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User Perceived Value (UPV) on Virtual Banking Portal – A Study on Perspective of Cashless Economy

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Abstract

The main purpose of this study is to throw a light on the user perceived value on the core facets that are closely associated with the virtual banking portal provided by commercial banks in Bangalore. Virtual banking is mostly viewed as the provision of banking services via virtual means other than traditional physical branches. This empirical study was exclusively carried out in Bangalore via a structured questionnaire with a five-point Likert scale. This study was conducted on 134 gratification users of virtual banking portal and they were conveniently sampled from Bangalore on the basis of purposive sampling technique. The core facets that are underlying virtual banking portal were empirically identified as the ease of use, convenience, trust & reliability, access cost, time savings, privacy & security and government supports on cashless economy.

The outcome of this study clearly revealed that most of the indicative statements pertaining to the core facets that are associated with virtual banking portal were highly significant from the perspectives of user gratification. Out of seven research constructs, the 'trust & reliability' and 'privacy & security' were perceived as the significant threats of accessing virtual banking portal, which remarkably affected the users' gratification value on the virtual banking services. Meanwhile, ease of use, convenience, time savings, access cost and Government supports on cashless economy were the core basis of user gratification to access virtual banking portal. Besides,

'ease of use', 'convenience' and 'time savings' were identified as key core banking solutions for accessing virtual banking portal offered by commercial banks in Bangalore. The results of this study are interesting and useful for the strategic planning of virtual IT and telecommunication in banking industry.

Keywords: Virtual Banking Portal, User Perceived Value, Ease of Use, Convenience, Trust & Reliability, Access Cost, Time Savings, Privacy & Security, and Government Supports.

1. Introduction

Virtual banking is mostly viewed as the provision of banking services via virtual means other than traditional physical branches. Currently, virtual banking exists in the forms of ATM, phone banking, home banking and Internet banking. The evolution of virtual banking has gained an impetus in this modern era of global economy. Commercial 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 banking products and services. The delivery channels may include private networks and the devices such as Telephone, Personal Computers (PCs), Automated Teller Machines (ATMs), mobile phones, wallets, etc.

With the popularity of PCs, easy access to Internet and World Wide Web (WWW), Internet is increasingly used by commercial banks as a channel for receiving instructions and delivering their products and services to their customers accurately and speedily. This form of banking is generally referred to as virtual banking, although the range of products and services offered by different banks vary widely both in their content and sophistication. Virtual banking, both as a medium of delivery of banking services online and as a strategic tool for business development, have gained wide acceptance internationally and is fast catching up in India with more and more banks entering the fray.

Virtual banking is broadly defined in this study as the provision of banking services via virtual means other than traditional physical branches. Currently, virtual banking exists in the forms of ATM, phone banking, home banking and Internet banking. Virtual banking can also be defined as a bank without branch which offers its services by means of individual computers or electronic tools, ATM and telephone.

Today, India can be said to be on the threshold of a major virtual banking revolution with net banking having already been unveiled. Nowadays, the internet technology is rapidly changing the design and delivery of banking and financial services. Electronic services offer consumers a number of information-related benefits that favour adoption of virtual banking. These benefits include the opportunity to control bank accounts at any time and place, the access to personalized information for taking investment decisions and the comparison between alternate services (Durkin & Howcroft, 2013).

Virtual banking is defined as the delivery of banking services through the electronic media and it offers numerous potential benefits to both customers and banks (Finnegan & O'Reilly, 2014;

Durkin & Howcroft, 2013), especially through the utilization of user friendly technologies and the lack of restriction to physical locations or geographical areas. It is considered to enhance customer satisfaction by providing faster, easier and more reliable services through an electronic platform (Pikkarainen, Karjaluoto & Pahnila, 2014).

