International Journal of Multidisciplinary and Current Research ISSN: 2321-3124
Research Article Available at: http://ijmcr.com

Impact of ATM Service Quality on Customer Satisfaction

Gakwavu Patrick Medard and D.Venkatesan

Department of statistics, Annamalai University, India

Accepted 10 April 2016, Available online 13 April 2016, **Vol.4 (March/April 2016 issue)**

Abstract

Nowadays, in the banking industry, electronic services have changed customer behavior and are turning to a high level of quality approaches to help managing both their time and their money. This study aims at analyzing the Automated Teller Machine (ATM) service quality on customer satisfaction. The study reveals that there were internal consistency between factors and from the Cronbach's alpha coefficient, it is observed that there is a strong relationship between ATM service quality and customer satisfaction.

Keywords: *Automated Teller Machine, Service quality, Customer satisfaction, Factor Analysis, Consistency.*

1. Introduction

The contemporary world changes business environment offering challenges and opportunities to the organizations. The number of banks customers who prefer to use self-services is increasing and this preference increases autonomy in executing the transactions. Banks are increasing their technology-based services to remain competitive. The ATM is an innovative service delivery mode that offers many financial services like 24 hours cash withdraw, cash deposit, payment and credit card bills. This paper aims to examine that client's satisfaction and preference is the essential determinant of the technology. Indian customers like the ATM services because it provides satisfaction and render services when customers want it; it is flexible in terms of time and in terms of distance because customers want services nearest to them and ATMs are able to solve that problem because Indian banking sectors are all obliged to deploy ATMs and locate them in all territories of the country including all rural villages. Considering the best services of ATMs in terms of quick delivery of services, flexibility in terms of time (24h/7days), convenience and reliable method of banking, we were motivated by the competence and the effective role of ATMs service for both customers and banks further, it is also ATM service preference and satisfaction for customers took our most interest. The proposed study is relating to the customer satisfaction and ATM operations, which enable us to gain certain insights into the working of rural poor. This study may throw some light on the problems, issues, constraints and limitations of rural customers and may indicate solutions. And to that extent, the study may also help us in the formulation of better operations and in the implementation of electronic services in future.

2. Methodology

The specific objectives of the study are

1) To establish all the significant dimensions of ATM service quality on customer satisfaction in banking sector.
2) To study the relationship between ATM service quality and customer satisfaction in banking sector.
3) To assess the impact of ATM service quality on customers.

A three- stage design is adopted for the study with first stage as District, the second as Town and the third stage as the Customer. Cuddalore district and Chidambaram town have been randomly selected for this study using SRS method and 141 customers have been selected using Systematic Random Sampling plan at the ATM centres of the various banks in and around Chidambaram town. As it is a comprehensive evaluation, primary data were collected at three levels, viz, district, Town, and Customers. The sample customers were interviewed through the structured schedules regarding perception about ATM on five Likert-type scale that varied from "Strongly Disagree" '1' to "Strongly Agree" '5' and other important data were collected with help of discussion. These studies were carried out with a view to seeking clarification and to enforce the quantitative data collected through well planned schedules. All the techniques were followed in order to capture the all type of information needed in keeping with scope of this evaluation of different aspects of study.

Statistical Analysis

The following Statistical Methodology were adopted for the analysis of sample data.

1) Factor Analysis technique was used to establish all the significant dimensions of ATM service quality on customer satisfaction and their relationships and Cronbach's Alpha was used to measure the internal consistency.
2) Application of Chi-Square test of Goodness of fit which can be obtained using the empirical data.
3) Descriptive statistics was used to study customers' characteristics profile.

3. Results and discussion

Descriptive measures for the demographic characteristics have been computed and presented in the following Table 1**:**

Table 1: Highlights demographic characteristics of respondents

Age	Gender	Marital status	Education qualification	Monthly income	N0 of times of using ATM	Period spent using ATM
Age between 20-30 years old	Male	Never married	Bachelor's	Income range between Rs.3,000-Rs.10,000	Use ATM 1 to 2 times per month	Use ATM since 1 to 3 years.
73.8%	53.2%	78.0%	41.8%	25.5%	41.8%	49.6%

Chi-square test is done for testing the discrepancy between theory and experiment.
It enables us to find if the deviation of the experiment from theory is just by chance or it is really due to the inadequacy of the theory to fit the observed data.

