Service quality evaluation in internet banking: an empirical study in India

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Abstract: This study aims at evaluating the service quality of internet banking (i-banking) services in India from customer's perspective. A structured questionnaire containing 44 quality items is administered to various target groups. Seven quality dimensions, viz. reliability, accessibility, user-friendliness, privacy/security, efficiency, responsiveness and fulfilment, are identified based on principal component factor analysis. Demographic analysis of data reveals that gender is hardly a bias for use and evaluation of service quality of i-banking in most of the cases across various categories of customers. A valid mathematical model is proposed to assess the overall service quality using regression analysis. The results show that customers are satisfied with quality of service on four dimensions such as reliability, accessibility, privacy/security, responsiveness and fulfilment, but least satisfied with the 'user-friendliness' dimension. The empirical findings not only prioritise different parameters but also provide guidelines to bankers to focus on the parameters on which they need to improve.

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1 Introduction

The service industries are mostly customer driven and their survival in competitive environment largely depends on quality of the service provided by them. In this context, quality of service furnished by banking sector is very important and profitability of their business is closely connected to the quality of service they render (Zahorik and Rust, 1992; Rust et al., 1994; Rust et al., 1996).

Businesses seeking to improve profitability are, thus, advised to monitor and make improvements to their service quality on an ongoing basis (Gerrard and Cunningham, 2005). Technology plays a vital role in improving the quality of services provided by the business units.

One of the technologies which really brought information revolution in the society is Internet Technology and is rightly regarded as the third wave of revolution after agricultural and industrial revolution.

Advent and adoption of internet by the industries has removed the constraint of time, distance and communication making globe truly a small village. Financial sector being no exception, numerous factors such as competitive cost, customer service, increase in education and income level of customers, etc. influence banks to evaluate their technology and assess their electronic commerce and internet banking (i-banking) strategies. Internet banking allows banking from anywhere, anytime and is used for transactions, payments, etc. over the internet through a bank, a credit union or society's secure website. So, basically, in i-banking a client has one-to-one interaction with the bank's website, and in such a situation it is essential on the part of bank to provide high-quality services over the internet. So, in contrast to traditional banking, i-banking involves non-human interactions between customers and online bank information system. Customer satisfaction, customer retention and new customer acquisition are the key factors in i-banking system. This becomes more important since the acquisition costs in online banking exceed that of traditional offline business by 20%–40% (Reibstein, 2002). Providing i-banking is increasingly becoming a 'need to have' than a 'nice to have'

service. The i-banking, thus, now is more of a norm rather than an exception in many developed countries due to the fact that it is the cheapest way of providing banking services (Arunachalam and Sivasubramanian, 2007).

Internet banking is a new delivery channel for banks in India. The i-banking channel is both an informative and a transactional medium. However, i-banking has not been popularly adopted in India as expected (Ravi et al., 2007). Malhotra and Singh (2007) carried out a study to find the i-banking adoption by the banks in India. The study suggests that larger banks or banks with younger age, private ownership and lower branch intensity possess high probability of adoption of this new technology. Banks with lower market share also perceive i-banking technology as a means to increase the market share by attracting more and more customers through this new channel of delivery. However, the service quality in i-banking from customers needs thorough analysis to find out the determinants for success and growth of new channel of delivery in India so that useful guidelines for bankers can be extracted. To this end, this study aims at determining the service quality of banks operative in India with regards to i-banking and identifying the important parameters crucial for service quality from customer's perspective. The study also explores the importance of parameters across the demographic profile of the respondents.