Nevertheless, despite the advantages of virtual banking, there is still a large customer group refusing to adopt such services, mainly, due to security reasons (Kuisma, Laukkanen & Hiltunen, 2015; Melanthiou & Littler, 2014). Therefore, the understanding of these reasons is expected to be proven and useful for bank managers when formulating strategies that aim at increasing the use of virtual banking (Yiu, Grant & Edgar, 2012). Despite the risk related inefficiencies, virtual banking is clearly a potentially rich research context (Guru & Shanmugam, 2015). Several empirical studies have focused on the factors that have an impact on the adoption of information or internet technology (Guru & Shanmugam, 2015), but there is limited empirical research considering the nature of internet adoption in the banking sector, nor analyze the success factors that may help in forming a strategic internet banking agenda in the whole country.

The virtual banking has provided a new and inexpensive channel for banks to reach out to their customers globally. It allows customers to access banks' facilities round the clock and 7 days a week. It also allows customers to access these facilities from remote sites. However, all these capabilities come with a affordable price for the customers. The virtual banking has also reshaped the banking industry around the world (Ashwini & Geetika, 2014).

The virtual banking has a wide range of clients who can interact with the bank through the network technology, whereas traditional banking interacts with clients on non-website-based settings. However, virtual banking services have unique characteristics that traditional banking services do not possess (Ashwini & Geetika, 2014). For example, virtual banking provides the customers to carry out a range of banking activities electronically at any time and place with low handling cost (Narayanasamy, Rasiah & Tan, 2011; Pearson & Nor, 2008; Weir, Anderson & Jack, 2013; Steege & Yoon, 2013). In this way, virtual banking plays an important role in reducing operating and fixed costs (Fonseca, 2014; Chen, Hsiao & Hwang, 2012; Zhou, 2011) and helps the bank in building better relationship with their customers.

Most researchers have indicated that service quality is an important tool to measure customer satisfaction (Abdul Kadir, 2011). Service quality has a clear positive influence on the financial performance and has a significant impact on customer satisfaction (Williamson & Lichtenstein, 2015) and even on the company's financial performance (Angelakopoulos & Mihiotis, 2014). Accordingly, in order to satisfy and retain customers in the virtual commerce environment, the financial sector must shift the focus to e-service quality. As a result, banks have started to compete in expanding their branch networks and providing a variety of delivery channels such as internet banking, mobile banking, and ATMs.

Thus, the degree of customer satisfaction and customer loyalty to a specific bank has been a major concern for many banks. In the past, clients used to face long queues when they go to banks, where they had to spend too much of their working time waiting for their turn (Abdul Kadir, 2011). Often, banks are not open in the afternoons or in vacations. Like most service providers, banks have realized the importance of investing in technology, to control cost, attract

customers, and fulfill customers' needs for convenience and technical innovation (Pyun, Scaggs & Nam, 2012; Cristobal, Flavian & Guinaliu, 2007).

Electronic service is increasingly important not only in determining the success or failure of electronic commerce (Jun & Yang, 2002), but also in providing consumers with a superior experience with respect to the interactive flow of information, and thus revolutionizing the way business is conducted (Kumbhar, 2011). E-service quality has been receiving researchers attention, where in 2003, Santos proposed ease of use, appearance, linkage, structure, content, efficiency, reliability, communication security, incentive, and customer support as the e-service quality dimensions. E-service quality is considered an essential aspect of measuring customer satisfaction (Parasuraman, Zeithaml & Malhotra, 2005; Abdullah, 2005; Nadiri, Kandampully & Hussain, 2009).

In 2001, Jun and Cai have proposed seven dimensions to improve the virtual banking service quality which in turn affects customer satisfaction. These dimensions are web site designs, information, and ease of use, access, courtesy, responsiveness, and reliability (Jun & Cai, 2001). In 2013, Hyun & Steege have stated that consumers gave the highest weight to the quality of service when selecting a particular bank (Hyun & Steege, 2013). Furthermore, Tadisina and Sohn in their empirical study on online financial institutions have put forward six dimensions to assess e-service quality. These dimensions are trust, speed of delivery, reliability, ease of use, customized communication, web site content, and functionality (Sohn & Tadisina, 2008).