Table 2: Results of Chi-square tests for monthly income and number of times using ATM services

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	32.961[a]	16	.007
Likelihood Ratio	35.755	16	.003
Linear-by-Linear Association	.127	1	.722
N of Valid Cases	118		

16 cells (64.0%) have expected count less than 5. The minimum expected count is .66.; Degree of freedom = 16; Chi-square value = 32.961, the distribution in significant at 5% level

Table 3: Communalities

	Variables	Initial	Extraction
X_8	Using ATM is Very Simple	1.000	.528
X_9	Prefer ATM usage For Payments Utility	1.000	.654
X_{10}	Require Nobody To Interpret ATM command	1.000	.632
X_{11}	Use ATM with Bank ATM card Easily	1.000	.709
X_{12}	ATM is Available Everywhere	1.000	.689
X_{13}	ATMs Always Function	1.000	.590
X_{14}	ATMs Work Effectively In Every Banks	1.000	.655
X_{15}	Accessibility Of ATM at Every Close Distance	1.000	.607
X_{16}	ATMs Always Overcrowded	1.000	.697
X_{17}	Using ATM while Other Customers Stand Beside	1.000	.626
X_{18}	Enough Security Guards To Monitor Customers	1.000	.569
X_{19}	Banks Send Alerts On ATM frauds	1.000	.552
X_{20}	ATM makes My Transaction Very Fast	1.000	.673
X_{21}	ATM usage Save Time	1.000	.631
X_{22}	ATM is Nice To Use	1.000	.683
X_{23}	Use Of ATM is Funny	1.000	.725
X_{24}	ATM is Interesting To Use	1.000	.761
X_{25}	Transactions Are Made As I wish	1.000	.480
X_{26}	ATM gives Control Over My Transactions	1.000	.631
X_{27}	Availability Of Deposit System	1.000	.579
X_{28}	Complication On Deposit System	1.000	.593
X_{29}	Trusting ATM is Difficult	1.000	.605
X_{30}	Satisfaction With Deposit System	1.000	.501
X_{31}	Level Of Services Quality Received Is High	1.000	.682
X_{32}	Services Quality Received Is Excellent	1.000	.746
X_{33}	Expectations Meet With Experience	1.000	.602
X_{34}	ATM applications Are Pleasant	1.000	.666
X_{35}	Satisfied With ATM applications	1.000	.638

Extraction Method: Principal Component Analysis

Table 4: Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	5.818	20.777	20.777	5.818	20.777	20.777
2	2.332	8.327	29.104	2.332	8.327	29.104
3	1.867	6.667	35.770	1.867	6.667	35.770
4	1.543	5.512	41.282	1.543	5.512	41.282
5	1.454	5.192	46.474	1.454	5.192	46.474
6	1.292	4.613	51.087	1.292	4.613	51.087
7	1.226	4.378	55.465	1.226	4.378	55.465
8	1.133	4.046	59.511	1.133	4.046	59.511
9	1.042	3.721	63.232	1.042	3.721	63.232
10	.969	3.460	66.692			
11	.954	3.408	70.101			
12	.902	3.222	73.323			
13	.848	3.029	76.352			
14	.787	2.811	79.162			
15	.724	2.585	81.748			
16	.675	2.410	84.157			
17	.596	2.129	86.286			
18	.542	1.937	88.223			
19	.480	1.716	89.939			
20	.460	1.644	91.584			
21	.401	1.431	93.015			
22	.362	1.292	94.307			
23	.344	1.229	95.536			
24	.320	1.142	96.678			
25	.291	1.041	97.719			
26	.250	.891	98.610			
27	.210	.750	99.360			
28	.179	.640	100.000			

Extraction Method: Principal Component Analysis.

