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A STUDY ON PERCEPTION OF INTERNET BANKING USERS SERVICE QUALITY - A STRUCTURAL EQUATION MODELING PERSPECTIVE

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ABSTRACT

The purpose of the study is to identify the perceptions of Internet banking (IB) users in Tamil Nadu using technology acceptance model (TAM) by incorporating service quality as external variable. The study found that both the TAM variables – perceived ease of use (PEOU) and perceived usefulness (PU). A total of 380 questionnaires were distributed for internet banking customers and 336 were returned (resulting 88.42 percentage of response rate). The results confirm that the all six dimensions (Website attribute, Reliability, Responsiveness, Fulfillment, Efficiency and Privacy) are distinct constructs. The results also indicate that internet banking service quality consisting of six dimensions has appropriate reliability and each dimension has a significant relationship with internet banking service quality. The efficiency of banking website is the important aspect of internet banking service quality. The finding found that the relationship between internet banking service quality, perceived ease of use and perceived usefulness are significant. This study proposes a model to understand the effect of internet banking service quality on perceived ease of use and perceived usefulness in developing country. The constructs truly reflect the dynamism of customers' banking relationship and a better understanding the attitude on internet banking will help the bankers in implementing more effective marketing strategies.

Keywords: Perception, Internet Banking, Service Quality, Structural Equation Modeling

Cite this Article: J. Kavitha and R. Gopinath, A Study on Perception of Internet Banking Users Service Quality - A Structural Equation Modeling Perspective, *International Journal of Management*, 11 (8), 2020, pp. 2204–2217.
https://iaeme.com/Home/issue/IJM?Volume=11&Issue=8

1. INTRODUCTION

In recent years, commercial banks of all types and sizes have intensified the use of online (internet/web-based) banking in their operations. First offered in the mid-1990s, online banking is becoming the latest breakthrough development in the ever-growing world of financial services marketing. The advent of information technology (IT) has enabled banks to shift from the traditional way of delivering banking services to new and modern techniques of banking with technological support. As the internet becomes more and more popular, the usage of online banking is expected to increase considerably. Online banking offers customers a faster and more convenient way to do business in the convenience of their home or office. Recent survey results indicate that online banking has gone from less than a million people using it in 1998, to nearly 26 million as expected by the end of 2005 – some 26-fold increase (Unsal *et al.*, 2002). This drastic increase is purely because of the consumer protection initiatives by Government (Gopinath, 2019b).

Information and Communication Technology (ICT) has brought a remarkable transformation in the delivery of financial services in general and retail banking services in particular not only in developed countries but also in developing countries like India (Gopinath, 2019 f). This transformation in ICT has led to the delivery of banking services in accordance with the changing needs and preferences of consumers. Using Internet banking technology to serve the consumers has become a tool for achieving competitive advantage in the industry by making the banks more efficient. Banks get the benefits like lower transactional costs, efficiency, retaining profitable consumer base, and extending the market area. Consumers also get distinct benefits of Internet banking like convenience, availability, accessibility, time and cost. The positive perception of customers is the prime reason behind the success of any brand or idea (Gopinath, 2019 c). Likewise the perception of the customer is the base for success of internet banking.

The banks have increasingly adopted internet technology motivated by an interest for progress in productivity, effectiveness, speed, competitiveness, and customer value building. It is obvious that online banking will play a more important part in the new internet age since the online transaction costs can be as low as 1% that of a traditional transaction. The factors like convenience and reliability has important role in decision making (Gopinath, 2019 d) and prompting the customers towards internet banking. Sometimes these kinds of decisions are influenced even by the gender of the respondents (Gopinath, 2011). Who regularly pay bills online are about twice as profitable as other account holders, according to a benchmarking survey conducted in 2003 by the Boston Consulting Group (BCG). Even the offers an discounts provided in digital payment is also influencing and forcing the customers to use online banking (Gopinath & Kalpana, 2011). Since the new millennium, IB has experienced explosive growth in many countries.

