Impact of E-Banking Service Quality on Customer Satisfaction

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Abstract: The main objective of this paper is to measure the impact of E-banking service quality on customer satisfaction. Primary data method is used to collect data by using the interview method over 504 respondents. The random sampling technique has been taken up for the survey by keeping due care for the availability and easiness of the customers. The Multiple regression technique has been employed to measure the effect to service quality dimension on the customer satisfaction. The paper examines the relative strength of each dimension affecting customer satisfaction. It has been found that the overall regression model has been a reasonable fit and there is a statistically significant association between service quality dimension and customer satisfaction.

Key words: Electronic Banking, Information Technology, Service Quality, Customer Satisfaction

I. INTRODUCTION

The banking industry has been continuously upgrading its operation by making use of technology. With the advancement of this technology, banks have implemented various systems to carry banking transactions easily and quickly. In a developing country like India, where customers possess a varied form of needs and desires it becomes legitimate for the banks and service providers to offer quality services speedily and efficiently to meet the customer's expectation.

Service quality aims to serve the customers in a better way such that customer need is satisfied besides customer to attain complete satisfaction while using a particular service. The customer has a certain set of attributes in his mind with respect to a product or service. As the customers use the service he compares it with the attributes which already exists in his mind. This comparison is basically the measurement of service quality. A customer tries to match his expectation from the services with already existing attributes in his mind. If the service quality is better than expected the customer is fully satisfied.

II. OBJECTIVE OF STUDY

- To examine the impact service quality of E-Banking service on Customer satisfaction

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III. RESEARCH METHODOLOGY

3.1 Data Collection

Primary data method has been used for the study. It was collected through the interview method. Total 750 questionnaires were distributed. Out of 750 customers, effective 504 have provided the accurate response. The random sampling technique has been taken up for the survey by keeping due care for the availability and easiness of the customers.

3.2 Quantitative Techniques Used

Multiple Linear Regression, Factor analysis KMO and Bartlett's test of sphericity is applied over service quality variables to validate if factor analysis is appropriate & if there exist some relationship among variables.

IV. RESULTS AND DISCUSSION

4.1 Reliability Analysis

To achieve predetermined objectives of the research the descriptive study is conducted. Relevant and thorough literature has been reviewed to find out the various significant and applicable factors.

Table 1. Result of KMO and Bartlett's test of sphericity

Measurement	No of variables	KMO Measure of sampling adequacy	Bartlett's test of sphericity	Accepted/ Rejected	Remarks
Service quality	42	0. 755	p<0.001	Accepted	Factor analysis is appropriate & There exist some relationship among variables.

It has been found that the forty two variables have been reduced to nine factors by using factor analysis.

The factor identified has been named as communication, reliability, credibility, tangibility, security, competence, responsiveness, understanding, and access. These factors can be termed as service quality dimensions also.

Multiple Linear Regression models are being used to study out the impact on satisfaction which is dependent variable with respect to the different variable i.e. independent variables. These independent variables are service quality dimension i.e. communication, reliability, credibility, tangibility, security, competence, responsiveness, understanding, access. They have no role in measuring customer satisfaction.

So null hypothesis is framed.

Ho: Service quality dimensions have no significant impact on customer satisfaction.

Ha: Service quality dimensions have a significant impact on customer satisfaction.

Customers are satisfied with one service quality factor or more than one at a time. So the various factors are summarized into nine dimensions named communication, reliability, credibility, tangibility, security, competence, responsiveness, understanding, access. The multiple linear regression model to test the hypothesis. Multiple Linear Regression models are applied to know the quantum of each dimension have on customer satisfaction. The service quality dimensions are taken as independent variables and overall satisfaction of the customers as the dependent variable in the regression model. The basic assumption of the regression model is that there exists a linear relationship between the dependent variable and the independent variables. With context to present study, it is assumed that there is a linear relationship between the dependent variable i.e. customer satisfaction and the independent variables which are service quality dimension namely communication, reliability, credibility, tangibility, security, competence, responsiveness, understanding, access. The second assumption is that there is the absence of multi-colinearity in the model. It means that the independent variables i.e. service quality dimensions are not too highly correlated.