Some research scholars have shown that many international internet users demonstrate similar behaviors and preferences across nations (Klein & Quelch, 1996). Some studies have examined the issues on the evolution of online banking in Malaysia (Shanmugham & Sohail, 2003) and investigated the success factors in various e-delivery channels in the Malaysian banking scenario (Balachandher, Santha, Norhazlin & Prasad, 2000; Cheng & Ong, 2003). Some research scholars have investigated customer preferences of online banking in Malaysia (Suganthi, Balachandher & Balachandran 2001).

This study examines the users' perceived value on virtual banking portal and to explore the significant aspects that are oriented with virtual banking portal provided by banks in Bangalore. Also, this paper assesses whether the perceived value of virtual banking portal in Bangalore was constrained by the technology, particularly on the basis of different demographic characteristics, such as gender, age, marital status, education level, occupation, monthly income level, computer literacy, smart phone availability, and internet accessibility at home/office. Findings of this study are useful for the banking sector in formulating appropriate strategies to meet or exceed customer satisfaction, build customer loyalty and retain the potential customers.

2. Review of Literature

Last decade was a happy time for the Indian economy to look forward from the perspective of digital economy. The growing middle class city population experienced a new growth in finance, encouraging consumers to do more banking transactions. Thanks to the simultaneous rapid development of the high speed internet service, banking operations have seen fundamental changes and a quantum jump.

The prior research on virtual banking services has empirically found positive relationship between perceived ease of use and perceived usefulness as critical factors on the use of virtual banking (Davis & Venkatesh, 2004; Chau, 2012; Wang, Wang, Lin, & Tang, 2015). Virtual banking provides higher degree of convenience that enables customers to access internet bank at all times and places. Apart from that, the accessibility of computers is perceived as a measure of relative advantage (Daniel, 2014, Ekin & Polatoglu, 2016). Therefore, it is hypothesized that convenience and accessibility have positive effect on consumer adoption of virtual banking.

According to Daniel (2014), the provision of customer interactivity is an important criterion that attracts users in the delivery of virtual banking. Cunningham & Gerrard (2016) also identified other factors of paramount importance in ensuring the success of virtual banking, namely ease of use, convenience, trust & reliability, cost effective, time savings, and privacy & security. In the context of the virtual banking, e-service quality is defined as a consumer's overall evaluation and judgment on the quality of the services that are delivered through the internet (Liao, Yen & Li, 2014; Santos, 2013). Based on this, e-service quality has been conceptualized as a base for interactive information service (Ghosh, Surjadjaja & Antony, 2014). For this reason, Freeman & Rolland (2010) suggested that the conceptualizations of e-service quality must be expanded to the global level and e-service quality needs consideration on all aspects of the banking transaction, including service delivery, customer service and support.

To sustain in long-term relationships, banking institutions have to embrace the concept of customer satisfaction. As supported by McMahon (1996), for banks to survive in the electronic banking era, the retail banks will have to earn consumer loyalty through product features and services excellence. Customers perceived fears of divulging personal information to web sites might be misused by internet hackers over the internet, especially for financial transactions (Sathye, 2015; Aladwani, 2001).

Obviously, customers have doubts about the trustability of the e-bank's privacy policies (Cunningham & Gerrard, 2016). Trust has striking influence on user's willingness to engage in online exchanges of money and personal sensitive information **(**Freeman & Rolland, 2010**;** Wang et al., 2015). Security and privacy are two important dimensions that may affect users' intention to adopt e-based transaction systems. Perceived usefulness is defined as the extent to which a person believes that using a system enhances job performance, while perceived ease of use is defined as a person believes that using a system will be free of effort (Wang et al., 2015).

In light of current prevalence of virtual banking, commercial banks have been trying to popularize and improve their virtual banking systems (Wang et al., 2015). The increasing use of virtual banking as an additional channel of marketing banking services has significantly improved the financial performance of the community banks (Acharya, Kagan, & Lingam, 2016). While commercial banks are fully experienced in capturing economies of scale, developing the business in international trade, increasing market potential and creating 'brand' image with the physical side of their operations, virtual banking presents a different set of challenges (Cheng, Lam, & Yeung, 2014). Moreover, the banks with poor online services are bound to lose its competitive edge to those who invest in virtual banking system (Amin, 2007).

