

Customers' Perception of E-Banking: Factor Analysis

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Nowadays banks are working hard to attract customers and retain their market share by providing them with various innovative services through e-banking. The banks are combining new electronic delivery channels almost everyday to their existing services. Bank services are now just at the distance of one click from the mouse. Though e-banking is getting popular and spreading very fast, in India most people do not know it and people who know about it are reluctant to use it due to misconceptions like password hacking, privacy, security etc. The present study investigates the level of awareness among the customers on the use of e-banking and their expectations from e-banking. From the findings of the study, it was inferred that the customers are satisfied with the quality of e-banking services. But they face technical as well as administrative and procedural problems. Further to promote e-banking services, it is of importance that the banks must ensure quality in customer service. 'Quality in work' and 'satisfaction of the customers' are the two key words, which must be given sternest attention to promote a product.

Introduction

In the era of information technology, e-banking has become one of the most revolutionized components of today's economic growth. With the proliferation of internet and computer usage, e-banking has become ideal for banks to meet customer's expectations. The famous quote by Bill Gates that Banking is vital to a healthy economy, but banks themselves are not (Serwer, 1995; Jeevan, 2000; and Verma, 2001) highlighting the crucial nature of the electronic forces that are affecting banks more than any other financial service provider group. Nowadays banks are working hard to attract customers and retain their market share by providing them with various innovative services through e-banking. In the world-banking map, e-banking is gaining prominence globally day by day due to its apparent advantages to customers, business entities as well as the banking industry as a whole.

Electronic banking or e-banking, a web-based service, enables customers to access their accounts. It allows the customers to log on to the bank's website with

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the help of the bank issued identification number. The banking system verifies the user and provides access to the required services. The range of services provided by the e-banking are: internet banking, Electronic Transfer Fund (ETF), Electronic Clearing Services (ECS), tele-banking, mobile banking, Electronic Data Interchange (EDI), Automated Teller Machine (ATM) and so on. The banks are combining new electronic delivery channels almost everyday to their existing services. Bank services are now just at the distance of one click from the mouse. Though e-banking is getting popular and spreading very fast, in India most people do not know it and people who know about it are reluctant to use it due to misconceptions like password hacking, privacy, security, etc. Recent evidence suggests that an internet-based consumer banking strategy may be effective, with reports of more profitable, loyal and committed consumers compared with traditional banking customers (ABA, 2004; and Fox, 2005). The present study investigates the level of awareness among the customers on the use of e-banking and their expectations from e-banking. The paper is set out in four sections. First section deals with the earlier studies on consumer's perception on e-banking services. Second section gives the objectives and methodology employed and limitations of the study. Third section deals with the results, findings of the survey based as an empirical analysis. Fourth section gives the concluding remarks and suggestions.

Review of Literature

A number of studies have been made to analyze the customers views on e-banking services. As Poon (2008) stated with the proliferation of internet and computer usage, the electronic delivery of e-banking service has become ideal for banks to meet customers' expectations.

The most cited attributes that influence the use of e-banking are: convenience of usage (Venkatesh and Davis, 1996., Elizabeth, 1999 and Poon, 2008), perceived ease of use (Davis, 1989; and Wang *et al.*, 2003), perceived usefulness (Davis, 1989; and Wang *et al.*, 2003), credibility (Wang *et al.*, 2003), cost reduction (Devlin, 1995; Gerlach, 2000; and Jun and Cai, 2001; and Poon, 2008), trust (Hoffman *et al.*, 1999), security (Sathye, 1999, and Poon, 2008), awareness (Simon and Victor, 1994), choice of access to bank (Elizabeth, 1999) and bank's reputation (Mois, 1999).

Uppal (2006) using a stratified sampling of 500 bank customers explained the impact of computerization on the satisfaction of customers of all bank groups and concluded that customer services are quite better in fully-computerized banks and further in e-banks as compared to that in partial or non-computerized banks.

Verma (2000) analyzed the impact of IT on public and non-public sector banks. According to the research, IT is a threat for the public sector banks. Non-public sector banks are fully computerized and are providing e-banking services to its customers. The author hence suggested that the public sector banks provide

atisfactory e-banking services to its customers to withstand the threat posed by the competitors.

