MEASUREMENT OF SERVICE QUALITY DIMENSIONS OF E-BANKING: A CUSTOMERS' PERSPECTIVE

Ms. Fozia*

ABSTRACT

The purpose of this paper is to know the perception of the customers' towards dimensions of e-banking across income. A convenience sampling technique was used to recruit 320 customers through a well designed questionnaire from Public and Private Banks of NCR, India. The questionnaire is representing the demographic characteristics of the customers e.g. gender, income and name of the bank. Data has been analysed by reliability test, factor analysis, descriptive analysis and one-way ANOVA. This research showed that dimensions of E-banking have significant difference across demographic variable i.e. income.

Key Words: E-Banking, Customers' Perception, Banking Services, Public and Private Banks

* Commerce Department, Aligarh Muslim University, Aligarh

I. Introduction

With the implementation of information technology, the banking industry has brought a revolutionary change in the workability of banks. Now banks provide IT based products and services to their customers. Bank customers are becoming highly demanding and curious about the new technology based banking products and services. Technology has changed the total system of banking operation and enabled banks to satisfy the needs of the customers adequately. IT is not confined only to transaction processing and management information system but it has created a competitive environment for banks to retain their customers. These information technological changes in Indian banking are called as e-banking. E-banking is one of the emerging trends in the Indian banking and is playing a unique role in strengthening the banking sector and improving service quality.

E-banking means that any enquiry or transaction can be processed online without going to branch concerned. It reduces physical and geographical boundaries and allows customers to make banking transactions anywhere and anytime with the help of different electronic devices such as ATM, debit card, credit card, electronic fund transfer (EFT), core banking solution, electronic clearing system (ECS) and real time gross settlement (RTGS). Further, new technology has rapidly transformed the traditional ways of doing banking operations. Traditional banking is branch based banking in which banks need to establish a physical presence in geographical area in order to carry out banking operations. It requires a maximum of interaction with physical services, processes, payments and medium of exchange mainly includes cash, check, bank cards and other such operations. But on the other side, new technological banking creates extraordinary opportunities for the banks in the ways they organize financial product development, delivery and marketing via the internet. It provides number of facilities to the customers such as they can get any information related to their account and online transaction. It also allows customers to make payment, perform electronic recharge, pay bills, access account information and transfer funds from one account of the bank to another.

E-banking provides different types of banking such as mobile banking, internet banking, tab banking, phone banking, ATM and plastic cards which allow customers to avoid going to bank branch physically and perform banking activities online. It increases customer satisfaction level, reduces transactional cost and increases productivity.

II. Literature Review

Authors	Years	Variables	Methodology	Findings
Kaur, J., & Kaur, B.	2013	In this research, six key dimensions of internet banking service quality have been used such as security/privacy, reliability, efficiency, responsiveness, site-aesthetic and customer satisfaction.	Data was collected through a questionnaire and analysed by one-way ANOVA and multiple regression statistical techniques.	It has been concluded that responsiveness, security/privacy and site-aesthetic are the major factors that strongly lead to customer satisfaction in the online bank. It has been further found that reliability and efficiency are the two dimensions which have insignificant impact on the customer satisfaction.
Kumar, S., & Garg, R.	2012	Six key dimensions of net banking services i.e. ease of use, efficiency, trust and security, customer contacts, accessibility and Problem handing were used for the study.	Tool like factor analysis and one way ANOVA were used for data analysis.	Finding shows that perception of customer towards internet banking service quality largely depends on ease of use, efficiency, trust and security, accessibility, Problem handing and customer contacts.

Rani, M.	2012	In this study, six factors of e-banking services have been taken such as easy to use, safety & security, accurate & up-to-date information, availability, cost effectiveness and time saving.	Statistical tool like one-way ANOVA and percentage methods were used for analysis the data	Finding shows that customers have positive perception towards the e-banking services i.e. easy to use, safety & security, accurate & up-to-date information, availability, cost effectiveness and time saving.
Miryala, R. K.	2011	In this study factor like age, income, education, computer knowledge etc have been taken for the study.	ANOVA test were used for analysis of data.	Finding indicated that demographic factors like age, income, education, computer knowledge etc., have a positive relationship with customer perception and level of satisfaction.
Swaminathan, J., & Ananth, A.	2010	Eight variable of e-banking i.e. awareness, easy to use, privacy of information, efficiency, responsiveness, reliability, convenience and	The statistical tool such as chi square test, one way ANOVA and multiple regression tests were used for data analysis.	Finding shows that the convenience, awareness and responsiveness have positive impact on the satisfactory level of customers.

		satisfactory level were taken for the study.		
Siu, N. Yee-Man., & Mou, J. Chi-Wah.	2008	Factors like credibility, efficiency, problem handling and security were used to find the perception of customers towards the service quality dimensions in internet banking.	Tool like factor analysis; t-test, one-way ANOVA and multiple regression tests were used for analysing the data.	Finding shows that all three dimensions i.e. credibility, efficiency, problem handling were found to be important in determining overall service quality perceptions of customers except security.