4.2 Multiple Linear Regressions Measuring Customer Satisfaction

To analyse the impact of the individual dimensions of service quality on customer satisfaction, multiple regression models using the following model is run. The resultant output will be in the form:

$Y= A+B1(X1) +B2(X2) +B3(X3)+B4(X4)+\ldots$

Here Y is s customer satisfaction i.e. dependent variable. B1, B2, B3…..B9 are predictors i.e. independent variables like Credibility, Understanding, Responsiveness, Tangibility, Security, Competence, Communication, Access, Reliability. A is a constant value.

Table 2:Table indicating R and R square value

Model	R	R Square	Adjusted R Square	Std. error
	.8147[a]	.660	.616	.86297

- Predictors: (Constant), Credibility, Understanding, Responsiveness, Tangibility, Security, Competence, Communication, Access, Reliability

Satisfaction is dependent variable and Credibility, Understanding, Responsiveness, Tangibility, Security, Competence, Communication, Access, Reliability are Independent variable. Above table shows that coefficient determination is .66, therefore about 66% of the variation in satisfaction is explained by independent variables. The

regression equation appears to be very useful for making predictions since the value of r2 is .660. From the above table R=.8147, R2= .660 and adjusted R square =.616 with standard error 0.86 implies that nine independent service quality dimensions explained 66% variance over the dependent variable i.e. customer satisfaction. It leads to verify regression fit as mentioned below.

Table 3 :ANOVA Showing F-value and Sig value of the impact of Service quality

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	109.017	9	12.113	16.265	.000[b]
	Residual	365.660	491	.745		
	Total	474.678	500			

It is identified that the value of F-stat is 16.265 and p = 0.000 is significant at the level of significance 5% (p< 0.05). This indicates that the overall model was a reasonable fit and there was a statistically significant association between service quality dimension and customer satisfaction. So the null hypothesis is rejected and the alternative hypothesis is accepted. Hence it can be concluded that service quality dimensions have a significant impact on customer satisfaction. It shows that the regression fit is pretty good & the dimensions used are able to predict the customer satisfaction to a good extent.

Table 4: Table indicating value for Unstandardized and standardized Coefficients

	Unstandardized Coefficients		Standardized Coefficients	T	Significance value.
	B	Std. Error	Beta β		
Constant	1.165	.598		1.947	.052
Tangibility	.433	.109	.245	3.979	.000*
Credibility	.265	.118	.231	2.253	.025*
Security	.121	.111	.263	1.097	.002*
Communication	-.768	.124	-.440	-6.171	.000*
Competence	.159	.118	.107	1.339	.181
Reliability	.122	.078	.162	1.562	.119
Responsiveness	.174	.099	.204	1.749	.001*

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		.10 9	.130	.081	.83 2	.40 6
	Access					
	Understand ing	.03 9	.120	.030	.32 7	.74 4

From the above mentioned statistical table the estimated regression equation is:

Customer Satisfaction= 1.165 (constant) + .433 (Tangibilty) + .265 (Credibility) + .121(Security)-.768 (Communication) +.159 (Competence) + .122 (Relaibilty) + .174 (Responsiveness) + .109 (Access) + .039 (Understanding)

The above table shows that since sig value for tangibility is (p=0.00), credibility (p=0.25), communication (p=0.00), security (p=0.002) and responsiveness (p=0.001) is less than 0.05 at 5% confidence level. It proves that these dimensions have has a significant effect on customer satisfaction. Hence null hypothesis is rejected. We accept the alternate hypothesis that service quality dimensions have a significant impact on customer satisfaction. On the basis of the regression equation following inference is drawn.