Brian (2000) proposed a framework for evaluating consumer electronic banking usage such as electronic bill payment, credit cards, debit cards, stored value and e-cash. The author reported that consumers made rational decisions regarding the use of alternative payment instrument rather than irrational resistant to change.

Sakthivel (2008) found that 'convenience' is the most important factor for the customers to go for e-banking services. The most significant problem of e-banking customer was the high minimum balance.

Kamokodi and Basheer (2008) in their interview with 292 e-banking customers observed that technology alone could not give a sustainable competitive advantage for the banks. Personal touch is also necessary for the banks to retain the existing clients.

Uppal (2008) reported that the customers of e-banks were satisfied with the different e-channels and their services. He further suggested that e-banking services should be made more effective in future.

Based on the above literature the present study is an attempt to study the perception of bank customers regarding e-delivery channels.

Objectives of the Study

- To estimate the customer's awareness on e-banking usage;
- To find out the factors which encourage or discourage the customers in the usage of e-banking services; and
- To study and evaluate customer's perceptions and expectations on e-banking.

Methodology

The present study is empirical in nature based on primary data. To collect primary data, a well-structured interview schedule was constructed with both open-ended and close-ended questions. Using the interview schedule a survey was conducted in Coimbatore city among 50 customers of nationalized bank. Convenience sampling technique was adopted in the selection of the bank customers. In tune with prior studies all factors which were expected to affect e-banking services were included in the study. Data was collected in March 2009.

For analyzing the data, percentages, five point Likert Scaling technique, rank analysis and factor analysis were applied. The data was analyzed using Statistical Package for the Social Sciences (SPSS) 16 version.

Results and Discussion

The previous studies on e-banking users have shown demographic profile of the respondents to be one of the factors that influence the adoption/non-adoption of technology-based products and services of the banks. It is held that younger generations are more likely to use e-banking services. The demographic characteristics of the e-banking users of the sample respondents are given in Table 1.

Characteristics	Number	%	Characteristics	Number	%
Education			Occupation		
Graduates	10	20	Teachers	36	72
Post Graduates	21	42	Bank officials	6	12
M.Phil and Ph.D.	6	12	Engineers and Auditors	5	10
Professional	13	26	Students	3	6
Age (years)			Monthly Income (Rs.)		
<20	1	2	<10,000	20	40
20-30	27	54	10,000-20,000	9	18
30-40	13	26	20,000-30,000	25	30
40-50	1	2	30,000-40,000	4	8
50+	8	16	40,000-50,000	2	4

Among the users, 62% were females and the rest 38% were males. The table indicates that majority of the e-banking users (56%) were less than 30 years of age and 82% were below 40 years of age. All the respondents were atleast under-graduates. Among the users, 60% were from the income group of Rs. 10,000 and above. 72% were working in higher educational institutions as either research associates or in teaching profession. Only 6% of the students were e-banking users. It is clear that e-banking users are mostly educated and in the higher income group.

On enquiry it was noted that a majority of 98% of the customers were using e-banking services since 2000, in which 68% started using since 2005. Of late, people have started using e-banking services.

The respondents were asked to assign ranks from 1 to 7 based on their preferences for various e-banking services. Scores were assigned in the reverse order; for rank 1 score 7; for rank 2 score 6 and so on. Table 2 gives the total scores assigned for each of the e-banking services based on the preferences of the respondents.

The customer's highest preference was for ATM with the maximum score of 310, followed by credit and debit cards, mobile and online banking. Tele-banking got the lowest score of 146. On enquiry it was learnt that about 68% of the respondents

E-Banking Services	R-1	R-2	R-3	R-4	R-5	R-6	R-7	Total Scores
ATM	38	-	4	-	8	-	-	310
Credit Card	4	6	23	8	7	2	-	236
Debit Card	3	12	9	10	9	5	2	217
Mobile Banking	1	5	9	7	10	11	7	169
Online Banking	2	6	2	13	11	6	10	167
Smart Card	2	9	2	6	4	14	13	155
Tele Banking	-	12	1	6	1	12	18	146

were aware of the hidden costs and only 32% were ignorant about the hidden costs in the e-banking services.

