Retail Banking: Impact of Technology-based Service Quality Dimensions on Customer Satisfaction

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A B S T R A C T

The focus of this paper is to study the customer satisfaction based on influence of employee's perception about banking technology used for retail banking of Public Sector Banks (PSBs) of India. The study was based on primary data collected through structured questionnaire by random sampling. The result suggests that there is need to provide continuous training to employees on effective, secure and safe use of banking technology for increasing employees' overall productivity and building customer loyalty. Identification of these factors may help in better cross-selling and up-selling opportunities for retail banking products and services. This study may enable managers to take better marketing initiatives for existing and prospective retail banking customers.

1. Introduction

More than a decade back bankers started offering innovative and interactive technology-based products and services such as 'Anywhere Anytime Banking', 'ATM Banking', 'Tele-Banking', 'Internet Banking', 'Web Banking', 'Mobile Banking', etc., to their customers to cope up with the competition. Banks have travelled a lot using services of technology for customer relationship management. Now, they are implementing Omni channel.

The relationship marketing approach and the adoption of new technology enables the PSBs to develop a more productive, tailor-made and efficient interaction with their customers. It also enables innovative promotions leading to personalized banking and thus building relationships. Customers regard quality of service; value added benefits, competitively priced and innovative products, and effective delivery channels as most important aspects of banking experience.

Although one of the primary motivations among bankers for adopting these new technologies is the possibility of increasing profitability by lowering the cost of providing retail banking services and attracting new Internet savvy customers, most studies have failed to establish the relationship between technology enabled retail banking and customer acceptance. When there is a question of customer acceptance, it leads to employees, who act, as internal customers and are major source of responsiveness. Because, the employees as first customers may experience the innovative products delivery and they can promote and improve the service quality of retail banking in PSBs effectively.

Most of the researchers have conducted study on customer satisfaction for external customers but very little study have been conducted on internal customer's (employees) satisfaction about using their own technology and service. Satisfied employees may build a strong base for satisfied customers, although many services are available online.

2. Literature review

Retail banking has enabled the banks to extend their relationships with customers by bringing financial services right into their office, home or even in the pocket. It is likely that the customer will stay loyal to the bank if they are involved or interested in more services of the institution. According to Awad (2000), electronic communications promote quick, just-in-time delivery of services and also improve information sharing between banks and customers.

"What keeps the E-banking customer loyal?" is one of the studies on Internet banking that Treiblmaier and Floh (2006) have performed. They have studied the importance of electronic loyalty, trust, website quality (WQ), service quality (SQ) and satisfaction, and have examined the factors encouraging the customer to use Internet banking instead of traditional banking. Hanafizadeh and Rezayi (2008) found that this is also true about banks, which are considered as one of the links in the chain of business, that is, order,

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payment and delivery. In this regard, Heidarzadeh (2011) said that users' lack of preference for adopting electronic method has created a gap, which is seen as a major obstacle to the adoption of Internet banking. Currently, banks are faced with a dynamic environment, and all banks, regardless of their size, have set their goals to attract and retain customers to be able to adjust to rapid changes in competitive situations and market conditions.

Loonam and Deirdre (2008) focused on observing customer perceptions about Internet banking and e-service quality from a user-based perspective within an Irish context. They highlighted the value of the uses and gratifications categorizations system, which provided a key platform to the study of e-service quality and offered e-banking providers a more effective system of serving individual customer e-service needs. Chen et al., (2008) produced an integrated model to synthesize the essence of Technology Readiness Index (TRI), Technology Acceptance Model (TAM), and Theory of Planned Behavior (TBP) to explain customers' continued use of Self-Service Technology (SST). Sangeetha (2012) developed a service quality scale by identifying the dimensions affecting the service quality across various technology interfaces in retail banking and proposed a conceptual model of Technology Interface Service Quality (TISQ) with specific emphasis on the retail banking. As per Internet world stats.com (2013), as the numbers of Internet users exceed 3.3 billion; businesses in world are making the transition from physical space to cyber space. George and Kumar (2014) studied service quality dimensions in Internet Banking in the State of Kerala (India) and investigated the effect of various dimensions on customer satisfaction. The service quality dimensions identified by them were Website attributes, Reliability, Responsiveness, Fulfillment, Efficiency, and Privacy & Security. Gupta and Khanna (2016) studied the influence of customer demographics on usage of retail banking in Indian Context and found that Internet banking is majorly influenced by the customers' demographics; however, age group and qualification influence mobile banking.

This study provides understanding of factors that influence employees (internal customers) perception about bank technology based service quality on customer satisfaction for retail banking. Although many researchers studied on external customers' perception for banks delivery channels, very few research conducted on employees' perception for banks technology based service quality on satisfaction for retail banking.