- In the above table, the regression coefficient for tangibility (B1)=.433, which implies that one percent change tangibility will lead to approx 43% increase in customer satisfaction if other variables are kept constant. The significance value for tangibility is p=0.00 which is significant at significance 5% level (p<.005). It implies that tangibility has a significant impact on satisfaction.
- The regression coefficient for credibility (B2)=.265 which implies that one percent change in credibility will lead to approx 27% increase in customer satisfaction if other variables are kept constant. The sig value p=0.025 which is significant at a 5% significance level (p<.005). It implies that credulity has a significant impact on satisfaction.
- For security the regression coefficient for security (B3)=.121 which implies that one percent change in security will lead to approx 12% increase in customer satisfaction if other variables are kept constant. The sig value 0.002 which is significant at a 5% confidence level because significance value is less than p<.005. It implies that security has a significant impact on satisfaction.
- The regression coefficient for Communication (B4)= -.768 which implies that one percent change in communication will lead to approx 77% decrease in customer satisfaction if other variables are kept constant. The sig value p=0.00 which is significant at a 5% confidence level because of p<0.05. It implies that communication has a significant impact on satisfaction
- For competence, the regression coefficient is (B5)=.159which implies that one percent change incompetence will lead to approx 16% increase in customer satisfaction if other variables are kept constant. The sig value is 0.181 which is not significant because the significance level is less than p>.005. It implies that competence has no significant impact on satisfaction
- The regression coefficient for reliability (B6)=.122which implies that one percent change in reliability will lead to approx 12% increase in customer satisfaction if other variables are kept constant. The sig value p= 0.19 which is not significant at a 5 % significance level. It implies that reliability has no significant impact on satisfaction
- The regression coefficient for responsiveness (B7)=.174 %which implies that one percent change in Responsiveness will lead to approx 17% increase in customer satisfaction if other variables are kept constant. The sig value is p= 0.01 which is significant because of p<0.05. It implies that responsiveness has a significant impact on satisfaction.
- The regression coefficient for Access (B8)=.109 which implies that one percent change in access will lead to approx 11% increase in customer satisfaction if other variables are kept constant. The sig value .406 which is not significant at a 5% significance level because it is greater than p>.005. It implies that access has no significant impact on satisfaction
- The regression coefficient for understanding (B9) =.039which implies that one percent change will lead to approx 4% increase in customer satisfaction if other variables are kept constant. The sig value p=0.744 which is not significant at the 5% significance level since the value of p is greater than 0.05. It implies that understanding has no significant impact on satisfaction.

4.3 Model Summary: In nut shell

In the present research nine important service quality dimension impacting the service quality of E-Banking services have been identified. The forty-two variables impacting the E-Banking service quality were considered. With the help of factors analysis, the highly correlated variables have been clubbed together. Finally, the forty-two variables have been summed into nine factors impacting the service quality. These factors can be named as service quality dimensions. It is assumed that these nine factors are equally important for the customers. By using independent T-test it was found that these factors hold huge importance but the priority of the factors change from a customer to other. Thereafter Multiple Linear regression is used to predict the impact of E-Banking service quality on customer satisfaction. This model is used to assess the impact of service quality dimension extracted by factor analysis. It is found that the value of R=.8147, R2= .660 and adjusted R square =.616 with standard error 0.86 implies that nine independent service quality dimensions explained 66% variance over the dependent variable i.e. customer satisfaction. From the ANOVA table it is identified that the value of F-stat is 16.265 and p = 0.000 is significant at the level of significance 5% (p< 0.05).

This indicates that the overall model was a reasonable fit and there was a statistically significant association between service quality dimension and customer satisfaction. Hence it is concluded that service quality dimensions have a significant impact on customer satisfaction.

Impact of E-Banking Service Quality on Customer Satisfaction

Regression fit is able to predict the customer satisfaction to a good extent. Out of the nine dimension predicting customer satisfaction significance value for tangibility is (p=0.00), credibility (p=0.25), communication (p=0.00), security (p=0.002) and responsiveness (p=0.001) is less than 0.05 at 5% confidence level.

It proves that these dimensions have has a significant effect on customer satisfaction.

4.4 Measuring Relative Strength of Service Quality Dimension On Customer Satisfaction

Service quality is an assessment of the delivered service to the customers. It measures how well the services meet the customer expectations. The service quality is the level of discrepancy between customer expectation from the service and the actual performance of the services. A customer uses a service. The experience of customer results in broader evaluations of services. Since the service industry is customer driven. The customer's word of mouth is the biggest marketing of services. So the service providers pay huge attention to the dimension satisfying the customers. With the context of a developing country like India, customers are moving towards the electronic means of availing services. It can be banking, shopping, travel bookings, online food ordering etc. So it is extremely important for the service providers to concentrate on customers changing taste and habits and create their services as per their needs.

The main use of the regression model is to find out that how much the dependent variable will change with respect to a unit change in an independent variable. Secondly, it helps to predict trends and forecast the effect of the change. Thirdly it measures the strength of the effect of independent variables on the dependent variable. In other words, it provides us the magnitude value of the degree of effect.