Woldie, Hinson, Iddrisu & Boateng (2015) researched the influence of internet services on the effective delivery of banking services. They discovered several dimensions of service quality of internet banking such as accuracy, convenience, quality, complaint management, feedback, efficiency, customization, accessibility and queue management. All these service dimensions influence the acceptability of internet banking services by the customers. Regarding customer's perception towards internet banking, Hyun & Steege (2013) conducted a study and found several factors affecting virtual banking. He found that past experience of customers towards virtual banking, perceived risk in virtual banking, perceived easiness in virtual banking, perceived uncertainty in virtual banking are the important factors which may influence customer perception towards virtual banking.

Williamson & Lichtenstein (2015) investigated that virtual banking is one of the most important factors for increasing customer base of the bank. This is because virtual banking may attract customers from anywhere, and allows customers to operate from anywhere and anytime. Contrary to this study, Zhao et al (2015) conducted a study to identify detailed dimensions of service quality in the banking sector. These service dimensions are responsiveness, reliability, credibility, competence, courtesy, access, understanding the customers, communication, continuous improvement, ease of use, collaboration, accuracy, content, aesthetics, diverse features, security and timeliness.

The present study focuses on exploring the users' perceived value on various core aspects of virtual banking portal offered by commercial banks in Bangalore. According to various academic literatures on internet banking and/or virtual banking**,** the core facets discussed in this study were observed to be the key in exploring users' perceived views on virtual banking portal and they appeared to be extremely significant in the context of the present study. The proposed conceptual framework examines the causal relationship between seven research constructs such as ease of use, convenience, trust & reliability, access cost, time savings, privacy & security, and Government Supports.

3. Methodology of the Study

The primary purpose of this study is to explore the user perceived value on the core facets that are closely associated with virtual banking portal rendered by commercial banks in Bangalore. In order to realize purpose of this study, the following two hypotheses were effectively framed by the researchers.

- H_1: The consumers, who are inclined to use the updated technology, are likely to access the virtual banking portal provided by commercial banks in Bangalore.

- H_2: Test for a significant difference in the perceived value of the users on various core facets of virtual banking portal on the basis of their demographic characteristics.

From the relevant literatures of this study, seven critical dimensions of virtual banking portal were identified, namely (i) ease of use, (ii) convenience, (iii) trust & reliability, (iv) access cost, (v) time savings, (vi) privacy & security, and (vii) Government Supports. The structured

questionnaires with five-point Likert scale were administered to a total number of 300 respondents sampled from major areas of Bangalore on the basis of purposive sampling technique.

To assure the convenience and avoid the bias, the questionnaires were effectively administrated to the users who were highly exposed to virtual banking portal rendered by commercial banks in Bangalore. The questionnaires were distributed to the respondents face-to-face and the response rate was quite satisfactory. To ensure content validity, the items used in the questionnaire were constructed on the basis of the extensive literatures as discussed above. To assure their views properly on the subject, the screening questions were asked to ensure that the respondents have been accessed virtual banking portal before responding the questionnaires.

However, and wherever possible, the researchers used validated measures that have been previously applied. The reliability and validity of the constructs and scale items used in the research instrument were tested through pilot survey and Cronbach's Alpha. Two consecutive rounds of pre-testing were conducted in order to ensure that the respondents could understand the measurement scales used in this study.

First, the questionnaire was reviewed by the academic researchers experienced in questionnaire design and development and next, the questionnaire was piloted with the experts in the domain of virtual banking services. Pre-test of the questionnaire was conducted to a small sample of 20 users who are accessing to the virtual banking portal. The questionnaire comprises of two sections. Section 1 comprises questions on demographic characteristics of the sample respondents and Section 2 consists of a set of structured statements indicating critical dimensions of the virtual banking portal. Respondents were asked to indicate their level of agreement based on the five-point Likert scale from“1” (strongly disagree) to “5” (strongly agree).