The respondents recorded their opinion on which of the e-banking services was cost effective on a 5-point scale and the recorded scores and weighted average scores are given in Table 3. The table reveals that ATMs were the most cost-effective with the weighted average score of 1.48. Next to it debit cards, online banking and mobile banking also provide services at a reasonable cost.

E-Banking Channel	SA	A	N	DA	SDA	WAS
ATM	27	20	3	-	-	1.48
Debit Card	16	25	6	2	1	1.06
Online Banking	14	23	9	1	-	1.00
Mobile Banking	13	21	15	1	-	0.92
Credit Card	13	17	9	6	5	0.54
Smart Card	7	16	21	4	2	0.44
Tele Banking	9	16	14	6	5	0.36

Note: SA: Strongly Agree; A: Agree; N: Neutral; DA: Disagree; SDA: Strongly Disagree; WAS: Weighted Average Score.

The frequency of using e-banking services by the selected respondents has been tabulated and is given in Table 4.

As Table 4 shows excepting for ATM cards, the other e-banking services were not used by majority of the respondents. The percentage of the respondents who were not at all using credit cards, mobile banking, smart cards, and tele-banking exceeded 80. Online banking was not at all used by 66% and ATM by 2% of the study group. Among the e-banking services, ATM was the most often used channel by the customers. About 40% of the customers used it regularly and a significant 48% use ATM less than five times in a month. The finding revealed the popularity

of ATM services among the customers. Next to ATM, 10% of the customers use online banking regularly, 8% debit cards services and 6% mobile banking.

Table 4: Frequency of Using E-Banking Services

E-Banking Services Frequency	ATM		Credit Cards		Debit Cards		Mobile Banking		Online Banking		Smart Card		Tele-Banking	
	N	%	N	%	N	%	N	%	N	%	N	%	N	%
Less than 5 times	24	48	8	16	13	26	5	10	10	20	3	6	5	10
5 to 10 times	2	4	2	4	3	6	-	-	1	2	-	-	-	-
10 to 15 times	3	6	-	-	1	2	-	-	1	2	-	-	-	-
Regularly	20	40	-	-	4	8	3	6	5	10	-	-	-	-
Not at all	1	2	40	80	29	58	42	84	33	66	47	94	45	90
Total	50	100	50	100	50	100	50	100	50	100	50	100	50	100

Note: N: Number state.

About 34% of the customers were very much satisfied with e-banking services, 56% satisfied and 10% were neutral. The problems faced by the customers while using e-banking services were listed and based on the severity of the problems, the respondents assigned ranks from 1 to 8. The ranks were converted into scores. Table 5 lists the problems with the ranks and scores assigned.

Table 5: Problems in Using E-Banking

Problems	R-1	R-2	R-3	R-4	R-5	R-6	R-7	R-8	Total Scores
Inadequate knowledge	4	13	2	6	10	4	3	8	231
Lack of knowledge	11	10	4	8	8	6	2	1	277
Lack of infrastructure	4	6	13	9	7	8	1	2	253
Unsuitable location of ATM	4	2	14	10	10	5	3	2	243
Not enough ATM centers	6	7	10	10	8	3	5	1	259
Poor network	7	6	3	5	3	13	10	1	214
Time consuming	8	4	1	-	3	8	24	2	184
No problem	5	2	3	2	1	3	2	32	131

Lack of knowledge (score 277) and insufficient number of ATM centers were the most severe problems faced by the respondents in using e-banking services. The other problems in order of severity were lack of infrastructure, unsuitable location of ATM, inadequate knowledge, poor network and more time consuming.

