

Influence of consumer innovativeness and personal characteristics on consumer adoption behavior of online banking: An empirical analysis

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Abstract

In recent years, banking industry around the world has undergone a rapid transformation; innovations in financial services have revolutionized the way of banking. These innovations have driven rapid changes in the ways banks provide services and interact with their customers. Though these technological advancements are more ubiquitous; the need of understanding the influence of self service technologies like ATM, ECS, NEFT, RTGS, online banking etc. by banks for its customers is important. The present study attempts to investigate influence of consumer innovativeness and personal characteristics on consumer adoption behavior of online banking. A pictorial presentation is provided that conceptualizes and bifurcates the consumer innovativeness as innate, domain specific, vicarious, techno-oriented and links it with personal characteristics of consumer and their adoption behavior of online banking. For this purpose, a sample of 180 customers has been taken by using the random sampling process from the customers of banks located in Delhi-NCR. An exploratory factor analysis is applied to analyze the data. The study identifies Convenience & ease of use, Techno savvy & job performance, past experience and Apprehension towards technology as four antecedent factors influencing consumer adoption behavior of online banking. The findings of study also indicate that self employed males under the age group of 31 to 40 indicate the characteristics of innate innovativeness and easily adopt online banking, where as professionals show domain specific innovativeness. The study also deduces that Servicemen falling in the age bracket of 41 and above were found to be more apprehensive towards the adoption of technology.

Keywords: Self-service technologies, Consumer innovativeness, Consumer adoption behavior.

Introduction

Before steepening of Information Technology in Banks, the traditional function of banking was limited to only acceptance of deposits and providing credit to the bank customers, whereas today's banking is known as innovative banking. Driven by new technologies, changing customer preferences and increased competition; banks have taken to heavy investments in new distribution channels like ATM, EFT, mobile banking etc. Despite this significant innovations in self-service technologies bank have to face the fact that there will be little return from investment in technology if customer fail to accept or fully utilize their capabilities (Yousafzai & Soriano, 2011). Consumer innovativeness and personal characteristics of customer plays a prominent role in diffusion and ultimate adoption of new technological products (Im et al., 2003). Innovativeness is defined as "the degree to which an individual is relatively earlier in adopting an innovation than other members of his system" (Rogers et al., 1962). The adoption of innovation is not mere act instead it is process (Vandecasteele & Geuens, 2010) that initiates from possessing knowledge about the innovation followed by persuasion, decision and confirmation to adopt and use of innovation, during this process a consumer has many stages where the relationship between innovation and personal characteristics of consumer created (Hussain et al., 2014). Further (Chao et al., 2009) classified the innovativeness as *consumer innate innovativeness* which is defined as the degree to which the individual is willing to adopt innovations such as goods and services or new ideas without communicating with others.

Domain specific consumer innovativeness is the tendency to

learn about and adopt innovations (new products) within a specific domain of interest; *vicarious consumer innovativeness* is defined as the acquisition of information regarding a new product. Through vicarious innovativeness an individual can, adopt the product concept without adopting the product itself. However personal characteristics (demographic factors) have also been widely used to identify the customers who easily adopt the online banking and who resist from these technological advancements. This paper aims to classify the customer innovativeness i.e. innate, domain specific and vicarious on the basis of personal characteristics (age, education, gender, occupation) and their influence on adoption behavior of consumers towards online banking.

Objectives of Study

There are many variables which influence the adoption behavior of customers like their attitude, perception, beliefs, consumer innovativeness, readiness, demographic factors, perceived ease of use etc. On the basis of identified research gap below are few of objectives which the research paper aims to achieve.

1. To identify the influence of consumer innovativeness and characterize the innovativeness on the basis of innate, domain-specific, vicarious on adoption behavior of consumer of banking sector.
2. To identify the influence of personal characteristics (demographic factors) on consumer adoption behavior towards online banking.