4. Findings of the Study

The major findings of this study can include demographics of the sample, descriptive statistics& reliability of the research variables, and one-way ANOVA results of the research variables.

4.1 Demographics of the Sample

The structured questionnaires were administered to a total number of 300 respondents in Bangalore. The response rate of this empirical survey is 44.8 percent and among 300 samples, 134 samples were productive and usable as all the indicative items in the questionnaire were adequately responded. A most of the sample respondents (56.8 percent) are male respondents and remaining 43.2 percent are female. A majority of the sample respondents (43.5 percent) are in the age group of 25-35 years of age, 32.8 percent belong to the age group of above 35 years, and 23.7 percent fall in the age group of below 25 years. While 44.2 percent are married, 55.8 percent are single.

The survey shows that majority of the sample respondents (40.6 percent) are post graduates, 36.8 are degree holders, and 22.6 percent are diploma holders. The most of the sample respondents (42.2 percent) are employed in private companies, 21.3 percent are professionals, 12.4 are employed in Government companies, and 24.1 percent are business men. A majority of the sample respondents (38.0 percent) have a moderate monthly income level of Rs.30,000 to

Rs.50,000, 33.9 percent have a monthly income of below Rs.30,000 and 28.1 percent have a monthly income of above Rs.50,000.

While a majority of the sample respondents (62.9 percent) have computer literacy and have the experience of surfing the internet and 37.1 percent have only the experience of surfing the internet and don't have computer literacy. The most of the sample respondents (64.0 percent) are not able to access the internet at work place and 36.0 percent are able to access the internet at home/office. More than 60 percent of the sample respondents (71.6 percent) are holding smart phones and remaining 28.4 percent don't have the smart phones, but access internet at office/home.

4.2 Descriptive Statistics & Reliability Test

The Table 1 portrays a set of perspective statements concerning core facets of virtual banking portal. When the sample respondents were requested to rate their level of agreement with each of the perspective statements on a 5-point Likert scale, the consequent responses obtained in this regard were presented in Table 1. According to Table 1, the results were found to be very different from the mid-value 3.0.

With regard to Ease of Use (EU), it was obviously found from the Table 1 that there was a higher level of concurrence among the sample respondents for the indicative statement "It is easy for me to learn how to use virtual banking portal" with a highest mean score of 4.36 and standard deviation of 1.174. Followed by, "I don't need someone's help to access virtual banking portal" with a mean score of 4.25, and "It is easy to use virtual banking portal for all my banking transactions" with a mean score of 4.05.

In respect of Convenience (C), it was obvious from the Table 1 that there was high level of agreement observed among the sample respondents for the indicative statement "It is highly convenient to access virtual banking portal while doing my banking transactions" with a highest mean score of 4.18. Linked to this, the other significant indicative statements concerning the convenience of virtual banking portal found to have a mean score of more than mid-value 3.0 were "Overall, virtual banking portal is more convenient than other means of doing banking transactions (mean= 4.11)", and "I feel trendy to use virtual banking portal nowadays (mean= 4.08)".

With respect to Trust & Reliability (TR), the mean responses of the sample respondents for all the indicative statements concerning trust & reliability of virtual banking portal were observed to be less than the mid value 3.0. Among these, the mean response was found to be relatively high for the indicative statement "Virtual banking portal is trustworthy (Mean Score= 2.74).

With respect to Access Cost (AC), the mean level of agreement among the sample respondents was found to be higher than the mid value of 3.0 for the indicative statements "Fees & charges on virtual banking portal are less (Mean Value = 3.64)", and "The cost of telecommunication connectivity is reasonable and affordable (Mean Value = 3.59)".

With regard to Time Savings (TS), it was obviously found from the Table 1 that there was a higher level of concurrence among the sample respondents for the indicative statement "Virtual banking portal helps me to complete my transactions quickly" with a highest mean score of 4.16.

Followed by, "Overall, virtual banking portal saves me time" with a mean score of 4.12, and "Virtual banking portal minimizes the magnitude of time for doing my banking transactions" with a mean score of 4.03.

