Developing a Multiple-Item Scale for Assessing Internet Banking Service Quality: Special Reference to Indore District of Madhya Pradesh, India

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Abstract: Due to the entry of foreign banks and development in technology in India, banking industry in India has accelerated and adopt various technology to facilitate banking activity, Internet banking is one of the finest adoption in Indian banking history which accelerated the banking activity for the customer. The study is to develop multiple item scale for assessing internet banking service quality is based on Indore district of Madhya Pradesh because no such study has been performed so far. Data is collected from internet banking users of various tehsils of Indore district. Through Cronbach's Alpha Test of Reliability, Bartlett's Test of Sphericity and KMO test we prepared reliable scale for internet banking service quality in Indore district of Madhya Pradesh, India.

Keywords: Banking, Internet banking, Internet banking in India, Internet banking scale, Service quality.

I. INTRODUCTION

Traditional banks satisfy the needs of their customers by delivering a range of banking service products, mostly in face-to-face encounters but with the implementation of new technology specially information technology, now banks satisfy their customers need without face-to-face contact, this is possible with the help of internet that's why these kind of banking is famous as internet banking or online banking. Internet banking is a web-based service that enables the banks authorized customers to access their account information, in other words, it can be define as the process in which internet and computer device are used as a medium to facilitate banking services is termed as internet banking. Customer registers themselves into their bank and gets benefit of internet banking services. It permits the customers to log on to the banks website with the help of bank's issued identification and personal identification number (PIN).The banking system verifies the user and provides access to the requested services, the range of products and service offered by each bank on the internet differs widely in their content. Banks have traditionally been in the forefront of harnessing technology to improve their products, services and efficiency. They have, over a long time, been using electronic and telecommunication networks for delivering a wide range of value added products and services. The delivery channels include direct dial – up connections, private networks, public networks etc and the devices include telephone, Personal Computers including the Automated Teller Machines, etc. With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by banks as a channel for receiving instructions and delivering their products and services to their customers. This form of banking is generally referred to as Internet Banking,

although the range of products and services offered by different banks vary widely both in their content and sophistication. Most of the banks offer internet banking as a value-added service.

Though internet banking and traditional banking not same in operation but service quality is still the main competitiveness of internet banking. Service quality is one of most heavily researched constructs in the field of service marketing by various researchers in various industries. An e-service company should see things through customers' eyes, realize their needs and design an online service system that can meet customers' expectations. Therefore, understanding how clients define e-service quality is crucially important for a company doing business in the world of the Web. SERVQUAL has been applied by various researchers to numerous service industries as a means of gauging service quality. The primary value of SERVQUAL lies in its powerful benchmarking, diagnostic, and prescriptive tools (Kettinger and Lee, 1997). From the various service industries practitioner's point of view, measurement of service quality is very important for a number of reasons. First, e-banking is becoming increasingly popular and competing banks have limited avenues to exploit in establishing differentiation (Jayawardhena and Foley 2000). Delivering a superior quality of service compared to competitors offers an opportunity to e-banks to achieve competitive differentiation (Ranganathan. and Ganapathy 2002). Second, given the lack of geographical or other physical constraints associated with e-banking, attracting and retaining customers may be largely determined by the quality of the service delivered (Liao and Cheung 2002). Third, improvements in the quality of service delivered can only be made if it can be measured in the first place. Finally, that effective measurement of service quality can be very useful in the allocation of resources and in segmentation of customers is well documented (Parasuraman et al. 1988). To develop a measurement scale that would lead to valid and reliable results is a challenging task in any research field. It takes time and reflection. Besides that, reliable and valid measures contribute to the legitimacy and development of a research field.