2   Development of i-banking in India

The financial reforms that were initiated in the early 1990s and the globalisation and liberalisation measures brought in a completely new operating environment to the banks. The bankers are now offering innovative and attractive technology-based services and products such as 'Anywhere Anytime Banking', 'Tele-Banking', 'Internet Banking', 'Web Banking', etc. to their customers to cope with the competition. The process started in the early 1980s when Reserve Bank of India (RBI) set up two committees in quick succession to accelerate the pace of automation of operations in the banking sector. A high-level committee was formed under the chairmanship of Dr. C. Rangarajan, then Governor of RBI, to draw up a phased plan for computerisation and mechanisation in the banking industry over a five-year time frame of 1985–1989. The focus by this time was on customer service and two models of branch automation were developed and implemented. Having gained experience in the earlier mode of computerisation, the second Rangarajan committee constituted in 1988 drew up a detailed perspective plan for computerisation of banks and for extension of automation to other areas such as funds transfer, e-mail, BANKNET, SWIFT, ATMs, i-banking, etc. The Government of India enacted the Information Technology Act, 2000 (generally known as IT Act, 2000), with effect from 17 October 2000 to provide legal recognition to electronic transactions and other means of electronic commerce. RBI had set up a 'Working Group' on i-banking to examine different aspects of i-banking. The Group had focused on three major areas of i-banking such as (1) technology and security issues, (2) legal issues and (3) regulatory and supervisory issues. RBI had accepted the recommendations of the 'Working Group', and accordingly issued guidelines on 'internet banking in India' for implementation by banks. The 'Working Group' has also issued a report on i-banking covering different aspects of i-banking.

Internet banking in India is currently at a nascent stage. While there are scores of companies specialising in developing i-banking software, security software and website

designing and maintenance, there are few online financial service providers. ICICI bank is the first one to have introduced i-banking for a limited range of services such as access to account information, correspondence and, recently, funds transfer between its branches. ICICI is also getting into e-trading, thus offering a broader range of integrated services to the customer. Several finance portals for provision of non-banking financial services, e-trading and e-broking have come up. Commercial applications such as Electronic Bill Presentment (EBP) and Procurement systems may not be introduced in India immediately, but are likely to have a greater impact than the retail applications. The corporate sector is adequately computerised and has already recognised the important role of e-commerce in future. Increasingly, companies are setting up websites even where there are no immediate tangible benefits to them from doing so.

3 Status of i-banking in India

In Indian context, many publications throw light over the importance of i-banking and also its prospects for the Indian banking industry. Unnithan and Swatman (2001) studied the drivers for change in the evolution of the banking sector, and the move towards electronic banking by focusing on two economies, Australia and India. The study found that Australia is a country with internet-ready infrastructure as far as telecommunication, secure protocols, PC penetration and consumers' literacy are concerned. India, by comparison, is overwhelmed by weak infrastructure, low PC penetration, developing security protocols and consumer reluctance in rural sector. Although many major banks have started offering i-banking services, the slow pace will continue until the critical mass is achieved for PC, internet connections and telephones. However, the upsurge of IT professionals with growing demands is pressuring the government and bureaucracy in the country to support and develop new initiatives for a faster spread of i-banking.

Rao and Prathima (2003) provided a theoretical analysis of i-banking in India, and found that as compared to the banks abroad, Indian banks offering online services still have a long way to go. For online banking to reach a critical mass, there has to be sufficient number of users and the sufficient infrastructure in place. Various authors have found that i-banking is fast becoming popular in India (Gupta, 1999; Pegu, 2000; Dasgupta, 2002). However, it is still in its evolutionary stage. By the year 2006–2007, a large sophisticated and highly competitive i-banking market will develop. Almost all the banks operating in India are having their websites, but only a few banks provide transactional i-banking. A survey carried out by Malhotra and Singh (2006) shows that only 48% of the commercial banks operating in India as on March-end 2005 offers i-banking.

In India, comparatively less number of studies have been conducted on the current status of i-banking and customer satisfaction compared to other countries. Thus, there is a lot of scope for the research to present new ideas concerning i-banking in India which may be useful to the Indian banking industry. There are a series of papers that observe that i-banking has revolutionised the banking industry and the banking industry is under pressure to offer new products and services. However, to succeed in today's electronic markets a strategic and focused approach is required.

4   The internet users in India

The role of internet is becoming inevitable to corporate and society. Across the world, governments and corporate are increasingly working towards the better utilisation of the internet. The internet which was initially perceived as a communication media is now metamorphosing into a powerful business media (Sakkthivel, 2006).