3. Research Methodology

This study was based on primary data collected through structured questionnaire. The data collected by random sampling and the size of the sample was 795. The target populations for the study are employees (who acts as an internal customers) of the PSBs. A total 27 cities have been surveyed for all PSBs, which contribute almost 75-80 percent of total transaction through retail banking channels. The cities represent metros, class A, and Tier I & Tier II cities.

3.2 Hypothesis

Proposed Model: Employees' Perception for Banks Technology based Service Quality on Customer Satisfaction for Retail Banking

Figure No. 1: Proposed Model for the Study
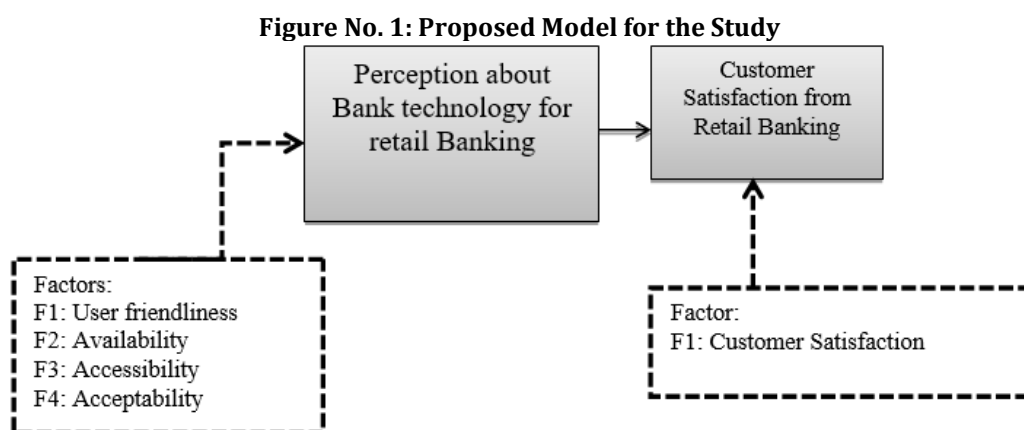
The questionnaire was developed on the basis of literature review and the variables have been labeled as User Friendliness (UF), Availability (AV), Acceptability (AP), Accessibility (AS), and Customer Satisfaction (CS).

A model given in (Figure No. 1) has been proposed to study the factors influencing employees (internal customers) perception about technology-enabled retail banking based on which the following hypothesis have been tested:

H1: The user-friendliness of Banks' technology is having positive influence customer satisfaction for retail banking channels

H2: The availability of Banks' technology is having positive influence customer satisfaction for retail banking channels

H3: The accessibility of Banks' technology is having positive influence customer satisfaction for retail banking channels

H4: The acceptability of Banks' technology is having positive influence customer satisfaction for retail banking channels

4. Data Findings / Analysis
4.1 Respondent Profile
The demographics analysis shows that the respondents of the sample are representative of the population in India on several variables.

Table no.1 - Respondents Demographic Profile

Demographic Characteristics	Count	Percentage	Demographic Characteristics	Count	Percentage
Gender			**Location**		
Female	223	28.1	Urban	251	31.6
Male	572	71.9	Metro	544	68.4
Total	795	100	Total	795	100
Age			**Qualification**		
18-25 years	132	16.6	Undergraduate	20	2.5
26-35 years	241	30.3	Graduate	406	51.1
36-45 years	107	13.5	Post-graduate	318	40.0
46-59 years	297	37.4	Doctoral	2	0.3
Above 59 years	18	2.3	Professional	48	6.0
Total	795	100	Others	1	0.1
Annual Income			Total	795	100
<5 lakhs	331	41.6			
> 5 lakhs to 10 lakhs	439	55.2			
> 10 lakhs	25	3.1			
Total	795	100			

4.2 Exploratory Factor Analysis
The aim of the study is to discover the underlying factor structure that could explain the influence of technology on customer satisfaction. Hence Exploratory Factor Analysis was applied on "perception of employees about quality of service in retail banking delivered through technology", and "overall perception about Bank's retail banking". Principal component analysis (PCA) was used as the method of extraction. On examining the content of the items making up each of the factors (dimensions), labeling of the dimensions have been done as shown below and provide concise definitions for the dimensions.

User Friendliness (UF): Bank's technology is reliable and user friendly, its safe and risk associated is low.
Availability (AV): Bank's technology is easy to use, error-free and allows complete and quick transaction.
Accessibility (AS): Technology is accessible beyond regular business hours, allows freedom of mobility and convenient to use.
Acceptability (AP): Technology provides privacy through personalization and customization, and provides sufficient information as per requirement.
Customer Satisfaction (CS): Overall, the customers are satisfied and delighted with bank's service.