Table 5: Rotated Component Matrix

	Component								
	1	2	3	4	5	6	7	8	9
X8	.609	.032	.171	.265	.149	-.028	.138	.018	.119
X9	.177	-.158	.350	.598	.001	-.294	.142	.038	.105
X10	.294	-.148	-.008	.562	-.133	-.070	.120	.381	.163
X11	.785	.008	.185	-.020	-.029	.069	-.067	.017	.219
X12	.014	-.058	-.013	.049	.188	.061	.113	.778	.157
X13	-.146	.482	.152	-.069	.041	-.481	.085	.182	.187
X14	.165	.542	.024	.261	.033	-.306	-.113	-.341	.205
X15	.068	.103	.288	.204	-.061	.132	-.056	.665	-.034
X16	.060	-.070	-.055	-.051	-.032	.784	.087	.183	.162
X17	-.207	.215	-.024	.675	.245	.102	.018	.077	-.060
X18	-.180	.686	.105	-.014	.157	.118	-.029	.080	.095
X19	.345	.092	.087	.135	.546	.127	.288	.024	-.031
X20	.042	.043	.353	.231	.620	.024	-.149	-.212	.198
X21	-.013	-.008	.079	.090	.680	-.211	.152	.226	.187
X22	.418	-.164	.044	-.083	.301	.127	.394	-.003	.459
X23	-.225	.245	.130	.237	-.001	.014	.719	.122	.095
X24	.281	-.052	.160	.008	.181	.067	.783	.008	-.058
X25	.342	.063	.171	.514	.182	.150	.091	.022	.028
X26	.253	.263	.448	.273	.281	-.124	.178	.120	-.286
X27	.249	.438	.007	-.158	.403	-.271	.077	.181	-.162
X28	-.038	.351	.257	.158	-.112	.548	.098	.112	-.206
X29	.224	.704	.085	.072	-.112	.048	.127	-.124	-.017
X30	.419	.353	.017	.051	.306	-.266	.118	.105	-.093
X31	-.014	.169	.708	.140	.208	.070	.251	-.039	.142
X32	.246	.034	.783	-.057	.013	-.097	.114	.160	.139
X33	.159	.092	.305	.018	.104	-.103	.010	.123	.662
X34	.279	.223	.000	.399	.112	.184	-.003	.104	.568
X35	.401	.120	.532	.260	.171	.153	-.113	.197	.092

Extraction Method: Principal Component Analysis; Rotation Method: Varimax with Kaiser Normalization; Rotation converged in 23 iterations

Let us take the null hypothesis that the operations of ATM services among the different categories of customers (based on their income) are not different, i.e; there is no significant difference between the ATM operation with respect to their salary.

Applying Chi-Square of significance it was found that from table 2, the calculated value of Chi-Square was 32.961 and the p-value is 0.007 and therefore, the hypothesis does not hold good (i.e rejected). This means that the ATM operations among the different categories differ significantly.Applying Factor Analysis technique to identify the factors involved in the customer satisfaction and the results are summarized in the tables from 3 to 5. The scree plot identify the number of useful factors. From steep to shallow after the nine factors, the eigenvalues also drops from 1 to less than 1 when we move from factor 10 to factor 11. Hence the above nine significant dimensions are the right choice. Thus only factors with eigenvalues greater than 1 are kept in the model. The extraction method used was principal component with varimax rotation. The constructs explain 63.2% of the total variance.

From tables 3,4, and 5, Factor Analysis established nine significant dimensions which are given by: Convenience, Assurance, Worthiness, Trust, Swiftness, Effectiveness, Enjoyment, Availability and Empathy.

Table 6: Scale Statistics

Mean	Variance	Std. Deviation	N of Items
100.94	171.066	13.079	28

Since individual items cannot have a Cronbach's alpha internal consistency reliability calculated, a combined Cronbach's alpha for all the items was developed.

Table7: Reliability Statistics

Cronbach's Alpha	N of Items
.842	28

The obtained Cronbach's alpha for combined items indicates good internal consistency of the items in the scale. The overall Cronbach's alpha is 0.842. This value is above 0.7, so the scale can be considered reliable. Internal Consistency is equal to Average Inter-item Correlation; Brown formula (Brown, 1910 and Spearman, 1910) to coefficient alpha, thereby estimating the mean of the correlations between items. Since then, internal consistency has been interpreted by some researchers and practitioners (The Briggs & Cheek, 1986; Nunnally, 1978) as the average inter-item correlation and assessed using Cronbach's.

Thus, Cortina, 1993 and Cronbach, 1951 have defined internal consistency as a measure based on the degree of bivariate correlations between different items on the same test (or the same subscale of a composite test). Since the correlations between items, most often than not, vary in size, using the average inter-item correlation is a simple and direct approach to capture the degree of correlation between different items on a test. Hence there is a strong relationship between ATM service quality and customer satisfaction, since Cronbach's alpha does not provide reliability estimates for single items Joseph A.Gliem and Rosemary R.Gliem,(2003), Cronbach' Alpha reliability coefficient for Likert-Type scales.