According to the Internet & Online Association of India (IOAI), the Indian internet population is currently over 25 million and is expected to grow to 100 million by 2007 (Survey by New Media Review, 2005). In July 2005, Internet World Stats reported that there were 39,200,000 internet users in India representing 3.6% of the population. (Internet World Stats, August 2005). Even with millions of web users in its cities, the internet penetration rate for India remains well below 5%. Despite India's technology outsourcing power, the country's internet penetration rate is low. JuxtConsult, a research firm based in New Delhi, surveyed urban internet users in April 2005 by talking to 30,000 Indian web users about their lifestyle and their web use. There are about 17.5 million urban dwellers in India who use the internet consistently with an additional 5.2 million who use it occasionally.

Among the urban users surveyed by JuxtConsult, about one half are involved in business in some way, and students make up 20% of the total. Three out of four users have a car and 50% have a credit card. Urban internet users in India by occupation in April 2005 (as a % of total) are as follows:

- senior executive: 22%
- junior executive: 22%
- student: 20%
- self-employed: 10%
- businessman/industrialist: 03%
- small businessman/traders: 03%
- housewife: 02%
- other: 18%.

Over 50% of web users in Indian metropolitan areas are between the ages of 19 and 30, with an additional 22% between 31 and 40. Users under the age of 18 are rare (e-Marketer, August 2005).

- 13–18:   03%
- 19–24:   29%
- 25–30:   32%
- 31–40:   22%
- 42–55:   11%
- 55+:   03%.

Thus, in India, slowly but steadily, the Indian customer is moving towards i-banking. A number of banks have either adopted i-banking or are on the threshold of adopting it. The banks started i-banking initially with simple functions such as getting information about interest rates, checking account balances and computing loan eligibility. Then, the services are extended to online bill payment, transfer of funds between accounts and cash management services for corporate. Recently, banks have started to facilitate payment of e-commerce transactions by directly debiting bank accounts or through credit cards. It will add to the revenues of the bank.

5 Service quality in the context of i-banking

The definition of quality is contextual one and differs from person to person. In general, the quality is basically classified into five categories, viz. transcendent, product led, process or supply led, customer led and value led. The definition of service quality is based on customer-led quality definition where quality is defined as satisfying customer's requirements (Deming, Juran, Feigenbaum and Ishikawa), relying on the ability of the organisation to determine customers' requirements and then meet these requirements. Basically, service quality in i-banking can be viewed from two perspectives:

- customer perspective
- bank perspective

5.1 Customer perspective

From the perspective of the customer, the service quality differentiates sought quality and perceived quality. Sought quality is the level of quality customers explicitly or implicitly demand and expect from service providers. The sought quality (customer expectations) is created due to several factors – primarily, the expectations are formed during a previous personal experience of a customer with a service, and the customer is influenced by the experiences of the other users and by the image of an organisation. Perceived quality means the overall impression a customer has and experiences about the level of quality after service realisation. The potential difference between the sought quality and the perceived quality gives the service provider an opportunity to measure customer satisfaction based on formulating the precise and actual criteria according to which the customers are assessing the services.

5.2 Providers perspective

From the provider perspective, there are target quality and delivered quality. The focus of process- or supply-led quality definition is rather internal than external, and it is defined as conformance to requirements. It lays emphasis on the importance of the management and the supply-side quality, and there is an important role of the process in determining the quality of outcome (Ghobadian, 1994). Achieving the quality of conformance between the planned (target) quality level and the real quality delivered to customers depends on the service quality management system in an organisation.