In Multiple Linear Regression analysis, the standardized coefficients are expressed in form of Beta, β. All the variables in standardized coefficients are converted into a single metric i.e. standard deviation unit. Then it represents each variable in form of β. The beta magnitude of each variable can be compared easily. The variables which have the highest value are considered to have a strong relationship with the dependent variable. Standardized coefficients from the multiple linear regression models provide an estimate of the variables. It tells us which of the independent variables have the highest association with the dependent variable. Standardized coefficients are also termed as standardized regression coefficients It has been concluded that communication has a strong relationship with customer satisfaction. Since, it has the highest Beta value -.440. The negative sign indicates there exists the inverse relationship between customer satisfaction and communication dimension. One percent changes in communication decrease the customer satisfaction by 44%. The second dimension is security with beta value β=. 263. There exists a positive relationship of security dimension with customer satisfaction. The Beta value for Tangibility dimension is .245. It is the third most correlated dimension with customer satisfaction. Next is Credibility with beta value .231. Responsiveness has the beta value of .204 which makes it fifth most associated dimension with satisfaction. β value for Reliability dimension is .162 which represent the association between reliability and customer satisfaction is 16%. Similarly, Competence has beta value.107, Access has

Beta value β=. 0.81, understanding β=.030 which ranks them seventh, eighth and ninth associated dimensions.

4.5. Assigning Ranks to Service Quality Dimension

Standardized coefficients are useful while comparing effects across different measures. In the context of present study service quality dimensions are the measuring variables which are trying to assess the effect on customer satisfaction. Since the relative strength of each service quality dimension has been measured. It becomes easy to identify the most important dimensions on the basis of the Beta value. The standardized regression coefficient having the highest magnitude value is ranked as the top most important variable among other variables under the study. The standardized coefficients are used as rank predictors. It depicts the relative strength of the independent factors. It provides the absolute ranking to the factors as per their magnitude. The important variable will have maximum absolute value. A standardized coefficient compares the strength of the effect of each independent variable taken up for study. Highest the magnitude value of the beta, strongest is the relationship of the variable with the dependent variable. Standardized coefficient uses standard deviation as their unit. The standardized coefficient may be referred to as Betas, Beta Coefficients, Beta weights or Standardized regression coefficients.

V. SUMMARY OF FINDINGS

It is crucial for the service providers to identify the relevant dimension affecting the service quality. The banks or service providers can identify the flaws in the offered services. They can plan and devise the strategy for improvising the service quality to satisfy their customers. With the dawn of technological innovations, the banking industry has taken up various smart moves to conduct banking practices. Also, the usage of E-Banking services is increasing day by day. It becomes relevant to identify most excellent service quality dimensions offered by any bank or E-Banking service providers. Also, the focus is to identify the weak areas of business operation where the service providers can work upon to make the service better and improvised. The regression model is applied to find the degree of effect of dimensions i.e. service quality variables on the dependent variable i.e. customer satisfaction.

- The results of multiple linear regression models concluded that communication has the highest absolute beta value.-440. So it is ranked number 1st. The negative sign indicates that it has a negative relationship with the customer satisfaction.
- The second rank is assigned to security.
- A third rank is assigned to tangibility.
- The fourth rank goes to credibility.
- A 5th rank is assigned to responsiveness.
- A 6th rank is given to reliability.
- Competence holds 7th rank.
- Access is assigned 8th rank.
- 9th rank is assigned to understanding.

VI. CONCLUSION

It is found that the value of R=.8147, R2= .660 and adjusted R square =.616 with standard error 0.86 implies that nine independent service quality dimensions explained 66% variance over the dependent variable i.e. customer satisfaction.

Also the significance value from ANOVA table indicates there exist a significant association between service quality dimension and customer satisfaction in the study. Out of the nine dimension predicting customer satisfaction significance value for tangibility is ($p=0.00$), credibility ($p=0.25$), communication ($p=0.00$), security ($p=0.002$) and responsiveness ($p=0.001$) is less than 0.05 at 5% confidence level. It proves that these dimensions have has a significant effect on customer satisfaction. In nutshell, this study highlighted the significance of service quality on customer satisfaction. The customer tends to use the service again and again if he is contented with the use of existing services. Hence from the results of the study it has been concluded that tangibility, credibility, responsiveness, security and communication impacts customer satisfaction towards E-Banking services.

