTA	0.062	0.038	Accepted
OSQ←PCN←PAC	0.086	0.057	Accepted

Table 8: Model fit of the improved structural model.

Overall model measure	Model score	Model fit	Desirable range	References
CFI	0.922	Desirable	>0.90	(Bentler & Paul, 1996)
GFI	0.902	Desirable	>0.90	(Hair, Black, Babin, & Anderson, 2010)

RMSEA	0.053	Desirable	<0.10	(Hu & Bentler, 1999)
CMIN/DF	2.89	Desirable	<3	(Bentler & Paul, 1996)
RMR	0.08	Desirable	>0.05	(Hu & Bentler, 1999)
NFI	0.912	Desirable	>0.90	(Bentler & Paul, 1996)

The overall fit statistics are CFI=0.922; GFI=0.902; RMSEA=0.053; CMIN/DF=2.89; RMR=0.08; NFI=0.912 (Table 8). All these indices were found to be within an acceptable range. It can be concluded that the data fit the model very well. Hence, an improved structural model achieved the desired level with significant contribution of mediating relationship and alteration of insignificance factor perceived assistance and enhanced the model fit for the structural model. Therefore, this structural model seems to be a good fit for online banking service quality [14].

Conclusion

The main purpose of this research was to measure the impact of factors that influence online banking service quality. In addition to measuring the impact, the second purpose was to compare the factors that influence overall service quality concerning public and private sector banks in India. The study included the construct called perceived tangibility, perceived accessibility, perceived ease of use, perceived connectivity, perceived assistance, perceived security, and perceived competence as independent variables and overall service quality of online banking as a dependent variable. Initially, the structural model was developed and except perceived assistance, all the constructs had positively, directly, and significantly influenced the overall service quality of online banking. According to summarized results, the conceptual model explained influencing power extracted by the dependent construct overall service quality. However, as indicated earlier, perceived assistance was not found significant in predicting overall service quality because the potential users might have perceived ease of use for online banking service quality.

When the conceptual model was developed with direct effects of all the independent variables, the performance of public sector banks was found to contribute marginally higher towards overall service quality as compared to private sector banks for perceived accessibility, perceived connectivity, and perceived security. While private sector banks dominated for perceived tangibility, perceived competence, and perceived ease of use as compared to public sector banks. Therefore it can be concluded that the majority of private banks focus on the website content having less complexity and having more innovative and attractive features to grab customers use online banking services in India. This finding is consistent with several past studies conducted in different countries namely Germany, Canada, and Brazil. For public sector banks, it can be concluded based on the findings that it focuses on security (trust) and connectivity of services in India and this is consistent with several past studies conducted in different countries namely Pakistan, Bangladesh, and Iran. Further, perceived connectivity was found to be the most influencing factor for both types of banks in India and this conclusion is consistent with several past studies conducted in different countries namely U.K., Malaysia, China, etc.

While developing an improved structural model, insignificant construct, perceived assistance, was removed. The findings explain that the tangibility of a portal for online banking improves the ease of using it for online users. The mediating effect in the study shows that the private sector bank's portal for online banking performs better than the public sector banks in India. Ease of use significantly contributes mediating role for private sector banks in India as it helps online users to improve the connectivity. It also plays a vital mediating role between tangibility, accessibility, and connectivity. Further, it

was confirmed with the help of findings that connectivity, competence, and security positively influence the overall service quality of online banking in India while the conventional studies of online banking service quality focus mainly on reliability and empathy.

The study indicates a major difference in the relationship of perceived tangibility to perceived ease of use, perceived ease of use to perceived connectivity, and perceived competence to overall service quality. In these proposed relationships, private sector banks contribute significantly better as compared to public sector banks in India. While the moderate effects were found between two types of banks to the relationship of perceived accessibility to perceived ease of use and perceived competence; perceived connectivity and perceived security to overall service quality.

Thus, both the research objectives were achieved through this study. The confirmatory factor analysis showed the impact of individual factors on the overall service quality of online banking. To further validate the model and to compare the public and private sector banks, structural model analysis was applied. Through the findings, the model was validated and the comparison showed that the impact of individual factors varies in different types of banks.

Contribution

This study is unique as the connectivity factor has been included to measure its influence on the overall service quality of online banking. Majority of the existing studies used gender and age group as categorical moderators while this study has used types of banks as categorical moderators. The findings of this study will help future studies to derive the impact of factors that influence online banking users with different macro-economic aspects. The study analyzed the factors influencing online banking service quality that are important for both public and private sector banks in India. The study provides insights regarding the importance of content, complexity of portal, accessibility, and security in the context of online banking. From practical implications point of view, this research provides quantitative proof for public and private sector banks' management to help them design or/and enhance their online banking services. The bank's management can further design their marketing strategies focusing on the factors that have maximum influence on online banking based on the findings of this research.

Limitations and recommendations for future research

The study considered respondents who were using online banking for a year and more as these customers could be able to justify the responses as they have experience of using online banking. The perception of new users could be different and so the future study could be done on identifying service quality factors of new customers. The study has validated the model considering public and private sector banks as they have a larger market share. Future studies could be conducted considering other types of banks such as foreign banks, cooperative banks, and regional rural banks. The research findings and conclusion have been carried out considering Indian banks and Indian populations. Future studies could be done considering other countries' banks and populations and results could be reconfirmed.

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