4.2.1 Employee's (Internal Customers) Perception about Banks Technology based Service Quality for Retail Banking
The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test value was 0.896. If the KMO vale is more than the recommended value 0.6, it shows the adequacy of the sample. Bartlett's test of sphericity was 0.000. If this value is ($p < 0.001$), it indicates the significance.
Exploratory Factor Analysis (EFA) was applied to 16 bank's technology based services quality items. As a result, of the analysis, four main factors were extracted and three items were removed, viz. (UF1) – risk

associated with banks technology, (AS4) my bank's customer service people are sympathetic and reassuring and (AP4) my bank's technology saves my lot of time. The factors loading and reliability are described below:

Table 2: Factors Influencing Employee's Perception about Bank's Technology based Service Quality for Retail banking

Factor	Factor Interpretation (% variance explained)	Reliability
F1	User friendliness (18.3%)	0.827
F2	Availability (17.8%)	0.775
F3	Accessibility (13.0%)	0.715
F4	Acceptability (11.5%)	0.592

From the extraction sum of square loading column, we observed that 4 factors are extracted for the study and the cumulative percentage of the factors is greater than 60%, so at this stage the factor analysis is significant. From the rotation sum of square we observed from the column of % of variance the first factor accounts for 18.33% of the variation in the data, the 2nd factor accounts for 17.79%, the 3rd factor accounts for 12.95% and 4th factor account for 11.52%. From the rotation sum of square loading the cumulative percentage cut off is 60%. For our study this value is 60.59%, so whatever factors we are getting are still significant.

User friendliness has been perceived by the employees as the most preferred factor with 82% reliability followed by availability with 77% reliability. Accessibility and acceptability have been identified as 3rd and 4th factor with reliability of 71% and 59% respectively.

4.2.2 Employees (Internal Customers) Perception about Retail banking

The Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy test value was 0.896. If the KMO vale is more than the recommended value 0.6, it shows the adequacy of the sample. Bartlett's test of sphericity was 0.000. If this value is ($p < 0.001$), it indicates the significance.

Totally three items were removed from the analysis and EFA which was applied to 10 overall customer satisfaction from retail banking items. As an analysis of result, two main factors were extracted. Only, customer satisfaction has been considered for the purpose of the study, as the major focus was to understand the influence of technology based service quality on customer satisfaction. The factors loading and reliability were described below:

Table 3: Factors Influencing Employee's Perception about Retail banking

Factor	Factor Interpretation (% variance explained)	Reliability
F1	Customer satisfaction (39.8%)	0.887
F2	Cost effectiveness (30.8%)	0.918

From the extraction sum of square loading column we observed that there are 2 factors extracted for the study and the cumulative percentage is greater than 60%, so at this stage the factor analysis is significant. From the rotation sum of square we observed from the column of % of variance that the first factor accounts for 39.85% of the variation in the data; the 2nd factor accounts for 30.83%.

From the rotation sum of square loading the cumulative percentage cut off is 60%, for our study the value is 70.67%, so whatever factors we are getting are still significant. Customer satisfaction and cost effectiveness have been identified with 88% and 91% reliability respectively. Employees have preferred cost effectiveness as most preferred factor.

4.3 Confirmatory Factor Analysis (CFA)
4.3.1 Employees (Internal Customers)

In the first stage an exploratory factor analysis was performed on 16 variables related to perception about bank's technology based service quality for retail banking and 10 variables related to perception about retail banking. As suggested by Pett et. al. (2003), two-stage criteria have been adopted for extraction of the factors. First the Eigen value should be greater than 1. Secondly, but more important is that the structure of the factor should be conceptually acceptable, meaningful and useful. Table No. 2 and 3 contains the results of the factor analysis and the factors have been labeled as User Friendliness (UF), Availability (AV), Acceptability (AP), Accessibility (AS) and Customer Satisfaction (CS).