2. REVIEW OF LITERATURE

2.1. Theoretical Background

In many studies, antecedent variables have been added to the twin TAM constructs, namely perceived ease of use (PEOU) and perceived usefulness (PU). For example, Kent *et al.* (2005) added trust as antecedent to TAM variables. They found that trust has a positive effect on both PEOU and PU, and suggested that TAM should be redefined to include trust. In a model tested by Edwin *et al*. (2006), they used PEOU and perceived web security as independent variables, PU and attitude as intervening variables, and intention to use as the dependent variable. The perception of customer on any new invention has a prominent role in determining its success (Gopinath, 2020 c). Similarly PU is a major determinant of customer's intentions to use IB.

Perceived ease of use is a significant secondary determinant of customer's intention. George & Kumar (2013) incorporated perceived risk to TAM variables and investigated the effect of these variables on customer satisfaction in Internet banking. Thus, much research has been undertaken using TAM as the theoretical base, and in order to improve its predictive power, researchers have added additional variables to the TAM model.

The present study uses TAM as the theoretical background to explain the use of IB with service quality as an external variable. The proposed model uses the variable service quality, mainly because the importance of service quality rests on the fact that this is a pre-condition for ensuring loyalty and for attracting prospective customers (Camilleri et al., 2014).

2.2. Consumer Attitudes and the usage of Internet Banking

In recent days, the consumer perception towards online platforms has been changed (Gopinath, 2019a). Even though initially customers are hesitated to purchase valuables through online, later the scenario has changed and customers are even purchase durables through online (Gopinath & Irismargaret, 2019). This trustworthiness pave way to online banking is a new and emerging area of interest in the field of marketing research. Teo (2019) studied consumer intention and behavioural tendencies to use internet banking services through attitude, subjective norms, and behavioural controls. Mols (1998) examined behavioural issues pertaining to online banking, such as satisfaction, word of mouth, repurchase intentions, price sensitivity, propensity to complain, and switching barriers. Sathye (1999) examined the effects of security, ease of use, awareness, pricing, resistance, and infrastructure on adoption of online banking. Higher perceived trust is found to significantly enhance customers' adoption of online banking transactions (Mukherjee and Nath, 2003).

A chronological analysis of the adoption of new banking technologies specifies that consumers are slow to respond but ultimately gravitate towards using services that provide meaningful benefits, particularly improved convenience. As banks have learned, however, most consumers continue to use multiple technologies. Very few consumers have completely abandoned visits to the branch. Thus, the expected operational savings are often a myth, not a truth. The introduction of online banking has followed the same pattern as ATMs, call centers, and voice response units. Heavy initial investments, slow adoptions, and only minimal savings due to expanded use of multiple channels have been reported (Sarel and Marmorstein, 2004).

2.3. Service Quality

There has been much research on the definition and measurement of the concept of service quality. A lack of consensus on the definition and measurement of the concept has led many researchers to pay attention to the concept of service quality. Quality represents the degree to which the object (entity) satisfies user's requirements (Batagan et al., 2009; Gopinath & Kalpana, 2019). Due to the intangible nature of services, quality plays a pivotal role in the success of the service industry. The meaning of service quality, as found in the literature, is perceived quality which refers to a customer's judgment about a service. The concept of e-service emerged with the advent of the Internet. An e-service operation is one, where all or part of the interaction between the service provider and the customer is conducted through the Internet (Surjadjaja et al., 2003). According to Batagan et al., (2009) service receivers' access e-service through electronic networks and it is consumed via the Internet. As Internet banking is availed by a banking customer via the Internet, service quality in IB refers to e-service quality. E-service quality can be defined as overall customer evaluations and judgments regarding the excellence and quality of e-service delivery in the virtual marketplace (Lee & Lin, 2005).