In respect of Privacy & Security (P&S), the mean agreement level of the sample respondents for all the indicative statements concerning privacy & security of virtual banking portal was found to be less than the mid value 3.0. Among these, the mean response was found to be relatively high for the indicative statement "I always feel safe providing personal & private information via virtual banking portal (Mean Score= 2.56)".

With respect to Govt. Supports (GS) initiated by the Government for encouraging and motivating digital or virtual banking portal among people, the mean level of agreement among the sample respondents was found to be more than the mid value of 3.0 for the indicative statements "Government encourages and promotes the usage of virtual banking portal (Mean Value = 3.68)", and "Government shows keen interest in creating a virtual ecosystem in the country (Mean Value = 3.25)".

A reliability analysis was carried out to check for the seven critical success indicators concerning virtual banking portal provided by commercial banks in Bangalore. A rule of thumb suggests that the acceptance Cronbach's alpha value should exceed 0.70 (Hair et al., 1998). Table 1 depicts a summary of the beta scores of all the response rankings of the indicators that affect the user gratification on virtual banking portal offered by banks in Bangalore. All indicators noticeably exhibit a Cronbach's alpha coefficient of at least 0.70, indicating that the questionnaire (n=134) has attained rather high level of reliability for the various parameters concerning virtual banking in general. Hence, all the research constructs are retained. Among these research constructs, the construct 'Privacy & Security' has the lowest ranking of Cronbach's alpha (0.812), followed by the 'Trust & Reliability' with 0.864. The indicator 'Convenience' has the highest ranking of Cronbach's alpha (0.988). Thus, the reliability test for all the research constructs was observed to be highly significant in this study.

Table 1: Descriptive Statistics & Cronbach's Alpha on User Perceived Value on Core Facets of Virtual Banking

Sl.No.	Core Facets	Statements	Mean Score	SD	Cronbach's Alpha
1	Ease of Use (EU)	EU1. It is easy for me to learn how to use virtual banking portal.	4.36	1.174	0.972
		EU2. It is easy to use virtual banking portal for all my banking transactions.	4.05	1.113	
		EU3. I don't need someone's help to access virtual banking portal.	4.25	1.168	
2	Convenience (C)	C1. It is highly convenient to access virtual banking portal while doing my banking transactions.	4.18	1.035	0.988
		C2. I feel trendy to use virtual banking portal nowadays.	4.08	1.003	
		C3. Overall, virtual banking portal is more convenient than other means of doing banking transactions.	4.11	1.036	
3	Trust & Reliability (TR)	T&R1. Virtual banking portal is trustworthy.	2.74	0.854	0.864
		T&R2. Virtual banking portal is highly reliable to secure my transactions.	2.64	0.854	
		T&R3. Overall, I fully trust and relay on virtual banking portal.	2.42	0.752	
4	Access Cost (AC)	AC1. The cost of telecommunication connectivity is reasonable and affordable.	3.59	0.964	0.937
		AC2. Fees & charges on virtual banking portal are less.	3.64	0.841	
5	Time Savings (TS)	TS1. Virtual banking portal helps me to complete my transactions quickly.	4.16	0.856	0.968
		TS2. Virtual banking portal minimizes the magnitude of time for doing my banking transactions.	4.03	0.958	
		TS3. Overall, virtual banking portal saves me time.	4.12	1.022	
6	Privacy & Security (P&S)	P&S1. I always feel safe providing personal & private information via virtual banking portal.	2.56	0.698	0.821
		P&S2. I am not panic to use virtual banking portal because of online frauds.	2.37	0.856	
		P&S3. I don't feel virtual banking portal is riskier than conventional banking.	2.43	0.742	
7	Govt. Support (GS)	GI1. Government encourages and promotes the usage of virtual banking portal.	3.68	1.229	0.954
		GI2. Government shows keen interest in creating a virtual ecosystem in the country.	3.25	1.210	

4.3 ANOVA on Core Service Facets of Virtual Banking Portal

The descriptive statistics such as Mean (μ) and Standard Deviation (σ) were computed to determine the nature of the research variables in response to users' perceived value on the virtual banking portal offered by commercial banks in Bangalore. The Table 2 indicates a set of seven research constructs concerning the users' perceived views on virtual banking portal. When the respondents were requested to rate their level of agreement with a set of statements using a 5-point Likert scale from 1 (strongly disagree) to 5 (strongly agree), the consequent responses obtained in this regard were presented in Table 2 along with the results of One-Way ANOVA and reliability test.