Five factors were identified through exploratory factor analysis. Then the confirmation of the structure of the factors and to their reliability and validity for perception about banks' technology for retail banking was needed. Structural Equation Modeling (SEM) using AMOS 2.0 has been used to perform confirmatory factor analysis. This revealed that the measurement items loaded in accordance with the pattern revealed in the exploratory factor analysis.
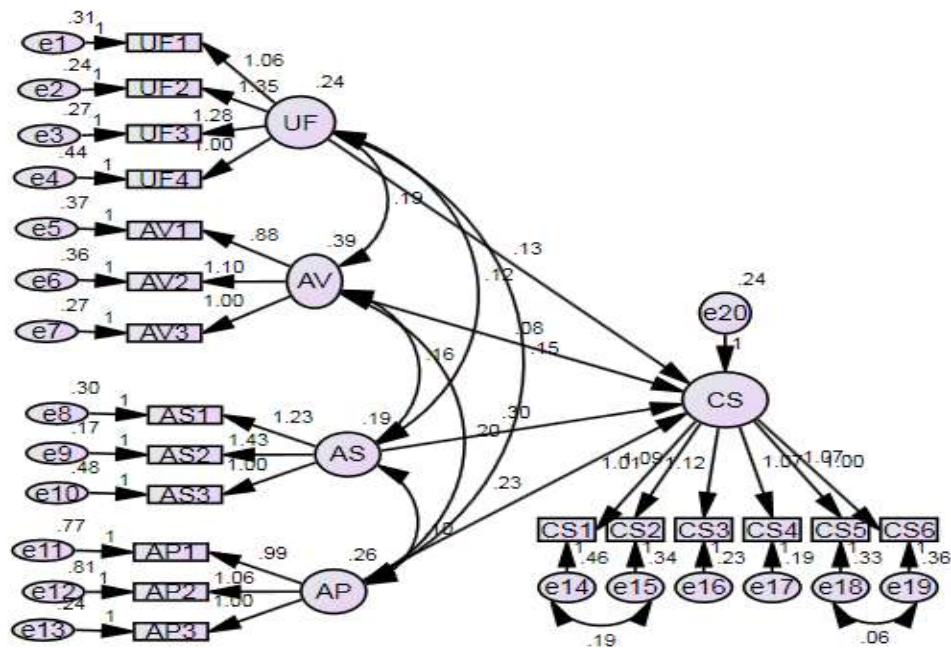

Figure No. 2: CFA for Employees Perception about Bank's Technology based Service Quality on Customer Satisfaction for Retail Banking

Model fit

The measurement model as indicated in (Figure no. 3) represents an acceptable model fit of the data i.e. (c2 = 194.324, df = 59, p< 0.001; c2/df (CMIN) = 3.294; GFI = 0.964; AGFI = 0.944; CFI = 0.959; TLI = 0.946; IFI = 0.959; NFI = 0.942; PNFI = 0.713; PCFI = 0.725; PCLOSE = 0.221; and RMSEA = 0.05). In addition, all the indicators loaded significantly on the latent constructs. The values of the fit indices indicate a reasonable fit of the measurement model with data (Byrne 2001). In short, the measurement model confirms to the four-factor structure for the perception about banks' technology for retail banking.

Influence of technology based service quality dimensions on customer satisfaction

H1 to H4 were examined by using the structural equation modeling (using AMOS 20.0). A confirmatory factor analysis on the measurement model consisting of the perception about banks technology based service quality and customer satisfaction. The measurement model indicated an adequate model fit of the data i.e. (c2 = 378.050, df = 140, p< 0.001; c2/df (CMIN) = 2.700; GFI = 0.953; AGFI = 0.936; CFI = 0.961; TLI = 0.952; IFI = 0.961; NFI = 0.939; PNFI = 0.769; PCFI = 0.787; PCLOSE = 0.858; and RMSEA = 0.04). Discriminant validity results are given in Table no. 4 and the results of hypothesis testing are given in Table no. 5.

Table 4: Discriminant Validity (Correlation Matrix of the constructs)

Parameters	User friendliness	Availability	Accessibility	Acceptability	Customer Satisfaction
User friendliness (UF)	0.870				
Availability (AV)	0.619	0.830			
Accessibility (AS)	0.569	0.599	0.860		
Acceptability (AP)	0.615	0.637	0.475	0.900	
Customer Satisfaction (CS)	0.790	0.790	0.656	0.667	0.680

Table 5: Results of Hypothesis Testing

Hypotheses	Hypothesized paths	Standardized path coefficients	p-value	Results
H1: User friendliness / Customer Satisfaction	CS ⇋ UF	0.168	0.004	Accepted
H2: Availability / Customer Satisfaction	CS ⇋ AV	0.156	0.005	Accepted
H3: Accessibility / Customer Satisfaction	CS ⇋ AS	0.148	0.001	Accepted
H4: Acceptability / Customer Satisfaction	CS ⇋ AP	0.122	0.900	Rejected

The composite reliability was calculated for the factors, which were having above the recommended value of 0.70. The Convergent validity was ascertained by examining the AVE values and measurement item loadings. The factor loadings of all the measurement items and vales of AVE of the factors are greater than 0.5. Hence, it indicates supporting the convergent validity. Table no. 4 contains the discriminant validity of measurement model. It contains the values of AVE of all the quality factors, which are greater than the square of inter-construct correlations. The measurement model reflects good construct validity and desirable psychometric properties.