The first attempt to conceptualise service quality from the point of view of customers was made by Gronroos (1982); Gronroos contends that consumers compare the service they expect

with perceptions of the service they receive in evaluating service quality. Parasuraman *et al.* (1988) derived the SERVQUAL scale to measure service quality as the difference or disconfirmation between the customers' perception (P) and expectations (E) along 22 variables reduced to five dimensions. Subsequently, Teas (1993) raised concerns about the specifications of service quality as the gap between customers' expectations and perceptions, and also about the SERVQUAL scale. They contended that it was unnecessary to measure customer expectations, and that measuring perceptions was sufficient; based on this they tested a performance based measure of service quality, SERVPERF and argued that it was more efficient than the SERVQUAL scale. Their analysis indicates that the SERVPERF scale provides explanations for more variations in service quality. In response to Teas (1993), opined that though the SERVQUAL for assessing service quality can and should be refined, abandoning it altogether in favour of a performance based measure of service quality did not seem warranted. Cronin & Taylor (1994) responded to the concerns raised about the relative efficacy of SERVPERF and SERVQUAL measures of service quality, and demonstrated that the emerging literature supported their original conclusions. The SERVQUAL scale as a measure of service quality has been challenged by several researchers (Babakus & Boller, 1992; Brown *et al.*, 1993; Dabholkar *et al.*, 1996). Although there have been attempts to use SERVQUAL in traditional retail banking contexts, there has been less attention to its utility in measuring service quality in an Internet banking context (Rod *et al.,*2009).

2.4. Internet Banking Service Quality

In the context of the internet, e-service quality is defined as a consumer's overall evaluation and judgment on the quality of the services that is delivered through the internet (Brown *et al.*, 1993; Liao *et al.*, 2011; Santos, 2003; Zeithaml *et al.*, 2002). Based on this, e-service quality has been conceptualized as a base for interactive information service (Ghosh *et al.*, 2004). For this reason, Rolland and Freeman (2010) suggested that the conceptualizations of e-service quality must be expanded to the global level and e-service quality needs consideration on all aspect of the transaction, including service delivery, customer service and support.

Additionally, Rod *et al.* (2009) explored three dimensions of service quality that influence overall internet banking service quality: customer service quality, online information system quality, banking service product quality. In Taiwan, Ho and Lin (2010) found five dimensions for measuring e-service quality of internet banking, namely: customer service, web design, assurance, preferential treatment, and information provision. In Hong Kong, Siu and Mou (2005) attempted to examine customers' service quality perceptions in internet banking and four analytical dimensions are identified: credibility, efficiency, problem handling and security. In Thailand, Thaichon *et al.* (2014) reveal that service quality is influenced by network quality, customer service, information support, privacy and security.

There are studies which have examined the effect of problems in Internet banking on customer satisfaction (George & Kumar, 2015, for instance), and many studies have investigated the effect of SQ dimensions on customer Satisfaction. But only a few studies have used SQ as antecedents to TAM variables. Tao Zhou (2011) found that system quality is the main factor affecting PEOU, whereas information quality is the main factor affecting PU. Al-Momani & Noor (2009) and Hilmi *et al.* (2012) also found that SQ and PEOU were correlated positively. Since SQ, PU and PEOU are positively correlated it is hypothesised that;

H_{1a}: IB Service quality in Internet banking has a positive effect on perceived ease of use.

H_{1b}: IB Service quality in Internet banking has a positive effect on perceived usefulness.