6   E-service quality dimensions in i-banking

Researchers have paid much attention to the close relationships between service quality and customer satisfaction (Parasuraman et al., 1988). Oliver suggests that service quality is a more specific judgement which can lead to a broad evaluation of customer satisfaction (Oliver, 1993). Regarding the particular service quality dimensions that influence the formation of customer satisfaction, Johnston (1995, 1997) has found that the causes of dissatisfaction and satisfaction are not necessarily the same. Some service quality attributes may not be critical for consumer satisfaction but can significantly lead to dissatisfaction when they are performed poorly. The same author has further classified all dimensions into enhancing (satisfiers), hygiene (dissatisfiers) and dual factors. Enhancing factors are those which will lead to customer satisfaction if they are delivered properly, but will not necessarily cause dissatisfaction if absent. In contrast, hygiene factors will lead to customer dissatisfaction if they fail to deliver, but will not result in satisfaction if they are present. Dual factors are those that will have an impact on both satisfaction and dissatisfaction. Johnston (1995) identified attentiveness, responsiveness care and friendliness as the main sources of satisfactions (satisfiers) in banking services, and integrity, reliability, availability and functionality as the main sources of dissatisfaction (dissatisfiers).

Yang et al. (2004) identified five online service quality dimensions (responsiveness, reliability, competence, access and security) and their relationships with the customer satisfaction. Wolfinbarger and Gilly (2002) observed that reliability and fulfilment are the strongest predictors for customer satisfaction. Liu and Arnett (2000) identified five critical dimensions of online service quality in relations to customer satisfaction in the website. Among these, the quality of information that is relevant, accurate, timely, customised and complete are given priority for the customer satisfaction in the online service. The study by Khalil and Pearson (2007) has found that trust significantly affects attitude towards i-banking acceptance. To encourage i-banking adoption, banks need to develop strategies that improve the customer's trust in the underlying technology. The other factors include quick response, assurance, follow-up and empathy. Security, correct transaction, customer control on transaction (personalisation), order tracking facilities and privacy are other important factors in the online service that affect the customer satisfaction.

Joseph et al. (1999) investigated the influence of internet on the delivery of banking services. They found six underlying dimensions of e-banking service quality such as convenience and accuracy, feedback and complaint management, efficiency, queue management, accessibility and customisation. Jun and Cai (2001) identified 17 service quality dimensions of i-banking service quality. These are reliability, responsiveness, competence, courtesy, credibility, access, communication, understanding the customer, collaboration, continuous improvement, content, accuracy, ease of use, timeliness, aesthetics, security and divers features. They also suggested that some dimensions such as responsiveness, reliability and access are critical for both traditional and internet banks. Jayawardhena (2004) transforms the original SERVQUAL scale to the internet context and develops a battery of 21 items to assess service quality in e-banking. By means of an Exploratory Factor Analysis (EFA) and a Confirmatory Factor Analysis (CFA), these 21 items are condensed to five quality dimensions: access, website interface, trust, attention and credibility.

7   Research methodology

One of the primary concerns of this paper is to identify the important parameters affecting the service quality of i-banking. To determine the dimensions of i-banking and their relationships with the overall service quality, a questionnaire survey was conducted. The questionnaire is finalised using focus group discussion with ten i-banking user and a detailed discussion with the managers of four banks including public sector, private sector and foreign banks. The questionnaire consists of two parts. The first part comprises 12 questions concerning the demographic profile of the respondents and the second part consisting of 32 questions explore the respondent's perception about the service quality of i-banking. In the last question, the respondents are asked about the overall ranking of the quality of i-banking.

7.1   Data collection

Customers with at least one year of experience in i-banking in India are identified by visiting retail branches/ATM branches of different banks across the country. A total number of 2500 IDs are collected from the selected banks (Public sector bank: 1556, Private sector bank: 647 and Foreign bank: 297). The survey instrument is administered through the medium of internet with an e-mail attachment of the questionnaire to all 2500 IDs collected. By the cutoff date (31 March 2006), 529 messages are returned undelivered, 605 have not responded and 223 responses are incomplete. Finally, 1143 usable responses have been received which are about 46% of the total e-mails sent. Among these usable responses, the shares of public sector, private sector and foreign banks are of 45% (700), 51% (330) and 38% (113), respectively.

8   Results and discussions

The collected data is subjected to various statistical analysis such as factor analysis, testing of hypotheses and regression analysis using SPSS 14.0 to have an insight into the responses collected.