Status of internet banking in India

Indian banks have a wonderful history. Banks were started during British mandate; they formed many large and small private banks. After independence, Indian government revealed interest towards banks which results the nationalization of banks, leading to the emergence of the public sector banks. If you consider the present age of banking, online banking has made things much easier and has saved lot of time of bank employees as well as general public. The traditional way of waiting in a queue and filling up all the forms manually, is no hassle now for transacting with any bank. According to report of Assocham, the total internet user base in India (inclusive of shared devices and mobile) is at 124 million users in the month of July 2012. 1 out of every 10 Indians is online making it a 10% online user penetration in India. Among the BRIC Nations, India has been the fastest growing market adding over 18 million internet users and growing at an annual rate of 41%. India is also among the top 3 fastest growing markets worldwide in the last 12 months. In the same report direct debit is the most commonly used payment type contributing to over 58% of the overall payments in India. Cash on Delivery which has been a popular mode of payment method in retail category and form close to 7% of the total transactions. COD has a much higher contribution among retail category with more and more online retailers using this option to increase trials among customers. This whole research is done by comScore for Assocham.
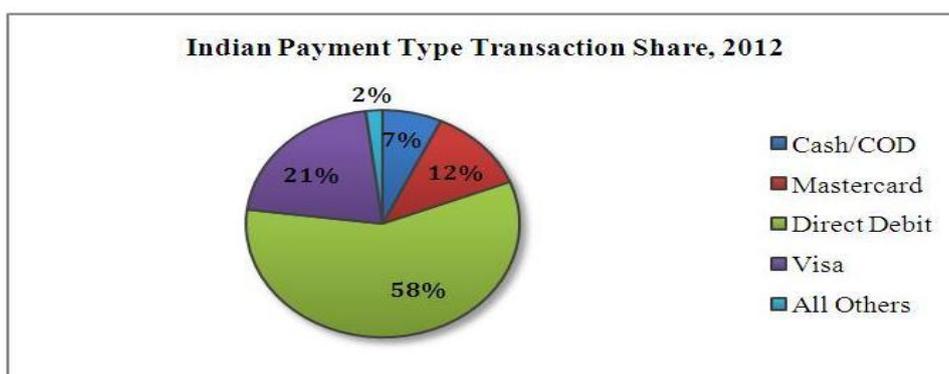
Figure 1 Indian payment type transaction share, 2012 (Source: ComScore report for Assocham)

In another report by McKinsey & Company, India has 3rd largest Internet population in the world after China (at 575m) and the US (at 275m). As many as 7% of account holders in the country are using the Internet for banking transactions, while branch banking has fallen by a full 15 percentage points. According to Assocham, the e-Commerce revenues in India will increase from $1.6 billion in 2012 to $ 8.8 billion in 2016.

II. LITERATURE REVIEW

The SERVQUAL model is widely adopted to measure service quality in traditional stores, the public sector, higher education, real estate, hospitals, the legal profession, employees service providers and festivals (Li et al., 2002). This model was also applied to measure information systems service quality (Jiang et al. 2000; Kang et al. 2002; Kettinger et al. 2005), e-retailing service quality (Barnes & Vidgen 2001), e-banking service quality (Zue et al. 2002), online travel service quality (van Riel et al. 2004, Lee et. al 2006) and web portals service quality (Yang et al. 2004). During 80s business personnel realize that only quality of product is not sufficient to attract maximum customer, now one more factor has introduced i.e. service quality. Service quality plays important role in business and affect business and its sale. Service quality is significantly related to profitability (Buzzell and Gale, 1987; Rust and Zahorik, 1993), customer satisfaction (Bolton and Drew, 1991; Boulding et al., 1993) and customer retention, (Reichheld and Sasser, 1990). Many researcher works on service quality in various service industry, researchers explored various dimensions for service quality.

Ranganhan and Granapathy (2002) identified the key dimensions of business-to-customer websites as information content, design, security and privacy. A four-question scale representing purchase intent was used as the dependent variable. Wolfinbarger and Gilly (2003) constructed an instrument to measure e-service quality based on the factors of: website design, reliability/fulfillment, privacy/security and customer service. Yang et al. (2004) conducted research on online service quality; they developed a scale for service quality with six dimensions namely reliability, responsiveness, competence, ease of use, product portfolio and security. Parasuraman et al. (1985) identified ten dimensions of service quality that were further extracted them into five dimensions: tangibles, reliability, responsiveness, assurance, and empathy, and as a result SERVQUAL model came into being (Parasuraman et al., 1988). Siu and Mou (2005) examined the customers' service quality perceptions in Internet banking in Hong Kong and identified four dimensions - credibility, efficiency, problem handling and security. Jayawardhena (2004) developed 21 items to assess service quality in e-banking by transforming the original SERVQUAL scale. His study revealed five quality dimensions: access, web site interface, trust, attention and credibility. Gupta and Bansal (2012) developed a set of service quality items by conducting research on retail banking customers of Delhi metro. Their research disclosed five quality dimensions: security/privacy, reliability, efficiency, responsiveness and site aesthetics. Groonroos (1984) identified three components of service quality, namely: technical quality; functional quality; and image.