Conclusion

The major observation and findings of the study are as follows:

The study reveals that there was a great impact of ATM service by the quality on demographic characteristic of customers. Further there is a strong relationship between the monthly income of customers and the number of times of using ATM even though there were many mode for banking systems, viz; online banking, mobile banking etc., due to the established factors like: Convenience, Assurance, Worthiness, Trust, Swiftness, Effectiveness, Enjoyment, Availability and Empathy by the factor analysis.

Further, the study also reveals that there were internal consistency, derived from Cronbach' alpha coefficient, which leads to a positive impact in the usage of ATM and satisfaction over the service quality by the banking sector for the customers. It reveals that the usage of ATM has made an impact in developing the social, economical and living conditions of customers.

Further, the following recommendations are made on the basis of the findings of the study to improve the performance of the quality.

1) Proper education shall help the beneficiaries to come up above the utility level.
2) As per the needs and choice an adequate training should be provided for the rural based customers for operation skill up gradation.

Acknowledgements

The second author acknowledges the UGC, New Delhi for the financial support through the UGC-MRP Project.

References

[1]. Aldlaigan, A.,& Buttle.A.(2002). SYSTRA-SQ: A new measure of banks service quality. *International Journal of Service Industry Management 13(4),362-81*

[2]. Al-Hawari,M.,& Ward,T.(2006). The impact of automated service quality on financial performance and the mediating role of customer retention. *Journal of Financial service Marketing* 10(3), 228-43.

[3]. Andreasen, A.R.(1977).A Taxonomy of consumer satisfaction/dissatisfaction measures. *Journal of consumer Affairs,*11,11-24.

[4]. Basaliza Scovia (2001), Creating competitive advantage in commercial banks; A study of ATM in BCDI
[5]. Bashir Idris (2014), Customer satisfaction of Automated Teller Machine (ATM) based on service quality.
[6]. Briggs & Cheek, 1986; Nunnally, 1978), Inter-item correlation.
[7]. Brown, 1910 and Spearman, 1910) ,Average Inter-item Correlation
[8]. Cortina, 1993 and Cronbach, 1951) , Internal consistency
[9]. Di Angel et Al (2002), Relationship between Hoffstede's cultural value dimensions and ATM's adoption in urban India.
[10]. Gakwavu Patrick Medard (2010), Dissertation: ATM service quality customer preference and satisfaction,case study :Kigali city banks: BCR,KCB and ECOBANK.
[11]. Imtiaz Arif and Mr Wajeeha Aslam,(2014). Students ' Dependence on smart phone and its effect on purchase behavior.
[12]. Intermarc Consulting Limited (2007), ATMs services in Nigeria.
[13]. James Dean Brown,(2002), The Cronbach' alpha reliability estimate.
[14]. Joseph A.Gliem and Rosemary R.Gliem,(2003), Cronbach' Alpha reliability coefficient for Likert-Type scales.
[15]. Joseph A.Gliem and Rosemary R.Gliem,(2003), Cronbach' Alpha reliability coefficient for Likert-Type scales.
[16]. Kanika Verma, (2014) Measuring customer satisfaction towards ATM services a comparative study of Union Bank of India and Yes Bank.
[17]. Lipsey G.Richard, Peter O. Steiner,Douglas D Purvis and Paul N.courant.(1990). Economics, ninth edition, Harper and Row publishers inc., Texas,USA.
[18]. Md Rwazanul Bari, (2006), Understanding of ATM in Bangladesh.
[19]. Muhammad Asif Khan, European Journal of social sciences volume 13, number 3 (2010). An empirical study of Automated teller Machine in Pakistani Banks.
[20]. Surjadjaja, H.,Ghosh,.S.,& Antony, J.(2003). Determining and assessing the determinants of e- service operations. Managing service quality ; 13(1), 39-53.
[21]. Tong , Y.K (2009). A study of e-recruitment technology adoption in Malaysia. Industrial Management & Data systems, 109 (2), 281-300.
[22]. Wole Michael Olatokum & Louisa Joyce Igbinedion (2009), volume 6; The adoption of automatic teller machines in Nigeria.