8.1   Factor analysis

First, the factor analysis is used to remove the redundant (highly correlated) variables from the survey data and to reduce the number of variables into definite number of dimensions. The application is done using SPSS 14.0. The factor analysis is performed using the principal component extraction method with varimax rotation. In the initial application, the number of variables is reduced from 44 to 26. In the second application, these 26 variables are classified under seven dimensions based on their factor-loading score. The sorted rotated values of factor loading with minimum value of 0.5 or more are considered and are shown in Table 1.

Table1   Sorted rotated factor loadings with varimax rotation

Variable no.	Variable definition	F_1	F_2	F_3	F_4	F_5	F_6	F_7
Var 1	Information that is provided is accurate	0.947						
Var 2	The web pages are functioning properly	0.840						
Var 3	Information content and texts are easy to understand	0.783						
Var 4	Links are problem-free, accurate and the pages download quickly	0.587						
Var 5	The bank's site has unrestricted access to all financial information		0.959					
Var 6	The bank provides the updated technology regularly for i-banking		0.799					
Var 7	The web pages do not freeze after you have put in all your information		0.615					
Var 8	The bank is easy to approach and contact		0.605					
Var 9	The website is available in the language you can understand			0.859				
Var 10	The bank's site provide information about the transactions and products			0.841				
Var 11	Personalisation of bank's site for customers' personal requirement			0.788				
Var 12	The bank authority care to listen to your queries and meet your personal needs			0.672				
Var 13	You can rely on bank for not misusing your information				0.893			
Var 14	You can rely on the personal information remaining in the register				0.883			
Var 15	The bank provides financial security and confidentiality				0.700			

Table 1   Sorted rotated factor loadings with varimax rotation (continued)

Variable no.	Variable definition	F_1	F_2	F_3	F_4	F_5	F_6	F_7
Var 16	The bank's site is secured for your credit card information				0.560			
Var 17	The bank's site is easy to navigate and simple to use					0.833		
Var 18	The speed of login of your account is fast					0.812		
Var 19	The speed of logout of your account is fast					0.807		
Var 20	It is easy to find policy and notice statement on the bank's site					0.750		
Var 21	The bank takes care of problems properly and compensate for the problems they create						0.936	
Var 22	Knowledge and skill of the contact personnel						0.836	
Var 23	You are able to talk to a customer service representative in the bank over telephone						0.604	
Var 24	The bank is willing to help customers, provide appropriate information and prompt service						0.557	
Var 25	The bank's site performs the service right at the first time							0.812
Var 26	The bank's site provides a confirmation of the service ordered quickly							0.740

Based on the results of factor analysis, the variables are classified into seven dimensions, which are suitably named. The dimensions and the corresponding variables are shown below.

Dimensions	*Variables*
Reliability (X_1)	Var 1, Var 2, Var 3,Var 4
Accessibility (X_2)	Var 5, Var 6, Var 7,Var 8
User-friendliness (X_3)	Var 9, Var 10, Var 11,Var 12
Privacy/security (X_4)	Var 13, Var 14, Var 15,Var 16
Efficiency (X_5)	Var 17, Var 18, Var 19,Var 20
Responsiveness (X_6)	Var 21, Var 22, Var 23,Var 24
Fulfilment (X_7)	Var 25, Var 26

Generally, factor loading represents how much a factor explains a variable. High loading indicates that the factor strongly influences the variable. Assuming a factor loading of more than 0.80 as having high impact on the variables, it is concluded from the above Table 1 that some variables which are less than 0.80 need attention for the quality improvement of i-banking in the Indian context.

8.2   *Importance of dimensions*

The responses of all the respondents are averaged across the seven dimensions and are plotted against the respondent scores in Figure 1.