REFERENCES

1. Abdul, M.H., and Moydheen, Y.S. (2015). An Empirical Study towards Customer Satisfaction in Internet Banking services with special reference to Tiruchirappalli District. *International Journal of Scientific Research*, 4(5), 3-4.
2. AlHaliq, H.A., and AlMuhirat, A.A. (2016). Customer Satisfaction with Electronic Banking Services In The Saudi Banking Sector. Asian Social Science, 12(5),139-146.
3. Amutha, D. (2016). A Study of Consumer Awareness towards e-Banking "*International Journal of Economics & Management Sciences*,5(4). Doi:10.4172/2162-6359.1000350
4. Anitha, K., and Vasthana., S. (2013). An Exploratory Study on Usage of Technology in Banking Sector. *International Journal of Innovative Research in Science, Engineering and Technology*, 2(11), 6487-6494.
5. Bishnoi, S. (2013). An Empirical Study of Customers' Perception regarding Automated Teller Machine in Delhi and NCR. *Integral Review-A Journal of Management,* 6(1), 47- 60.
6. Basri, S., & Shetty, D. (2018). Predicting E-Banking Adoption: An Evaluation of Perceptions and Behavioral Intentions of Small and Medium Enterprises in Karnataka. *Indian Journal Of Finance*, 12(7), 28-41. doi:10.17010/ijf/2018/v12i7/129969
7. Berry, L.L., Parasuraman, A., and Zeithaml, V.A. (1994). Reassessment of Expectations as a Comparison Standard in Measuring Service Quality Implications for Further Research. *Journal of Marketing*, 58(1), 1-124.
8. Bruce, M. et.al (2017). Examining Factors Influencing E-Banking Adoption: Evidence from Bank Customers in Zambia. *American Journal of Industrial and Business Management,* 7(6)741-759.
9. Chauhan, V., Choudhary., V. and Mathur., S. (2016). Demographic Influences on Technology Adoption Behavior: A Study of E - Banking Services in India. *Prabandhan: Indian Journal of Management*, 9(5), 45-59 . DOI: 10.17010/pijom/2016/v9i5/92571
10. Edmundo, L. (2017). Towards a New Transformation of E-payments Paradigm: A Case Study on Moldovan Public Services. Ph.D. Thesis, KTH Industrial Engineering and Management Industrial Management, Stockholm.
11. Fatemeh, S. (2014). The Impact of Service Quality on Customer Satisfaction in Internet Banking. *Journal of Mathematics and Computer Science*, 9(1) 33-40.
12. Fozia. (2013). A Comparative Study of Customer Perception toward E-Banking Services Provided By Selected Private & Public Sector Bank in India. *International Journal of Scientific and Research Publications,* 3(9), 1-5.
13. Geeta and Surendra, (2014). Internet Banking Service Quality and its Impact on Customer Satisfaction in Indore District of Madhya Pradesh. *International Journal of Business and Management Invention,* 3(3), 1-6.
14. Husnain, M., and Toor, A. (2016). The Impact of E-Banking on Customer Satisfaction: Evidence from Banking Sector of Pakistan," *Journal of Business Administration Research*, 5(2), 27-40.
15. Islam, S. (2015). Analysis of Service Quality and Satisfaction Level of Customers in Banking Sector of Bangladesh. *British Journal of Marketing Studies,* 2(7),14-28.
16. Jayakumar, P., and Sahayaraj, M.V. (2016). A Study on Customer Satisfaction of Modern Banking System," *Intercontinental Journal of Marketing Research Review,* 4(2), 50-55.
17. Jehona, B. (2016). Promotional Strategies of E Banking Service in Kosovo. Ph.D. thesis, Kolegji AAB, Pristine, Kosovo.
18. Jani, S. (2012). A study of Consumer Perception on the use of E-Technology in The Retail Banking Sector: A Comparative Study of Public sector and Private sector banks. *Indian Journal of Marketing,* 42(1),46-58
19. Kotishwar, A. (2018). Impact of Digitalization on Select Banks. *Indian Journal of Finance, 12*(12), 32-51. Doi:10.17010/ijf/2018/v12i12/139890
20. Ladhari, R., Ladhari, I., & Morales, M. (2010). Banking service quality: comparing Canadian and Tunisian customer perception. *International Journal of Bank Marketing*, 29(3), 224-246.

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