According to Table 2, the results were found to be very different from the mid-value 3.0. Of these seven constructs, "Ease of Use" was observed to be the significant construct with the highest mean score of 4.22 with respect to the users' perceived value on the virtual banking portal rendered by commercial banks in Bangalore. Followed by, the other significant constructs identified with the help of this study were "Convenience" with the mean score of 4.12, "Time Saving" with the mean score of 4.10, "Access Cost" with the mean score of 3.62, "Government Supports" with the mean score of 3.47. On the other hand, the constructs "Privacy & Security" and "Trust & Reliability" were found to be highly insignificant with the lowest mean score of 2.45 & 2.60 in response to the users' perceived value on the quality dimensions of virtual banking portal services provided by commercial banks in Bangalore.

Table 2: Descriptive Statistics and ANOVA on Core Facets of Virtual Banking Portal

S.No.	Dimensions	Mean Score	SD	F-value	p-value	Sig.
1	Ease of Use	4.22	1.254	32.04	0.031*	Sig.
2	Convenience	4.12	0.965	35.11	0.021*	Sig.
3	Trust & Reliability	2.60	0.754	22.46	0.059**	Not Sig.
4	Access Cost	3.62	1.235	28.75	0.036*	Sig.
5	Time Savings	4.10	1.056	33.45	0.028*	Sig.
6	Privacy & Security	2.45	0.623	17.27	0.068**	Not Sig.
7	Government Supports	3.47	0.958	27.23	0.039*	Sig.

Note: *Significant at 5% ($p<0.05$); **Not Significant at 5% ($p<0.05$)

The significant constructs of virtual banking portal were also identified using the one-way ANOVA as shown in Table 2. Results of one-way ANOVA reveal that the 'Ease of Use', 'Convenience', 'Time Savings', 'Access Cost', and 'Government Supports' were the pertinent factors that significantly influence the service quality dimensions of virtual banking portal at $p < 0.05$. Meanwhile, 'privacy & security' and 'trust & reliability' of virtual banking portal were found to be highly insignificant at $p > 0.05$ with regard to the service quality dimensions of virtual banking portal provided by commercial banks in Bangalore.

4.4 One-Way ANOVA of Research Variables

The second hypothesis (H_2) of this study was framed to test for a significant difference in the users' perceived value regarding various facets of virtual banking portal on the basis of their demographic characteristics. To examine if demographic variables influence the users' perceived value on various facets of virtual banking portal, the relationships between various demographic variables were tested with one-way analysis of variance (ANOVA). The results were presented in Table 3.

On the basis of frequencies and percentages of the demographic profile, meaningful light of conclusion can be derived. Results of the one-way ANOVA show that the different age group, education level, income level, computer literacy, internet accessibility at office/home of the sample respondents were found to have the significant relationships with the users' perceived value on various aspects of virtual banking portal such as ease of use, convenience, trust & reliability, access cost, time savings, privacy & security, and Government supports.

Table 3: Relationship between Demographic Variables and UPV on various Core Service Aspects of Virtual Banking Services

S.No.	Demographic Variables	F-value	p-value	Sig.
1	Gender	6.233	0.425**	Not Sig.
2	Age	10.243	0.041*	Sig.
3	Marital status	5.144	0.512**	Not Sig.
4	Education level	11.341	0.038*	Sig.
5	Occupation	8.264	0.052**	Not Sig.
6	Income level (monthly)	12.215	0.032*	Sig.
7	Computer literacy	13.256	0.024*	Sig.
8	Internet accessibility at office/home	12.253	0.030*	Sig.
9	Smart phone availability	4.326	0.564**	Not Sig.