Madu and Madu (2002) propose 15 dimensions of e-quality for virtual operations – performance, features, structure, aesthetics, reliability, storage capability, serviceability, security & systems integrity, trust, responsiveness, product/service differentiation, customer and web store policies, reputation, assurance and empathy.

III. OBJECTIVE OF STUDY

Although many researches has been done on service quality in India but to the best of the author's knowledge, no instrument has been developed to measure customer service quality for services delivered by bank over the internet in Indore district. Therefore, this research attempts to fill this gap by developing an instrument that can utilized to measure service quality as perceived by Internet banking in Indore district of Madhya Pradesh. To fill this gap researcher took an objective for developing scale which is given below:

Objective of the study is: - To develop a scale to measure service quality offered by internet banking in Indore district of Madhya Pradesh.

IV. METHODOLOGY

The survey instrument was developed based on literature review. The variables included in the study have been adapted from the existing literature. A total of 200 variables related to service quality were identified by the researcher from the literature review. After removing repeated and irrelevant statement 39 items were finalized for the first round. Total 150 internet banking users of different banks customers from various tehsils of Indore district of Madhya Pradesh have participated in the study. Further to prove the internal reliability of the scale, we performed Cronbach's Alpha Test of Reliability. Applying this test specifies whether the items pertaining to scale, each items are internally consistent and whether they can be used to measure the proposed phenomena e.g. Internet banking service quality. Furthermore, Bartlett's Test of Sphericity and KMO Measure of Sampling Adequacy were performed to confirm the suitability of the data for factor analysis. A number of authors (Lesser and Hughes 1986; Lesser and Kamal 1991) propose the retention of variables with loadings above 0.50 for further analysis. Accordingly variables with loadings less than 0.50 were deleted resulting in a reduced pool of 31 variables. The questionnaire consisted of two sections. Section one dealt with demographic information related to the participants. Second section consist 25 item for service quality and 6 for satisfaction. Respondents were asked to state their level of agreement with the series of statements using a five-point likert scale ranging from "strongly disagree" to "strongly agree."

V. DATA ANALYSIS

This study is conducted for developing a reliable measurement scale for internet banking service quality in Indore district of Madhya Pradesh. The collected data in the study is analyzed using Cronbach's Alpha Test of Reliability and Factor Analysis with Principle Component Analysis as an extraction method varimax as rotation method with Kaiser Normalization.

According to Nunnally and Bernstein (1994) Cronbach's alpha test of reliability is the most popular estimate for measuring the internal consistency (reliability) of items in a scale.

For the purpose of study, researcher collected sample data of 150 respondents, the results for cronbach's alpha values applied on 39 items is 0.932. Further Principal Component Analysis performed; there are two main reasons for using Principal Component Analysis (PCA): Bartlett's Test of sphericity and Kaiser-Meyer-Olkin (KMO) Measure of Sampling Adequacy were performed to confirm the suitability of the data for factor analysis. Furthermore, reduction of the dimensionality of the data set and formulation of new meaningful variables to describe the problem (Chatfield and Collins, 1980).

The results from KMO and Bartlett's Test from Table 1. the Bartlett's Test of sphericity is 0.000, which meets the criteria of value lower than 0.05 in order for the Factor Analysis to be considered appropriate. Furthermore, the result of the KMO Measure of Sampling Adequacy is 0.891, which exceeds the minimum value of 0.6 for a good factor analysis (Tabachnick and Fidell, 2001).