Figure 1   Importance of service quality dimensions from customers' perspectives (see online version for colours)
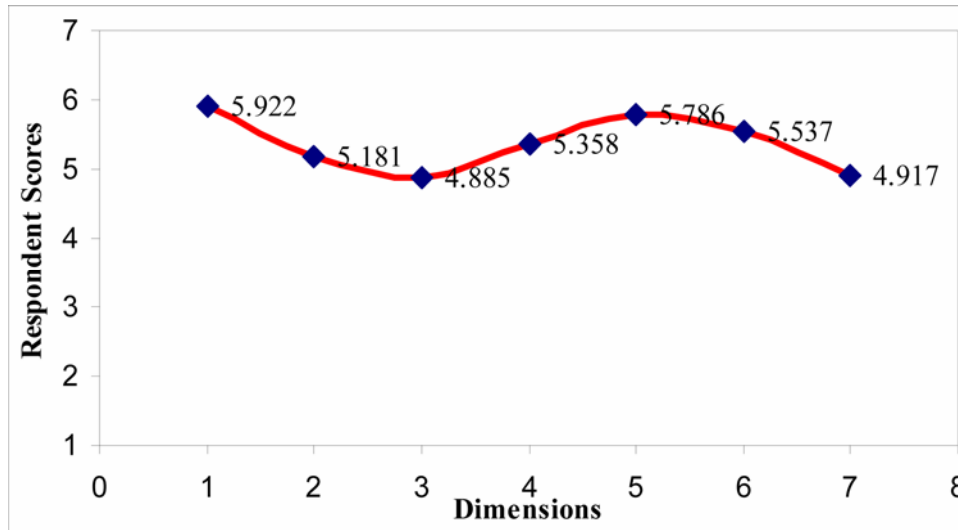
The graph shows that the dimensions such as reliability, accessibility, privacy/ security, responsiveness and fulfilment are rated between '5' and '6' by the customers. This indicates that the respondents rate these dimensions between 'somewhat agree' and

'partially agree' with the facilities provided by the bankers. The dimensions 'user-friendliness' and 'fulfilment' are scored below 5 by the customers. The maximum average score is given to 'reliability' indicating that the customers are generally satisfied with the service they are getting from the bankers. The least score has been given to 'user-friendliness' leading to the dissatisfaction of customers and suggests a scope of improvement for bankers in this parameter.

8.3 Correlation analysis

To find the degree of association between the dimensions identified correlation analysis is applied. The correlation coefficients between the various dimensions are calculated and are shown in Table 2.

Table 2 Correlation between dimensions

Dimensions	X_1	X_2	X_3	X_4	X_5	X_6	X_7
X_1	1						
X_2	.731** (.000)	1					
X_3	.377** (.000)	.091** (.004)	1				
X_4	.398** (.000)	.278** (.000)	.644** (.000)	1			
X_5	.086** (.000)	.081* (.011)	.389** (.000)	.404** (.000)	1		
X_6	−.200** (.000)	.018 (.562)	.022 (.491)	.265** (.000)	.015 (.645)	1	
X_7	−.190** (.000)	.066* (.037)	−.130** (.000)	.048 (.129)	−.128** (.000)	.751 (.000)	1

Note: * Correlation is significant at the 0.05 level (2-tailed).

** Correlation is significant at the 0.01 level (2-tailed).

It is interesting to observe the highest degree of significant positive correlation between X_7 (fulfilment) and X_6 (responsiveness). A high degree of significant positive correlation is also observed between reliability (X_1) and accessibility (X_2), privacy/security (X_4) and user-friendliness (X_3). Again, most number of negative correlations is observed in the row containing X_7 with X_1, X_3, and X_5, but these correlations are of low degree.

8.4 Regression analysis

Now, to gain a deeper understanding of the relationship between the overall service quality of the i-banking and the identified dimensions, regression analysis is used. The independent variable and the dependent variable used in the regression analysis are as follows.

- *Independent variables*: The proposed seven dimensions are treated as independent variables for the regression equation. These are: 'Reliability' (X_1), 'Accessibility' (X_2), 'User-friendliness' (X_3), 'Privacy/Security' (X_4), 'Efficiency' (X_5), 'Responsiveness' (X_6) and 'Fulfilment' (X_7).

- *Dependent Variable* (*Y*): The overall quality of i-banking services perceived and rated by customers is treated as dependent variable.