H_{1c}: Perceived ease of use has a positive effect on perceived usefulness

3. METHODOLOGY AND RESEARCH DESIGN

3.1. Measures of the Constructs

The items chosen to form constructs were mainly adapted from previous studies to ensure content validity. Measures of service quality constructs were taken from Sharma *et al.*, 1999; Jun & Cai 2001; Kim & Lim 2001; Santos 2003; Yang *et al.*, 2004; Gupta & Bansal 2012. Likertscale (1-5) with anchors ranging from "strongly disagree" to "strongly agree" were used to obtain responses for TAM and service quality constructs (Gopinath, 2019 e). The underlying idea to capture the measures of IB use was obtained from "How often do you use Internet bank?" (Kent *et al.*, 2005), and modified comprehensively to get responses on a four point scale as Regularly (4), Occasionally (3), Rarely (2) and Never (1) for the most commonly used seven IB services identified from the literature and pilot study. A pilot study was conducted on 25 IB users and they were asked to state the most commonly used IB services. From the results of the pilot study, seven commonly used services were identified and included in the questionnaire.
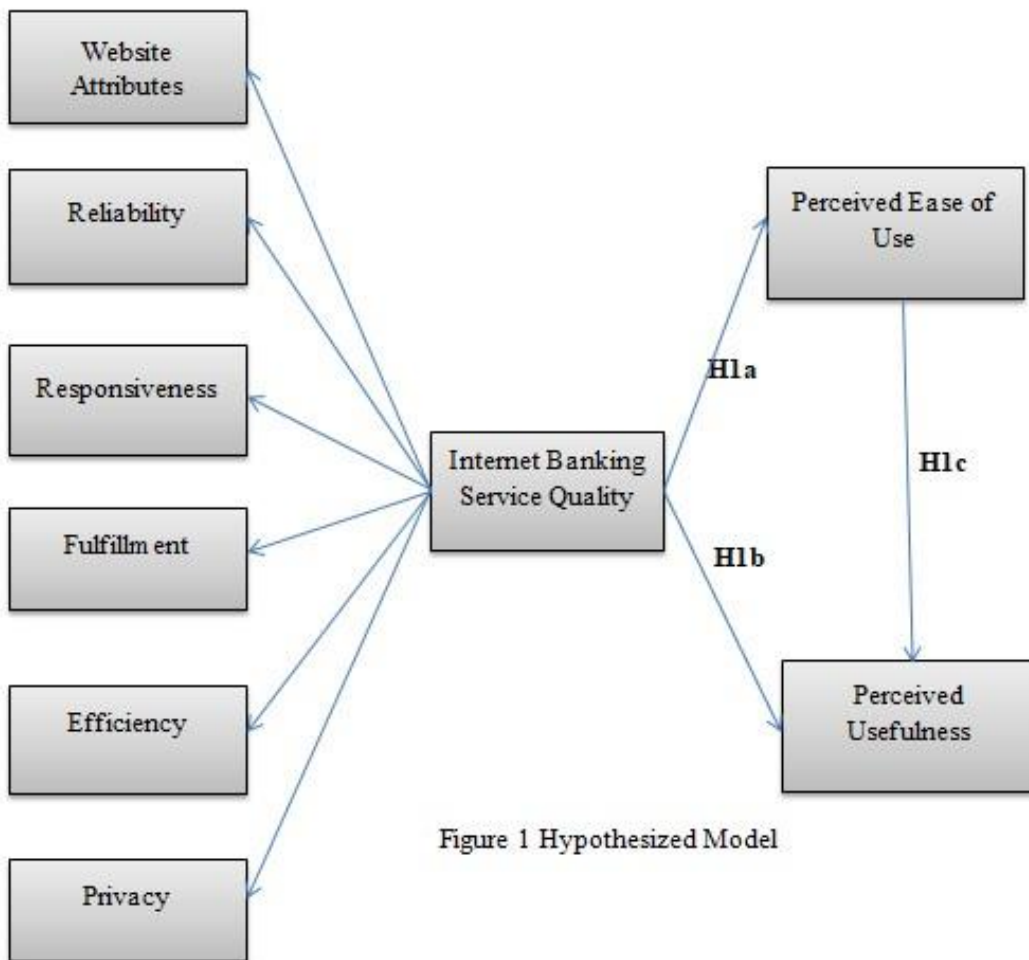

Figure 1 Hypothesized Model

3.2. Data Collection Process

Data were collected through a developed structured questionnaire as measurement tool. Since no sampling frame was available, samples could not be obtained through probability sampling method. A convenience sampling approach was used in this study. Out of the 380 responses, 44 responses were discarded as these were either incomplete or answered the demographic questions only; and 336 responses were taken for final analysis. The data was analysed using

Statistical Package for the Social Sciences (SPSS) Analysis of Moment Structures (AMOS) software version 20.