The respondents were asked to express their opinion on the factors which influenced them in the usage of e-banking services, in a five point rating scale as 'highly agree', 'agree', 'neutral', 'disagree' and 'highly disagree'. The scores for these were assigned as +2, +1, 0, -1 and -2 respectively. Table 6 gives the weightage

Table 6: Factors Influencing the Use of E-Banking

Factors	HA	A	N	DA	HDA	WAS
Accessibility	33	17	-	-	-	1.66
Saves time	31	15	4	-	-	1.54
Location of ATMs	22	20	5	2	1	1.2
Easy to acquire information	29	16	4	1	-	1.46
Self-service	27	18	5	-	-	1.44
More facilities	15	26	7	2	-	1.08
Security/less risk to use	19	15	14	2	-	1.02
Greater control over finance	10	19	11	10	-	0.58
Low hidden cost for services	8	21	13	7	1	0.46

Note: HA: Highly Agree; A: Agree; N: Neutral; DA: Disagree; HDA: Highly Disagree.

Given by the sample respondents on the nine factors, which influenced them in the selection of e-banking.

The respondents highly agreed that the most important factors which influenced them to adopt e-banking services were—convenient accessibility, followed by speed of use, easy availability and self-service. The weighted average scores for these were 1.66%, 1.54% and 1.44% respectively.

On personal interview, it was learnt that majority of the respondents (60%) were visiting the banks two to five times in a month, less than 10% were visiting more than 10 times and 18% occasionally.

The customers assigned ranks for the various purposes for which they visit banks (Table 7). To make mega size deposits (score 265) and for mega withdrawals (score 248) a greater percentage visit banks. It is to be noted here that from ATM, a customer can withdraw a maximum of Rs. 25,000 only per day.

Table 7: Purpose of Visiting the Bank

Purpose	R-1	R-2	R-3	R-4	R-5	R-6	R-7	Total Scores
Mega size deposits	12	21	4	5	1	5	2	265
Mega size withdrawals	14	10	1	16	4	4	1	248
Making complaints	8	3	8	17	8	4	2	216
Getting loans/advances	8	7	7	6	8	12	2	210
To access lockers	1	7	16	3	14	6	3	198
To get new information	4	2	11	3	12	16	2	174
Any other	3	-	3	-	3	3	38	89

The customers were asked to record their opinion on the various aspects of e-banking as 'strongly agree', 'agree', 'neutral', 'disagree', 'strongly disagree'. Scores

were assigned as 2, 1, 0, -1 and -2, respectively. The weighted average scores were calculated and are given in Table 8.

Table 8: Attitudes on Different Aspects of E-Channels						
Statements	SA	A	N	DA	SDA	WAS
E-channels are necessary in the competitive global and new economy of India	24	19	7	-	-	1.36
E-channels ensure privacy	24	18	7	1	-	1.30
E-channels have bright future in global age	26	14	9	1	-	1.30
E-channels improve the quality of customer service in banks	16	26	6	2	-	1.12
E-channels make online purchase of goods and services easier	20	20	5	5	-	1.10
E-channels charge more hidden costs	12	24	10	3	1	0.86
E-channels are fulfilling all our requirement in the e-age	10	18	17	5	-	0.66
More formalities are regarded to get e-channels issued from the banks	8	21	13	7	1	0.56
E-channels are creating more social relations among the bank customers and bank employees	6	19	14	10	1	0.38
E-channels help to manage transformation in banks more efficiently	10	22	16	2	-	0.80
E-channels sometimes; create technical hurdles to make payments	9	22	14	5	-	0.70
E-channels creating more confusion for customers	2	17	19	11	1	0.16
Note: SA: Strongly agree; A: Agree; N: Neutral; DS: Disagree; SDA: Strongly Disagree; WAS: Weighted average score.						

The customers agreed that e-banking ensures privacy and are necessary in the competitive global economy. They also agreed that it has a bright future. For the other issues on e-banking, viz., creating confusion among the customers, hidden cost, etc., they were neutral.

Factor Analysis

To identify the underlying constructs and investigate the relationship among the variables which were supposed to determine or affect consumer's perspectives on e-banking services, factor analysis was applied. Based on the earlier literature, a total of 18 variables were selected. To test the sampling adequacy, Kaiser-Meyer-Olkin measure of sampling adequacy was calculated and it was 0.59. It indicates that the sample is good enough for sampling. The overall significance of correlation matrix was tested with Bartlett test of sphericity (chi-square 369.153 and significant at 0.00). This supports the validity of applying the factor analysis. Principal component analysis was employed for extracting factors. Orthogonal varimax

rotation was applied. The variables whose communalities were greater than 0.50 were retained. The latent root criteria was used for extraction of factors. The factors with eigen-values greater than one were considered.