III. Research Methodology

The main focus of this paper is to examine the perception of customers' towards e-banking. The population of the present study is the online customers' public and private banks of Delhi NCR region. The methodology adopted for carrying out the present construct is largely based on primary data collected through a well designed questionnaire. About 500 questionnaire have been distributed out of which 320 completely filled questionnaire have been received from the Public and Private Banks customers of NCR, India. The data has been collected through a structured questionnaire on 5 point likert scale ranging from highly satisfied (5) to highly dissatisfied (1). The dimensions for the present study were designed with the help of existing literature (Prameela, 2013; Maheswari, 2011; Dharmalinga & Kannan, 2011). The collected data has been analysed through reliability test, factor analysis, descriptive analysis and one way ANOVA.

Table 1: Sample Profile

Sample distribution by		Frequency	Percent
Banks	Public banks	164	51.25
	Private banks	156	48.75
Gender	Male	174	54.37
	Female	146	45.63
Income	10000 or below	89	27.8
	10001-20000	65	20.3
	20001-30000	58	18.2
	30001-40000	47	14.7
	40001-50000	25	7.8
	50001-60000	12	3.7
	60001 or above	24	7.5

Table 1 shows the descriptive statistics of the respondents on various demographic variables. The sample of populations is divided into various demographic variable i.e. gender of the customers, different income groups and public and private banks of Delhi NCR.

A. Reliability of Scale:

Reliability test is used to measure the internal consistency of an instrument. It is tested by calculating Cronbach's Alpha (α). The table 2 depicts the Reliability of Cronbach's alpha for five dimensions of e-banking i.e. Security & Privacy, Accessibility, Efficiency, Easy to use, Accuracy. The item where the value of alpha is more than 0.60 are considered significant for this study. As shown in table 2 Cronbach's Alpha value is 0.871 for Security & Privacy, 0.821 for Accessibility, 0795 for Efficiency, 0.840 for Easy to use and 0.717 for Accuracy shows high reliability of the scale.

The table 2 shows overall reliability score of 22 statements of e-banking is 0.932 which is well above the recommended level of 0.60, indicating high reliability of scale.

Table 2: Reliability of Scale

S.No	Dimensions	No. of item	Cronbach's alpha (α)
1.	Security & privacy	6	0.871
2.	Accessibility	4	0.821
3.	Efficiency	4	0.795
4.	Easy to use	5	0.840
5.	Accuracy	3	0.717
	Overall Reliability	**22**	**0.932**

Table 3: KMO and Bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.925
Bartlett's test of Sphericity Approx. Chi-Square	3.620E3
Df	231
Sig.	.000

The above table 3 shows the Kaiser-Meyer-Olkin Measure of Sampling Adequacy and Barlett's test of Sphericity which has been run to check data adequacy for conducting exploratory factor analysis. The value of Kaiser-Meyer-Olkin (KMO) is 0.925, which is greater than 0.6 and significance value is .000 indicates that data is sufficient for conducting factor analysis.

Further the results of Total Variance Explained (TVE) shows that all 5 extracted factors gives cumulative variance equal to 64.753, which indicates that 5 factors model, explains 64% variance in this study.

Rotated Component Matrix (RCM) gives classification of questions into 5 study variables and Factor Loading. Table 4 shows the results of Rotated Component Matrix.

TABLE 4: ROTATED COMPONENT MATRIX

S.NO	Dimensions	Statements	Factor Loading
1.	Security & Privacy	Security for ATMs	.688
2.		No misuse of personal information	.743
3.		Safe with online transaction	.693
4.		Secured in account information	.668
5.		Website provides financial security and confidentiality	.690
6.		Website is secure for fund transfer	.531
7.	Accessibility	Availability all 24 hrs/day,7day a week	.749
8.		Anytime conduct of transaction	.807
9.		Able to get on site promptly	.558
10.		Facilitates online shopping	.540
11.	Efficiency	Faster log-in facility	.598
12.		Performance of plastic card (ATM ,Debit, Credit card)	.505
13.		Transfer of funds (NEFT, RTGS)	.786
14.		Clearing services (ECS-Debit, Credit)	.742
15.	Easy to use	Website provides valuable information	.687
16.		Website easy to use and navigate	.731
17.		User friendly system	.762
18.		Instruction on website	.725
19.		website design is efficient	.636
20.	Accuracy	Problem solving through immediate information	.691
21.		Bank insists on error-free transaction records	.654
22.		Service charges	.705

This has been found that the above table 4 that all 22 statements have the Factor Loading more than 0.4, so therefore the data is found suitable for further analysis.