4. RESULTS AND DISCUSSION

4.1. Demographic Characteristics of the Respondents

The proportion of male and female respondents was almost equally split in this survey, with 55.36 per cent male and 44. 64 per cent female, aged between 25 to 34 years old (46. 43 per cent) and 35 to 44 years old (28.28 per cent) and undergraduate education (33. 92 per cent) with a private employees (46.42 per cent). 47.32 percentage of the respondents under the Rs 35000 to Rs 45000 monthly income. Similarly, Suchitra and Gopinath (2020 a) inferred that the demographic percipience is highly proportionate. The high response rate coming from younger consumers indicated that they were more interested in online and mobile banking topics than older consumers and were willing to participate in the survey.

Table 1 Demographic Characteristics of the Respondents

Demographics		Frequency	Percentage
Gender	Male	186	55.36
	Female	150	44.64
Age of the Respondents	18-24 years	32	9.54
	25-34 years	156	46.43
	35-44 years	95	28.28
	45-54 years	43	12.78
	Above 55 years	10	2.97
Educational Qualifications	12th std	12	3.57
	Undergraduate	114	33.92
	Post graduate	168	50
	Professionals	35	10.41
	Others	7	2.08
Occupation	Student	12	3.57
	Government Employee	115	34.22
	Private Employee	156	46.42
	Businessman	40	11.90
	Others	13	3.86
Monthly Income	Below Rs 25000	12	3.57
	Rs 25000 to 35000	85	25.29
	Rs 35000 to 45000	159	47.32
	Rs 45000 to 55000	60	17.85
	Above Rs 55000	20	5.95

4.2. Measurement Model (Confirmatory Factor Analysis)

The purpose of a measurement model is to describe how well the observed indicators serve as a measurement instrument for the latent variables. To assess the measurement model, two step analysis processes were employed in this study. First, a confirmatory factor analysis was employed to specify the pattern by which each measure loads on a specific factor (Byrne, 2013; Hair *et al.,* 2010). Second, the squared multiple correlation was conducted to measure each indicator and how well an item measures a construct (Amin and Isa, 2008). A first order of CFA model for internet banking service quality was conducted to examine the measurement model using AMOS 20. The first-order CFA result showed that the goodness of- fit was moderately satisfied. The results show that the χ^2 is significant (χ^2 =160.269, χ^2/df ratio 2.263, p =0.000). Meanwhile, the GFI value is 0.957, RMSEA value 0.05, and CFI value 0.982. By checking the

squared multiple correlations for each measurement item, no items were deleted as the R2 values were more than 0.5 (Gopinath, 2020 a). As a result, the measurement model retained 22 observed indicators from the original that were derived to estimate the model fit. Accordingly, the second-order CFA was run in order to examine the parameter. The measurement model result shows that the goodness-of-fit was moderately satisfied. The χ^2 shows is significant (χ^2 =160.051, χ^2/df ratio 2.263, p =0.000). Meanwhile, the GFI value is 0.956, RMSEA value 0.04, and CFI value 0.982. Table-2 shows the results of the first-order and second-order CFA for internet banking service quality. Thus, the results show that 14 items of the second-order CFA model of four dimensions fitted the sample data. Similarly, a CFA was employed to examine perceived ease of use and perceived usefulness. The results of CFA show that the goodness-of-fit was moderately satisfied. The χ^2 is significant (χ^2 =276.388, χ^2/df ratio 6.428, p =0.000). Meanwhile, the GFI value is 0.902, RMSEA value 0.10, and CFI value 0.942 (Suchitra and Gopinath, 2020 b).

Table -3 shows the factor loadings, Cronbach's α, Average Variance Extracted (AVE) for internet banking service quality, perceived ease of use, and perceived usefulness. To test the reliability of internet banking service quality, perceived ease of use and perceived usefulness in instruments, the Cronbach's α coefficient was computed. The coefficient α exceeded the minimum standard of 0.70 (Nunnally, 1979), which indicates that it provides a good estimate of internal consistency. The coefficient α obtained greatly exceeded the minimum acceptable values 0.881, 0.916, 0.904, 0.851 for the internet banking service quality dimensions (Website attribute, Reliability, Responsiveness, Fulfillment, Efficiency and Privacy). Meanwhile, for perceived ease of use and perceived usefulness, the coefficient α obtained values that exceed the maximum value suggested (0.915 and 0.906, respectively).