Note: *Denotes Significance at $p< 0.05$; **Denotes Insignificance at $p< 0.05$

5. Conclusion & Managerial Implications

As the paradigm of IT and telecommunication rapidly changes the fabrics of banking sectors in today's age of modern era, the operation of virtual banking has become more indispensable, paramount and diversified in the fierce competitive environment of business. Specializing in unlimited, speedy and convenient services, virtual banking has transformed the conventional system of banking in many developed and developing countries. Virtual banking is becoming increasingly popular due to precision, convenience and flexibility it offers. Banks are forced to offer virtual banking services to enhance its banking operations and achieve the cost advantage.

The present study, exploratory in nature, was designed to empirically examine the users' perceived value on virtual banking portal rendered by commercial banks in Bangalore and to explore a conceptual framework that throws a lime light on the salient facets that are closely associated with the virtual banking portal. This exploratory study was exclusively employed to extract the core facets that are significantly affecting the service quality dimensions of the virtual

banking portal. They are empirically identified as ease of use, convenience, trust & reliability, access cost, time savings, privacy & security, and Government supports.

Out of seven research constructs, the 'trust & reliability' and 'privacy & security' were viewed as the major threats that remarkably affected the user gratification on the quality dimensions of virtual banking portal. Meanwhile, 'ease of use', 'convenience', 'time savings' 'access cost' and 'government supports' were the core basis of user gratification from the users' perceived value on virtual banking portal. Besides, 'Ease of Use', 'Convenience', and 'Time Savings' were identified as the key quality dimensions for the strategic adoption and implementation of virtual banking portal by both private and public sector banks in India.

The statistical results of the one-way ANOVA show that the different age group, education level, income level, computer literacy, and internet accessibility at office/home of the sample respondents were found to have significant relationships with the users' perceived value on all the core aspects that are linked with the virtual banking portal discussed in this study.

The present study represents future implications for the virtual bankers who can attract more customers electronically and online by adopting stringent measures on trust & reliability and security & privacy of virtual banking services. The outcome of this particular research was confined to the sample size and responses provided by the sample respondents. The future researchers are left with a wide spectrum to expand the boundary of the current research by taking large and diverse samples including all areas of Bangalore. Based on the results of this study, the following managerial implications were drawn by the researchers:

- From the perspective of banking products and services being offered through electronic means and online, virtual banking is nothing more than traditional banking services delivered through the backbone of electronic communication delivery channels. The e-delivery channels include direct dial–up connection, private network, public network, telephone, personal computer, ATM, Kiosk, mobile phone, and an easy access to Internet & WWW, virtual banking is increasingly used by banks for receiving instructions and delivering their products and services to their customers effectively.

- The regulatory and supervisory concerns in virtual banking arise mainly out of its distinctive features. These concerns can be broadly addressed under three broad categories: (i) Legal and regulatory issues, (ii) Security and technology issues and (iii) Supervisory and operational issues. Security of virtual banking transactions is one of the most important areas of concerns to the regulators and commercial banks. The regulator and the banks are equally concerned about the security policy for the banking industry, security awareness and education.

- One of the biggest attractions of virtual banking as an electronic medium is its openness and freedom. It is a public domain and there is no restriction on who can use it as long as one adheres to its technical parameters. This has also given rise to concerns over the security of data and information transfer and privacy. These concerns are common to any network including closed and open user group networks.

- Regulators and supervisors all over the world are concerned that while banks should remain efficient and cost effective, they must be conscious of different types of risks this form of banking entails and have systems in place to manage the same. An important and distinctive feature is that technology plays a significant part both as source and tool for control of risks. Because of rapid changes in information technology, there is no finality either in the types of risks or their control measures. Both evolve continuously.

- The diversity in computer, communication and software technologies used by the banks vastly increases the challenges facing the online and virtual bankers. In this chapter, an effort has been made to give an overview of the technologies commonly used in virtual banking. An attempt has been made to describe concepts, techniques and technologies related to privacy and security including the physical security. The banks planning to offer virtual banking should have explicit policies on security& privacy.

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