The mathematical representation of the regression equation can be written as follows:

$$Y = b_0 + b_1 X_1 + b_2 X_2 + b_3 X_3 + b_4 X_4 + b_5 X_5 + b_6 X_6 + b_7 X_7 \qquad (1)$$

where value of dependent variable b_0 = constant when values of independent variables are zero

= also called intercepts, because it determines where the regression line meets the *Y*-axis

$b_1 \ldots b_7$ = coefficients that represent the estimated change in mean value of dependent variable for each unit change in the independent variable values.

Now, considering the values from the Table 3, the regression equation will be in the following form:

$$Y = 1.93 + 0.0970 X_1 - 0.133 X_2 - 0.105 X_3 + 0.0446 X_4 - 0.0910 X_5 + 0.806 X_6$$
$$+ 0.0095 X_7 \qquad (2)$$

Table 3   Relationship between overall service quality and dimensions

Independent variables	Coefficients	Std. error coefficient	t	p
Constant	1.9332	0.2683	7.21	0.000
X_1	0.0969	0.0353	2.75	0.006
X_2	−0.1334	0.0552	−2.41	0.016
X_3	−0.1050	0.0388	−2.70	0.007
X_4*	0.0446	0.0296	1.50	0.133
X_5	−0.0910	0.0323	−2.82	0.005
X_6	0.8057	0.0201	40.11	0.000
X_7*	0.0095	0.0161	0.59	0.554

Note: R^2 = 61.2%; R^2 (adj.) = 61.0%.
        Statistically not significant.

It is observed from Table 3 that the relationship between the overall service quality (*Y*) and the various dimensions ($X_1 \ldots X_7$) are more or less statistically significant at 95% confidence level ($p < 0.05$). Also, the adjusted R^2 value is 0.61, which indicates that the relationship is statistically significant. Five dimensions such as 'Reliability' (X_1), 'Accessibility' (X_2), 'User-friendliness' (X_3), 'Efficiency' (X_5) and 'Responsiveness' (X_6) are statistically significant ($p < 0.05$). In addition, the 'Responsiveness' (X_6) dimension has the greatest influence on overall service quality followed by 'Reliability' (X_1), 'Accessibility' (X_2). However, two dimensions, 'Privacy/Security' (X_4) and 'Fulfilment' (X_7) are not statistically significant, indicating further improvement in these dimensions.

8.5 *Demographic characteristics of the respondents*

In order to investigate the impact of service quality dimensions on the demographic profile of the respondents, we conducted a two-sample *t*-test to examine whether the mean difference in the response rate of male and female for various professions is statistically significant or not. The hypothesis tests are done in *t*-statistics as follows:

Null hypothesis:	$H_0: \mu_1 - \mu_2 = 0$
Alternative hypothesis:	$H_1: \mu_1 - \mu_2 \neq 0$
Level of significance:	$\alpha = 0.01$
Criterion:	Reject null hypothesis if $t > t_{\alpha/2}$ or $t < -t_{\alpha/2}$.

The responses of male and female for various professions, age group and income group are sorted out from the main survey data for the two-sample *t*-test. Table 4 shows the *p*-values of two-sample *t*-test for male and female for different conditions.

It is interesting to note that there is no significant difference in the opinion of male and female for the categories C_3 and C_4 on the dimension 'reliability' across all classes of respondents, except the business class where C_3 is significant. Similarly, in the dimension 'accessibility' there is no difference in the categories C_1 and C_4. Again, the exception is observed in the business class. In the dimension 'user-friendliness' there is no significant difference in the judgement of respondents in the categories C_2, C_3 and C_4. The exception observed is C_4 in business class again. Moreover, in business class the category C_1 is not statistically significant. In case of dimension 'privacy/security' there is no significant difference in the perception of respondents corresponding to the category C_2 and C_4, except for the opinion of the industrial employees, for which the difference between the perspectives of male and female in the above classes are statistically significant. A similar trend can be observed for the dimension 'responsiveness', where all the respondents in the categories C_1 and C_4 demonstrate significant difference in the average response of male and female except the industrial employees. In the 'efficiency' dimension, there is no significant difference in the view of male and female in the categories C_1, C_2 and C_4 for all the respondents, excepting business class. However, for the respondents of business class, the difference is significant in the categories C_1 and C_4. Finally, a mixed result is observed in case of the dimension 'fulfilment'. There is no significant difference between the perceptions of male and female for the categories C_1 and C_2 for students and faculties, C_1 and C_3 for government/private employees, C_3 and C_4 for industrial employees and C_1, C_3 and C_4 for business class, respectively.