Table 2 Goodness-of-fit statistics for measurement model of internet banking service quality

Variable	GFI	CFI	χ^2/df	RMSEA	Sig.
First-order CFA	0.957	0.982	2.263	0.05	0.000
Second-order CFA	0.956	0.982	2.234	0.04	0.000
Notes: First-order CFA = 22 items; Second –order CFA=22 items					

Table 3 Standardized factor loadings, AVE and Composite Reliability (CR)

Constructs	Items	Standardized Factor Loading	AVE	C.R
Website attribute	The website contains useful help facility	0.849	0.718	0.884
	The website design is attractive	0.749		
Responsiveness	Bank takes care of IB complaints quickly	0.761	0.735	0.917
	There is quick response from bank to customer queries	0.839		
Reliability	trust IB services presented in the bank's website	0.624	0.704	0.905
	The bank delivers IB services as promised	0.785		
	The website is updated continuously	0.623		
Fulfillment	Web pages load promptly	0.724	0.657	0.852
	Log in to IB website is fast	0.787		
	The webpage neither locks nor freezes while processing transactions	0.705		
	The site provides a confirmation of services requested quickly	0.683		
Efficiency	Finding what I need is easy and simple	0.686	0.669	0.910
	Easy options for cancelling transactions	0.763		
	IB website always satisfies all my service needs	0.759		

Privacy	Personal information is secured and protected in the bank's site	0.806	0.623	0.891
	The bank will not misuse my personal information	0.822		
Perceived Usefulness	IB saves time	0.790	0.873	0.920
	IB is available at any time	0.644		
	IB is accessible from anywhere	0.773		
	IB is less expensive	0.746		
Perceived Ease of Use	IB is easy to use	0.660	0.746	0.851
	To become skillful in using IB is easy	0.688		

The values indicate good reliability of the data set. To assess the convergent validity for each construct, the standardized factor loadings were used to determine the validity of the constructs (Hair *et al.,* 2010). Convergent validity can be ascertained if the loadings are greater than 0.5 (Fornell and Larcker, 1981; Gopinath, 2020 b), composite reliability greater than 0.7 (Gopinath, 2016) and the AVE is greater than 0.5 (Fornell and Larcker, 1981). The findings indicate that each factor loading of the reflective indicators ranged from 0.699 to 0.957 and exceeded the recommended level of 0.50. As each factor loading on each construct was more than 0.50, the convergent validity for each construct (internet banking service quality, perceived ease of use, and perceived usefulness) were established, thereby providing evidence of construct validity for all the constructs in this study (Hair *et al*., 2010). Table 4 shows the discriminant validity of the constructs, since the square root of the AVE between each pair of factors was higher than the correlation estimated between factors, thus ratifying its discriminant validity (Black *et al*., 1998; Gopinath & Kalpana, 2020).

Table 4 Discriminant Validity

	WEA	REL	RES	FUL	EFY	PVY	PEOU	PU
WEA	0.818							
REL	0.750	0.811						
RES	0.654	0.578	0.739					
FUL	0.537	0.493	0.276	0.698				
EFY	0.670	0.235	0.480	0.349	0.583			
PVY	0.435	0.220	0.168	0.336	0.392	0.592		
PEOU	0.693	0.067	0.419	0.289	0.342	0.286	0.518	
PU	0.810	0.116	0.234	0.012	0.107	0.034	0.342	0.534

4.3. Structural Equation Modeling

After establishing a measurement model with fairly good model fit, the structural model is tested using a similar set of fit indices. A comparison of all model fit indices with their respective suggested values provided evidence of a good. A structure equation modeling of internet banking service quality, perceived ease of use and perceived usefulness were conducted to estimate the parameters. Figure 1 shows the effect structural model of internet banking service quality, perceived ease of use and perceived usefulness (p = 0.001). This model starts from the first-order constructs of service quality measurement scale, consisting of six dimensional structures: Website attribute, Reliability, Responsiveness, Fulfillment, Efficiency and Privacy to measure internet banking service quality. The findings suggest that the structure model of internet banking service quality dimensions is a good determinant of perceived ease of use and perceived usefulness.