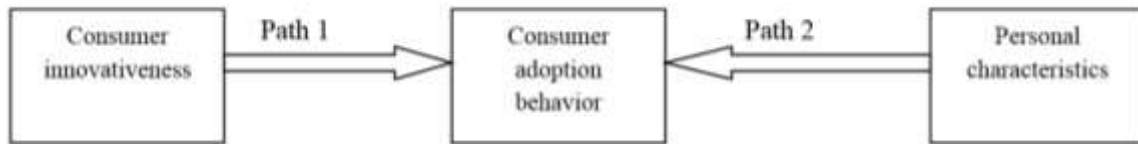


Fig. 1: Model of personal characteristics, consumer innovativeness and new product adoption behavior

Literature Review

To get the insight of the problem following studies concluded the review of existing literature. From the body of existing literature in this domain, the researcher has given a pictorial presentation in Fig. 1 which illustrates the model of personal characteristics, consumer innovativeness and new product adoption Behavior is provided to elucidate the concept.

Path 1

Consumer innovativeness and consumer adoption behavior. In line with first path in figure 1 few studies related to consumer innovativeness and adoption behavior of consumers. Mzoughi and M'Sallem (2013) segmented the non-adopters category in postponers, opponents and rejecters and found that *postponers* were having low resistance to internet services and is more likely to adopt within one year; *opponents* were more intense and diverse regarding internet services adoption and not going to adopt it within one year; *Rejectors* who were most intense and will never adopt the internet services.

Lichtenstein and Williamson (2006) also note that technophobia; a term used by Mitchell (1994) to define the resistance to new technologies; was due to lack of self-efficacy and innovativeness in internet banking in Australia. Midgley and Dowling(1978)highlighted that consumers with high innovative dispositions may not always adopt new products and also found that personal characteristics play an important role in explaining the different adoption behaviors of innovative communicators(those who are younger, more educated and highly involved socially)exhibit innovative adoption behavior in terms of their time of adoption and purchase intentions.

Path 2

Personal characteristics and consumer adoption behavior. Considering the second path in figure 1, number of empirical studies relates personal characteristics to new product adoption behavior. Main demographic characteristics found to affect the consumer adoption behavior in the literature include age, gender, level of income, marital status and occupations (Midgley & Dowling, 1993; Dickerson & Gentry, 1983). Waite & Harrison (2004) advised that more adequate and relevant information is provided online more likely the customer will adopt online banking. Sathye (1999) identified security concerns and lack of awareness about internet banking stand out as obstacles to non adoption of internet banking in Australia. Karjaluto (2002) determined that beliefs and attitude towards online banking makes a difference between users and non users of internet banking. Also personal

banking experience and prior experience of computer and technology were the main factors which influence the attitude of customers towards internet banking. Walker & Johnson (2006) identified that the use of internet banking and shopping services is clearly and directly influenced by individual sense of capacity or capability. This study also suggests that usage is not the function of capacity alone but is also influenced by how willing the customer is to adopt. Pikkarainen et al. (2004) suggested five factors i.e. perceived usefulness, perceived ease of use; information online banking, security & privacy have a great impact on the acceptance of online banking.

Research Methodology

The objective of the study is to understand the influence of consumer innovativeness, personal characteristics on consumer adoption behavior towards online banking, and characterize the innovativeness on the basis of innate, domain-specific, vicarious etc. To know the multi-dimensions of the problem it is explored whether consumer adoption behavior are linked to the personal characteristics of the respondents (Age, Gender, and Education) and the consumer innovativeness (innate, domain specific, vicarious) by using cross table. A survey was designed and conducted on customers of banks. The target population of the study includes customers of banks either service-man or self –employed in the Delhi-NCR. A sample of 180 bank customers is taken by using random sample for drawing inference about the population. A questionnaire was developed for measuring the influence on online adoption behavior of these two. For the measurement, a five point Likert Scale was used (5=Strongly Disagree, 1=Strongly Agree). The collected information was analyzed by using IBM SPSS (Version 22). Descriptive statistics and exploratory factor analysis was applied in determining numbers and to get the major dimensions of the problem.

Result Analysis and Interpretations

To extract the information from the multi-dimensions of the data, Principle component analysis is utilized. It is one of the most common methods used by the researchers. PCA starts extracting the maximum variance and puts them into the first factor. After that, it removes that variance explained by the first factors and then starts extracting maximum variance for the second factor. In this present study the PCA facilitated us to extract the four components from the data. These four components which also called factors are identified as convenience and ease of use; Techno savvy & enhances job performance; past experience in the form of education background and job; apprehension

towards usage of technology. To know how these factors vary in relation to extraneous variables such as age, gender etc. and also characterize the innovations on the basis of these variables and their impact in adoption of technology. The factor score of the all four factors transformed into standard score on the scale of 10 (Table 5).