IV. Objectives of the Study

- To study the perception of customers' towards e-banking.
- To determine the differences in customers' perception towards E-banking across different income groups.

V. Hypotheses of the Study

A. ***Ho_1:*** There is no significant difference in the mean value of Security & privacy as a dimension of E-banking across different income groups.

B. ***Ho_2:*** There is no significant difference in the mean value of Accessibility as a dimension of E-banking across different income groups.

C. ***Ho_3:*** There is no significant difference in the mean value of Efficiency as a dimension of E-banking across different income groups.

D. ***Ho_4:*** There is no significant difference in the mean value of Easy to use as a dimension of E-banking across different income groups.

E. ***Ho_5:*** There is no significant difference in the mean value of Accuracy as a dimension of E-banking across different income groups.

VI. Limitations of the Study

- The sample size of this study was not so large because respondents do not want to disclose their personal information.
- The research study is restricted to public & private banks only. Co-operative & foreign banks are not included in the study.

VII. Hypotheses Testing

Ho_1: There is no significant difference in the mean value of Security & privacy as a dimension of E-banking across different income Groups.

The hypothesis seeks to test whether there is no significant difference in the mean value of Security & Privacy as a dimension of E-banking across different income groups. To test this hypothesis, One-Way ANOVA has been used.

Table 5: mean value, Std. Deviation, F and Sig. value of Security & Privacy across different income groups

Results of ANOVA					
Security & Privacy vs. Income					
Income	N	Mean	Std. Deviation	F	Sig.
10000 or below	89	3.6367	.70736	2.627	.017
10001-20000	65	3.6564	.81483		
20001-30000	58	3.8764	.70680		
30001-40000	47	3.9645	.61182		
40001-50000	25	4.0400	.53203		
50001-60000	12	4.0417	.70398		
60001 or above	24	3.9028	.61956		
Total	320	3.7990	.71045		

The above table 5 shows the results of ANOVA test used to access the difference in the perception of customers on Security & Privacy across different income groups. The 'F' value is 2.627 and Sig. Value (p) is 0.017, which is less than 0.05, which indicates a significant difference in the perception of customers' on Security & Privacy across different age groups.

Hence, the hypothesis that there is no significant difference in the mean value of Security & Privacy as a dimension of E-banking across different income groups stands rejected and alternative hypothesis is accepted.

Ho_2: There is no significant difference in the mean value of Accessibility as a dimension of E-banking across different income groups.

The hypothesis seeks to test whether there is no significant difference in the mean value of Accessibility as a dimension of E-banking across different income groups. To test this hypothesis, One-Way ANOVA has been used.

Table 6: mean value, Std. Deviation, F and Sig. value of Accessibility across different income groups

Results of ANOVA					
Accessibility vs. Income					
Income	N	Mean	Std. Deviation	F	Sig.
10000 or below	89	3.5253	.83941	4.784	.000
10001-20000	65	3.4077	.89111		
20001-30000	58	3.8534	.77096		
30001-40000	47	3.9149	.58810		
40001-50000	25	4.0600	.59634		
50001-60000	12	4.0208	.71078		
60001 or above	24	3.9271	.78186		
Total	320	3.7086	.80800		

The above table 6 shows the results of ANOVA test used to access the difference in the perception of customers on Accessibility across different income groups. The 'F' value is 4.784 and Sig. Value (p) is 0.000, which is less than 0.05, which indicates a significant difference in the perception of customers' on Accessibility across different age groups.

Hence, the hypothesis that there is no significant difference in the mean value of Accessibility as a dimension of E-banking across different income groups stands rejected and alternative hypothesis is accepted.

Ho_3: There is no significant difference in the mean value of Efficiency as a dimension of E-banking across different income groups.

The hypothesis seeks to test whether there is no significant difference in the mean value of Efficiency as a dimension of E-banking across different income groups. To test this hypothesis, One-Way ANOVA has been used.

Table 7: mean value, Std. Deviation, F and Sig. value of Efficiency across different income groups

Results of ANOVA					
Efficiency vs. Income					
Income	N	Mean	Std. Deviation	F	Sig.
10000 or below	89	3.5365	.72256	3.695	.001
10001-20000	65	3.6115	.79676		
20001-30000	58	3.9526	.62383		
30001-40000	47	3.9468	.62757		
40001-50000	25	3.9000	.63738		
50001-60000	12	3.9583	.68119		
60001 or above	24	3.7917	.60193		
Total	320	3.7508	.70973		

The above table 7 shows the results of ANOVA test used to access the difference in the perception of customers on Efficiency across different income groups. The 'F' value is 3.695 and Sig. Value (p) is 0.001, which is less than 0.05, which indicates a significant difference in the perception of customers' on Efficiency across different age groups.