Table-5 show the results, which indicate the acceptable goodness-of-fit model. The χ^2 are significant (χ^2 = 884.001, χ^2/df ratio 3.286, p = 0.000. The model has a RMSEA value of 0.07, which is below range level and considered satisfactory. The CFI value of 0.936 and NFI of 0.925 indicated that the model is satisfactory, since the value is above 0.90 (Hair *et al*., 2010).

Overall, the values are close to the threshold, and, thus, they are represent an acceptable model fit.

The standardized parameter estimates and significant values for the hypothesis relationships are presented in Table-5. The significant path coefficient has shown that the efficiency of website and site organization dimension had the most important impact on internet banking service quality, followed by user Website attribute, Reliability, Responsiveness, Fulfillment, Efficiency and Privacy. The standardized path was 0.822 for efficiency of website, 0.782 for site organization, 0.697 for user friendliness, and 0.487 for personal need, respectively. The results show that internet banking service quality has a positive relationship with perceived ease of use ($\beta = 0.810$; $\rho = 0.001$), thus H1 is supported. However, there has no positive relationship between internet banking service quality on perceived ease of use, thus, H2 is not support. There is a positive relationship between perceived ease of use and perceived usefulness ($\beta = 0.648$; $\rho = 0.001$), thus, H3 is supported.

5. DISCUSSION AND MANAGERIAL IMPLICATIONS

The purpose of this study is to examine the internet banking service quality and its implication on perceived ease of use and perceived usefulness in the context of Tamilnadu, in India internet banking. The results confirm that the all six dimensions (Website attribute, Reliability, Responsiveness, Fulfillment, Efficiency and Privacy) are distinct constructs. The results also indicate that internet banking service quality consisting of six dimensions has appropriate reliability and each dimension has a significant relationship with internet banking service quality.

Table 5 Standardized Regression Model

| Description		Estimate	p = value
Website attribute ← Internet banking service quality		0.487	0.000
Reliability ← Internet banking service quality		0.782	0.000
Responsiveness ← Internet banking service quality		0.697	0.000
Fulfillment ← Internet banking service quality		0.822	0.000
Efficiency ← Internet banking service quality		0.310	0.000
Privacy ← Internet banking service quality		0.648	0.000
POEU ← Internet banking service quality		0.067	0.475
PU ← POEU		0.319	0.000
PU ← Internet banking service quality		0.487	0.000
Notes: $\chi^2 = 884.001$; χ^2/df ratio 3.286; GFI =0.894; CFI =0.936; RMSEA =0.06; PCFI =0.905; PCLOSE =0.000; significance at the 0.01 level			
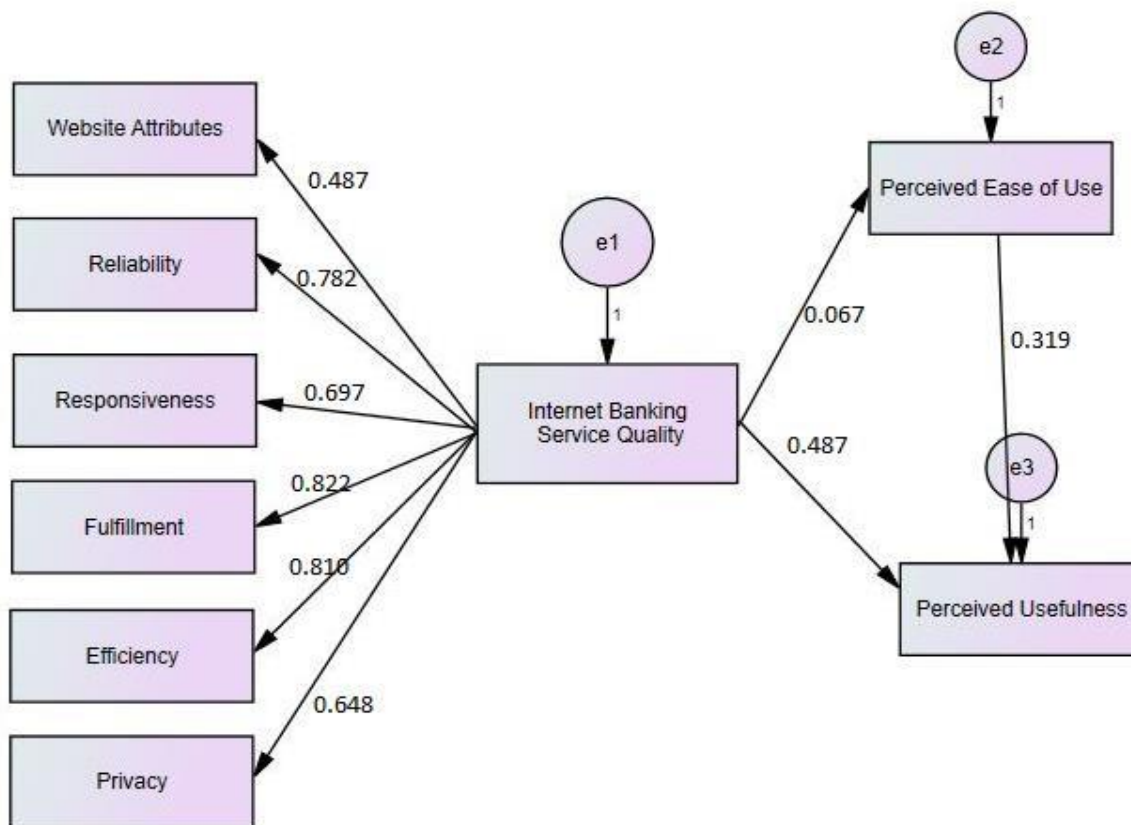
Figure 2 Structural Model