TABLE 1
KMO and Bartlett's Test Results for Internet Banking Service Quality Measurement Scale.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.891
Bartlett's Test of Sphericity	Approx. Chi-Square	2.848
	df	741
	Sig.	.000

Finally, through cronbach's alpha test of reliability, researcher found that the cronbach's alpha value will improve by removing some items. Out of 39 items 8 items has been identified and removed and confirms 31 items for measuring internet banking service quality in Indore district of Madhya Pradesh. Again the reliability of these 31 items is measured which shows improved result of the reliability values i.e. 0.940 (Table 2). Many other researchers also adapt this method for scale development for service quality. Jayawardhena C. (2004) develop instrument for measurement of service quality in internet banking, the value of Cronbach's Alpha is 0.927 which shows good result. Sudhahar J.C. and Selvan M. (2007) also investigate service quality in Indian retail banking sector and develop scale and the value of Cronbach's Alpha is 0.99. In our case, the value of Cronbach's Alpha is also similar to thsse researchers value which indicating that the result is good and acceptable.

TABLE 2
Reliability Statistics for Preliminary Internet Banking Service Quality Measurement Scale.

No. of Items in internet banking service quality measurement scale	Cronbach's Alpha score for internet banking service quality scale.
31	.940

The final scale consisted of two parts: part A and B. Section A dealt with demographic information of the respondents. In first part, various demographic items are included like gender; occupation & education; to know occupation & education wise participation in the research, we also included area; to know from where respondents are belongs to, age; to know various age group participation, family income; to know family income group wise user of internet banking, we also included bank's name question, for this respondent can write bank's name, we also added several internet banking related question to know about the usage, frequencies (no. of times of use) duration of internet banking, access point for internet banking and purpose for using internet banking. Section B had 31 items, 25 for service quality and 6 for satisfaction with 5-point scales ranging from 1 (strongly disagree) to 5 (strongly agree) given in table 3.

TABLE 3
Internet Banking Service Quality scale

1.	My Internet banking service helps me to save time from visiting banks branch to conduct banking transactions.
2.	If my account has been hacked, I am confident that the bank will recover from losses.
3.	My bank branch always provides me Internet banking related information.
4.	My Internet Banking is available to me 24x7
5.	I'm satisfied with internet banking services because it is Reliable.
6.	I am Satisfied with my internet banking services
7.	My Internet banking provides updated records of all my transactions
8.	I am sure that Bank does not misuse my personal information while using Internet Banking.
9.	Termination during a transaction does not happen in my Internet bank.
10.	I'm satisfied with internet banking's quick response.
11.	Language use in my internet banking site is easily understandable and clear.
12.	My Internet banking Quickly confirms all the services requested
13.	My Internet Banking is prompt in responding to my requests by e-mail or other means
14.	Whenever I forget my Internet banking password, it is easy to recover.
15.	Since I need not to visit branch, I can conduct banking more frequently.
16.	My Internet banking always provides the service at the promised time.
17.	In case of problems, I can speak with a person. (Customer Care/ Branch)
18.	My Internet banking Web page loads quickly on bank's site.
19.	It is Convenient way of operating banking transactions
20.	I feel safe in my transactions while doing Internet banking
21.	Internet Banking site is easy to navigate and simple to use.
22.	My Internet banking use does not require a lot of mental effort

23.	Completing transactions through my Internet bank is fast
24.	My Internet banking provides prompt responses if my transaction is not processed
25.	My Internet Banking corrects all the mistakes quickly.
26.	I am satisfied with the security system of my internet banking.
27.	I can access my account from anywhere with my PC
28.	The Internet banking website has a clear and easy guidance screen.
29.	Internet banking is meeting my expectation.
30.	I have full trust in my Internet banking services
31.	I'm satisfied with internet banking services because it is convenient.

VI. CONCLUSION AND SCOPE FOR FURTHER

There are many researches has been done on service quality in India but service quality of internet banking in Indore district of Madhya Pradesh hasn't done ever. So, to fulfill this gap researcher developed scale to measure service quality of internet banking in Indore district of Madhya Pradesh, for this researcher identified several items from related literature and analyzed using Cronbach's Alpha Test of Reliability and Factor Analysis with Principle Component Analysis as an extraction method varimax as rotation method with Kaiser Normalization. Finally developed a scale for service quality of internet banking in Indore district of Madhya Pradesh. The scale is divided into two parts, one dealt with demographic explanations and another dealt with service quality. This scale can be used as base to find-out dimensions of internet banking service quality in Indore district of Madhya Pradesh and will also helpful for researcher who are working in internet banking service quality.

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