Table no. 5 reveals that customers' satisfaction determined, in order of importance by User friendliness (c = 0.168, at p, 0.004) and banks' technology availability (c = 0.156, at p, 0.005). Banks' technology accessibility (c = 0.148, at p, 0.001) with the hypothesis accepted and banks' technology acceptability (c = 0.122, at p, 0.900) is not accepted due to lack of confidence in service and banks technology acceptance.

5. Conclusions

The results show that banks need to understand the factors that influenced the perception of an individual to add greater value to customers in terms of delivering banking products and services through retail banking. This study helped in identifying and building the gap between adoption and acceptance of technology for influencing customer satisfaction. Most of marketing decision in terms of enhancing the effectiveness of delivery channels can be taken by considering these factors. There is a need to promote retail banking among their customers by enriching these technologies based service quality dimensions and exuding confidence among the users that their personal information is secured and protected in the bank's system and that their bank will not misuse their personal information. The identification of significant factors about the effectiveness of delivery channels on marketing of technology-enabled banking products and services by Public Sector Banks (PSBs) of India may help in better cross-selling and up-selling of banking. There is need for Streamlining system to have feedback and to analyze the effectiveness and efficiency of retail banking of PSBs of India. The ability to present customized offerings to consumers may bring retail banking into next decade. These dimensions will enable managers to identify the particular dimension taken into account by customers while evaluating the delivery of retail banking through technology. It is particularly important to have better communication with customers to gain their confidence. Inadequate knowledge of technology may lead to gap in delivery of products and services through technology-enabled channels. It makes necessary for managers to have a proper knowledge of customer's preferences about dimensions considered for service quality in retail banking delivered through technology.

If the employees (internal customers) are adopting and accepting the technology advancement, then they will be able to communicate with positivity. This will result in higher adaption and acceptance of technology by customers (end users) for retail banking. These factors may also be used to measure customer satisfaction towards retail banking as well as for increasing customer loyalty.

6. Limitations and Future Research Directions

Our study was limited to the customer's satisfaction of employees of Public Sector Banks (PSBs) of India, so the findings will be applicable to PSBs only. The findings of this study may be used to understand the influence of retail banking services on enhancing the customer satisfaction for the banking sectors.

References

1. Awad, EM (2000). The structure of e-commerce in the banking industry: an empirical investigation. Proceedings of the 2000 A C M SIGCPR conference on Computer personnel research, pp. 144–150.
2. Byrne, B. M. (2001). Multivariate applications book series. Structural equation modeling with AMOS: Basic concepts, applications, and programming. Mahwah, NJ, US: Lawrence Erlbaum Associates Publishers.
3. Chen, A., S.C., Chen, H.H., & Chen, M.F. (2008). Determinants of satisfaction and continuance intention towards self-service technologies. Industrial Management and Data Systems, 109, pp. 1248-1263.
4. George, A. & Kumar, G. (2014). Impact of service quality dimensions in internet banking on customer satisfaction. DECISION. 41. 73-85. DOI:10.1007/s40622-014-0028-2.

5. Gupta, N. & Khanna,V.N. (2016) "Customers Demographics Influence on Usage of Retail Banking Channels," Economics and Applied Informatics, issue 2, pp. 63-69.
6. Hanafizadeh, P and Rezayi, M (2008). Online Advertising and Promotion; Modern Technologies for Marketing, IGI-Global, USA. pp. 1–285.
7. Heidarzadeh, M (2011). Practical Approach to Consumer Behaviour. Azad University, Bandar Abbas, 1, 1–170.
8. Internet world stats.com, (2013).Internet usage statistics. Accessed on December 4, 2015. http://internetworldstats.com/2014/WORLD/08/23/.internet.
9. Loonam, M., & Deirdre, O. (2008). An observation analysis of e-service quality in online banking. Journal of Financial Services Marketing, Vol. 13 No.2, pp. 164-178.
10. Pett, M. & Lackey, N. & Sullivan, J. (2003). Making sense of factor analysis: The use of factor analysis for instrument development in health care research.
11. Sangeetha, J. (2012). Development of a Service Quality Scale for Multiple Technology Interfaces in Commercial Banking. Journal of Internet Banking and Commerce, Vol. 17 No. 3, pp. 1-13.
12. Treiblmaier, H and Floh, A (2006). What Keeps The E-Banking Customer Loyal?, Journal of Electronic Commerce Research, Vol. 7 No. 2, pp. 97–110.