The above result shows that the business class differs from other classes in their perception about the service quality of i-banking.

Table 4   The *t*-test for male and female for various conditions

Dimensions	Student/faculty				Employees (government/private)				Employees (industry)				Business			
	C_1	C_2	C_3	C_4	C_1	C_2	C_3	C_4	C_1	C_2	C_3	C_4	C_1	C_2	C_3	C_4
1 Reliability	0.001	0.005	0.472	0.378	0.003	0.000	0.220	0.389	0.000	0.001	0.003	0.068	0.363	0.000	0.000	0.181
2 Accessibility	0.131	0.005	0.004	0.238	0.261	0.000	0.000	0.209	0.026	0.003	0.007	0.277	0.000	0.000	0.001	0.001
3 User-friendliness	0.002	0.341	0.142	0.245	0.000	0.312	0.119	0.166	0.003	0.041	0.129	0.401	0.274	0.079	0.044	0.000
4 Privacy/security	0.001	0.010	0.000	0.176	0.000	0.302	0.000	0.270	0.238	0.000	0.000	0.001	0.389	0.000	0.000	0.103
5 Responsiveness	0.021	0.003	0.000	0.075	0.027	0.000	0.000	0.344	0.000	0.340	0.000	0.000	0.003	0.044	0.013	0.012
6 Efficiency	0.327	0.368	0.002	0.209	0.063	0.144	0.000	0.294	0.352	0.149	0.248	0.003	0.000	0.464	0.000	0.001
7 Fulfilment	0.121	0.002	0.000	0.001	0.004	0.000	0.305	0.000	0.000	0.000	0.232	0.002	0.121	0.000	0.008	0.184

Note: *p*-value ≤ 0.01; the difference between the two sample means (male and female) is statistically significant.
        p-value ≥ 0.01; the difference between the two sample means (male and female) is statistically not significant.

$C_1 =$ Age: Below 40 years
          Income: Below Rs. 50,000

$C_2 =$ Age: Below 40 years
          Income: Above Rs. 50,000

$C_3 =$ Age: Above 40 years
          Income: Below Rs. 50,000

$C_4 =$ Age: Above 40 years
          Income: Above Rs. 50,000.

9 Conclusions

The paper explores the service quality of i-banking operative in India from customer's perspective. It is observed that customers are satisfied with the reliability of the services provided by the banks but are not very much satisfied with the dimension 'User-friendliness'. A seven-dimension model using regression analysis is developed for measuring the overall service quality of i-banking. The result indicates that the two dimensions, viz. 'Privacy/Security' and 'Fulfilment' are not contributing significantly towards the overall service quality. This is an implication that the customers feel that bankers fail in providing the services on these two dimensions satisfactorily. It is also observed that the opinion of male and female of business class differs from the other classes. The i-banking is going to be very crucial for India, having increasing percentage of younger generation population with computer literacy. Since research on service quality in i-banking is still in its infancy and the relevant literature is scarce, therefore the insight gained in this study may offer a foundation for future research on self-service technology and provide useful recommendations to the bankers for improving the i-banking services. The limitation of this study is that the result should not be generalised, as the service quality of i-banking has been tested in urban India. Furthermore, a small sample may not be the representative of the whole population and hence, in future, the research can be conduced by taking a large sample to facilitate a robust examination of the service quality of the i-banking. The future study can also be conducted to identify the relative importance of each dimension. The extension of this study can also include the providers (bankers) perspective to have a better understanding of the problem domain. Validation of model and extension of the results to other industries and also to different cultures are some of the future directions in which the academics and the practitioners can work with to enrich the service quality literature in i-banking.

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