Transformation/standard score = $\frac{\text{actual} - \text{minimum}}{\text{maximum} - \text{minimum}} \times 10$.

The total variance explained by the identified four factors is 55.59. These factors and information embodied in them are elaborated as under:

Factor 1: Convenience and Ease of use

The statements (S12, S22, S23, S20, S11, S21, S19, S29, S15, S9) grouped under first factor describes the ease of use in adopting the technology so it is named as convenience and ease of use. The statements along with their factor loadings are given in Table 1. The statements "internet is a preferred medium of banking", "easy to do what you want to do in mobile banking", "easy to do what you want to do in online banking has the factor loadings 0.744, 0.731, 0.709 respectively. These statements in large context depict the ease and convenience which the bank customers feels while using the technology.

Table 1: First factor and its loadings (Variance explained 18.677)

Item No.	Item	Factor Loading
S12	Use internet as preferred medium of banking	0.744
S22	Find easy what you want to do in mobile banking.	0.731
S23	Find easy what you want to do in online banking.	0.709
S20	Learning to use mobile banking is easy for you	0.695
S11	Feel confident when use internet banking.	0.695
S21	Learning to use online banking is easy for you	0.675
S19	Prior computer experience leads to easily acceptance of internet banking	0.571
S29	Feel comfortable with technology enabled services	0.524
S15	Banks helps to understand the technology products	0.448
S9	Invest less time and money to learn the use of internet banking	0.430

Source: Primary Survey.

It is observed that male customers found the technology more convenient (Table 5) which characterize the innate innovativeness rather than female due to their inbuilt risk bearing capacity and decision making power which leads to

male explore various task operated options and find ease of using the online banking in contrast to female customers. Moreover if we categorize the customers on the basis of education background then up to 12th class people found to be more enthusiastic in adopting the new technologies like online banking and this happens to decline up to the PG level due to techno generation gap and then found slight increase the value for above PG and professional courses which is due to domain specific innovativeness because the customers belong to this segment found technology convenient for the particular domain For ex. PhD students found technology (software) easily acceptable and convenient. Further self employed found to be more innovative and convenient in adopting the new technology rather than serviceman where as on basis of age group age of 41 & above found technology more convenient and ease of use it is due to vicarious innovativeness because they find it easy by not using the technology but due to word of mouth and personal network who own the new technologies and they accept their beliefs; slightly less than 41 & above age group between 20 to 30 these people also feel convenient and ease of using technology because of their young ages and their flexible nature of adaption of changing environment easily.

Factor 2: Techno Savvy and Job Performance

The statements (S27, S33, S32, S16, S4, S34, S30, S31, S13, S28) grouped under second factor have an element of techno savvy and job performance so it is named as techno savvy and job performance factor. Under this factor the major statements along with factor loadings are "find no problem in adapting the new technology enabled service systems (0.751)", "enjoy the challenge of figuring out high tech gadgets (0.750)", believe that internet banking websites do not require a lot of mental effort (0.644)". The attributes reflected in the characteristics of these statements is appropriately named as techno savvy and job performance of the employees. The configuration of the second factor "techno-savvy and job performance" is presented in Table 2.

Table 5 when studied the techno savvy and job performance by age group 20 to 30, 31 to 40 and 41 to above. Respondents falling under the age bracket of 31 to 40 found to be more techno savvy and it was found that use of IT among this age group act as a catalyst to increase the job performance of this bracket and innate innovativeness characteristics are found in this age group it is due to the exposure to IT in their workplace where as people belong to 20 to 30 age group comparatively feel less techno savvy and in this age group domain innovativeness are more prominent because particular domain specific like mobile banking, mobile apps people are more active rather than whole. On the other hand when we observed the respondents on the basis of gender and occupation the result came out as we discussed in first case that male and self employed feels more techno savvy and performed the job in a more effective way with the use of technology and easily adopt the online banking due to their inbuilt behavior and versatility in their nature. People those are professionally

qualified; by virtue of their professionals they have already adopted the IT in their core work areas and upgraded their skills with the pace of changing environment so they found to be more techno savvy and easily adopt the technological changes where as people belong to up to 12th feel less techno savvy due to not getting platform of practically implementation of technology like mobile, online banking; domain specific innovativeness found to be more like social sites etc are more in this segment; no significant factor score difference found in UG, PG level people.