The finding that IBSQ, as antecedent to PEOU and PU, has an indirect effect, calls for the attention of banks to take necessary steps to improve the SQ dimensions such as fulfillment, efficiency, reliability, website attributes, responsiveness, and privacy. Fulfilment dimension used in the study includes promptness of web page loading, speed of login, logout and the confirmation of the requested service. If IB users face any difficulties relating to fulfillment dimension of service quality, it can be reduced by improving their Internet speed, which depends on many factors such as computer settings, Internet browser, software, Internet service provider (ISP), Wi-Fi and hardware. Download speed can be improved by correct computer settings, using the latest version of browsers and use of better modem or router. Banks can educate their customers by displaying posters in the bank premises explaining the ways through which they can improve the Internet speed.

Privacy dimension of IBSQ can be improved, if banks create awareness among customers that they adopt world class technology standards such as VeriSign certification and public key infrastructure (PKI). Most of the banks have introduced virtual keyboards to protect their customers from the menace of "keylogger" software which steals their user id and password while accessing IB from public computers. The need of the hour for banks is to educate their customers that IB is safe and that their bank account details and personal information will be kept confidential and private, provided they take the required precautions for safe use of IB. Responsiveness dimension of IBSQ can be improved by making available at least one employee in a branch who is well trained in all matters affecting the use of IB. These employees can resolve the grievances and problems of customers to a great extent, and also can provide hands on training with the help of live demos to new users when they approach the bank for help in availing IB facility. Reliability dimension comprises trust in IB services presented in the bank's website, updating of websites, and delivery of IB services as promised. To improve reliability

dimension, banks should inform their customers that they can trust the services provided on the website so long as the website is not fake. Further, to improve the reliability dimension, banks should match IB services delivered to customers with that of services promised.

6. LIMITATIONS AND FUTURE RESEARCH

There are some limitations in this study. The total number of internet banking, sample size and covered areas of the study should be increased in order to achieve a proper result. For future research, additional internet service quality dimensions should be investigated such as interactivity and website services ability. One of the limitations of this paper is that its scope is limited to Internet banking users of Tamilnadu, which in turn affects the generalizability of the findings. However, the findings are useful insights to global markets as IB defies geographical barriers. The study brought within its ambit the perceptions of only retail banking customers, and the perceptions of wholesale banking customers are outside the scope of the study. Future research may modify TAM by incorporating additional antecedent constructs or external variables relevant to the use of IB.

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