Hence, the hypothesis that there is no significant difference in the mean value of Efficiency as a dimension of E-banking across different income groups stands rejected and alternative hypothesis is accepted.

Ho_4: There is no significant difference in the mean value of Easy to use as a dimension of E-banking across different income groups.

The hypothesis seeks to test whether there is no significant difference in the mean value of Easy to use as a dimension of E-banking across different income groups. To test this hypothesis, One-Way ANOVA has been used.

Table 8: mean value, Std. Deviation, F and Sig. value of Easy to use across different income groups

Results of ANOVA					
Easy to use vs. Income					
Income	N	Mean	Std. Deviation	F	Sig.
10000 or below	89	3.5416	.66552	1.400	.214
10001-20000	65	3.7538	.73720		
20001-30000	58	3.7241	.71948		
30001-40000	47	3.8128	.56631		
40001-50000	25	3.8560	.37647		
50001-60000	12	3.7667	.95283		
60001 or above	24	3.6500	.63588		
Total	320	3.6987	.67299		

The above table 8 shows the results of ANOVA test used to access the difference in the perception of customers on Easy to use across different income groups. The 'F' value is 1.400 and Sig. Value (p) is 0.214, which is more than 0.05, which indicates there is no significant difference in the perception of customers' on Efficiency across different age groups.

Hence, the hypothesis that there is no significant difference in the mean value of Efficiency as a dimension of E-banking across different income groups stands accepted and alternative hypothesis is rejected.

Ho_5: There is no significant difference in the mean value of Accuracy as a dimension of E-banking across different income groups.

The hypothesis seeks to test whether there is no significant difference in the mean value of Accuracy as a dimension of E-banking across different income groups. To test this hypothesis, One-Way ANOVA has been used.

Table 9: mean value, Std. Deviation, F and Sig. value of Accuracy across different income groups

Results of ANOVA					
Accuracy vs. Income					
Income	N	Mean	Std. Deviation	F	Sig.
10000 or below	89	3.1910	.77994	4.220	.000
10001-20000	65	3.3590	.78020		
20001-30000	58	3.5460	.75108		
30001-40000	47	3.6596	.70707		
40001-50000	25	3.7200	.55844		
50001-60000	12	3.7222	.82674		
60001 or above	24	3.8056	.93207		
Total	320	3.4656	.78664		

The above table 9 shows the results of ANOVA test used to access the difference in the perception of customers on Accuracy across different income groups. The 'F' value is 4.220 and Sig. Value (p) is 0.000, which is less than 0.05, which indicates a significant difference in the perception of customers' on Efficiency across different age groups.

Hence, the hypothesis that there is no significant difference in the mean value of Accuracy as a dimension of E-banking across different income groups' stands rejected and alternative hypothesis is accepted.

Table 10: Summary of Hypotheses Testing

S. No.	Hypotheses	Result
Ho_1	There is no significant difference in the mean value of Security & privacy as a dimension of E-banking across different income groups.	Rejected
Ho_2	There is no significant difference in the mean value of Accessibility as a dimension of E-banking across different income groups.	Rejected
Ho_3	There is no significant difference in the mean value of Efficiency as a	Rejected

	dimension of E-banking across different income groups.	
Ho_4	There is no significant difference in the mean value of Easy to use as a dimension of E-banking across different income groups.	Accepted
Ho_5	There is no significant difference in the mean value of Accuracy as a dimension of E-banking across different income groups.	Rejected

VIII. Conclusion

On the basis of above analysis, it can be concluded that perception of customer largely depends on e-banking dimensions i.e. security & privacy, accessibility, efficiency and accuracy. All this factors cumulatively explain 64.753% of the total variance which is considered good in social science. One way ANOVA test reveals that perception of customers on dimensions of E-banking has significant difference across income. On the basis of the above analysis and observations, the paper suggests some suggestions to banks manger for betterment of customers' perception towards e-banking.

IX. Suggestions

- Banks customers are not satisfied to perform banking operations online because they do not have trust on E-banking channels so banks should ensure their customers about the security of ATMs, personal and account information of the customers
- Banks should solve their customers' problem by providing meaningful information and keeping error-free transaction records of the customers.
- Banks have to make an efficient website that should be well designed, and provide valuable information to customer so that they can easily to perform all operations of e-banking.
- Customers are not satisfied with the extra charges of services charge by the banks so banks should work on this and do not charge high money from the account of customers

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