All the 18 variables had their communalities exceeding 0.50 and were retained for the analysis. Table 9 gives the communalities of the variables.

Variables	Communalities	Variables	Communalities
Cost effective	0.796	Quality	0.686
Access	0.866	Consumer satisfaction	0.773
Accuracy	0.712	Online purchase	0.647
Efficiency	0.723	Social relation	0.724
Security	0.774	Satisfactory service	0.737
Time saving	0.747	High hidden cost	0.825
Risk to use	0.710	Formalities	0.561
Confusion	0.727	Skill required	0.734
Privacy	0.761	Technical hurdle	0.552

For the study, six factors having eigen-values greater than one were extracted. The eigen-values of the six factors along with the cumulative percentage of the variance is shown in Table 10.

Factor	Initial Eigen-Values	% of Variance	Cumulative %
F ₁	4.352	24.178	24.178
F ₂	2.818	15.657	39.835
F ₃	1.857	10.318	50.154
F ₄	1.614	8.968	59.122
F ₅	1.296	7.198	66.320
F ₆	1.119	6.217	72.539

The percentage of the total variance which is used as an index to determine how well the factor solution accounts for what the variables together represent was found to be 72.539%.

Table 11 gives the factor loading of the variables under each of the six extracted factors.

The first factor F₁ is the consumer's satisfaction which includes 'cost effective', 'ensuring quality in customer's service', 'necessity in the global competitive economy to satisfy customers and enabling online purchases'. This is the most important factor which explains 24.18% of variance before rotation.

Variables	F ₁	F ₂	F ₃	F ₄	F ₅	F ₆
Cost-effective	0.654					
Access						0.784
Accuracy			0.548			
Efficiency				0.774		
Security				0.865		
Time saving						0.742
Risk to use					0.627	
Confusion					0.744	
Privacy			0.865			
Quality	0.670					
Consumer	0.783					
Satisfaction	0.764					
Online purchase		0.791				
Social relation			0.675			
Satisfactory service					0.779	
High hidden cost		0.515				
Formalities		0.717				
Skill required		0.648				
Technical hurdle						

The second factor F₂ is the problems that the customers encounter in e-banking usage which can be termed 'problems in e-banking'. It includes the formalities, technical hurdles, less social relation with banks and skill upgradation. Factor 2 explains 15.66% of the variance of the variables.

The third factor F₃ stands for 'banks reliability' which included 'accuracy', 'privacy', and satisfactory service from the e-banking user's perception. F₃ explains about 10.32% of the variations and the first 3 factors together explained 50.15% of the variations.

The fourth factor F₄ again stands for 'bank's efficiency' which included 'efficiency', and provision of security to their customers. These variables have factor loadings exceeding 0.77.

The fifth factor F₅ is negative factor on e-banking usages which included high hidden cost, confusion and risk to use with correlation of 0.779, 0.774 and 0.627, respectively.

The sixth factor F₆ is 'accessibility' which includes access and less time consuming.

Conclusion

The customers are satisfied with the quality of e-banking services. But the study shows that among the varied e-banking services, only ATM is more popular which is most cost effective. While using e-banking services the customers faced problems such as technical hurdle, more formalities, less social relation with banks, skill upgradation, lack of knowledge and insufficient number of ATM centers. To popularize the e-banking services, it was felt that more training programs must be conducted for bank customers through demo fair at the centers.

Further, the empirical analysis revealed that in the global competition world, to promote e-banking services it is of paramount importance that 'the banks must ensure quality in customer service. 'Quality in work' and 'satisfaction of the customers' are the two key words which must be given sternest attention to promote a product.

Limitations of the Study:

- The number of respondents were relatively small.
- The study was carried out at the micro level, concentrating on the customers of only one branch of a nationalized bank.
- Non-probability convenience sampling technique was applied in the selection of bank customers. ❌

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