Table 2: Second factor and its loadings (variance explained 36.725)

Item No.	Item	Factor Loading
S27	Find no problem in adapting the new technology enabled service systems.	0.751
S33	Enjoy the challenge of figuring out high tech gadgets.	0.750
S32	Believe that internet banking websites do not require a lot of mental effort.	0.644
S16	Could easily understand the set up and learning procedures related to technology.	0.630
S4	It is easy to use internet banking.	0.625
S34	General skills are sufficient to carry out banking transactions over the internet.	0.617
S30	Technology enabled services makes it easier to utilize banking services.	0.613
S31	Believe that internet banking websites have clear and understandable procedures	0.591
S13	Internet banking enhances the job performance.	0.505
S28	Believe you have the ability to make use of technology enabled services	0.499

Source: Primary Survey

Factor 3: Past Experience

The statements (S1, S2, S24) clustered under the third factor has the elements of past experience from job or education background so it is appropriately defined as past experience. The major statements included under it such as “education background has enabled the use of technology for banking services(0.698)”, “self-service alternatives more pleasant than personal customer service (0.676)” show that the past experience factor is appropriately defined. The configuration of third factor “past experience” is presented in Table 3.

Table 3: Third Factor and its loadings Variance explained 46.187)

Item No.	Item	Factor Loading
S1	Education background has enabled you to use technology for banking services	0.698
S24	Self service alternatives more pleasant than personal customer service	0.676
S2	Current job helps you to easily access the banking technology	0.612

Source: Primary Survey.

From the analysis of table 5 it is observed that male customers and those belong to the age group between 20 to 30 felt that past experience has helped them to adopt the advancement in technology whether this past experience comes from current job or their education background; this is may be due to their innate innovativeness and do by own attitude where as no significant difference is found between other age groups. When we talk about occupation service man found to be learnt more from past experiences because they have to work in a pre described set up that is in particular domain where past experiences helped them in adopting the technology. Professionally qualified customers or customer belong to PG give importance to the past experiences as their lives daily encounter the technology where past experiences counted.

Factor 4: Apprehension towards Technology

The statements (S7, S8, S26, S17) grouped under fourth factor has the elements of apprehensiveness towards the technology so it is appropriately defined as Apprehension towards technology. The major statements included under it such as “find technology enabled services are complicated to use(0.779)”, “Feel not comfortable while dealing with internet banking (0.738)”, “dealing with technology is for techno savvy type of people(0.708) these statements reflect the apprehension towards technology. The configuration of fourth factor is presented in Table 4.

Table 4: Fourth factor and its loadings (Variance explained 55.593)

Item No.	Item	Factor Loading
S26	Find technology enabled services are complicated to use	0.779
S8	Feel not comfortable while dealing with internet banking	0.738
S17	Dealing with technology is for techno savvy type of people	0.708
S7	If no experience of previous technologies you find it hard to adopt recent banking technology	0.544

Source: Primary Survey.

Table 5: Factor score for different categories

Factors	Age Group			Gender		Education					Occupation	
	C1	C2	C3	Male	Female	Upto 12 th	UG	PG	Above PG	Prof. Qualified	Servicemen	Self employed
F1	5.9343	5.3200	6.3058	5.8915	5.6886	7.6594	6.1783	5.5575	5.7888	5.8370	5.6837	5.8748
F2	5.9194	6.0123	5.0368	5.9080	5.6755	3.7535	5.7005	5.8682	5.7604	7.2007	5.6900	5.8680
F3	5.9809	5.5702	5.5577	5.8501	5.7192	5.0146	5.4621	5.8939	5.7461	5.9715	5.8161	5.7316
F4	5.6075	6.2375	6.3348	5.4649	6.0100	7.4995	6.6364	5.4931	5.7991	5.9977	5.8354	5.7108

Source: Primary Survey

*Age Group: C1:20to30 Years, C2:31 to 40 Years, C3:41 to above

In the category of gender and age (Table 5) female customers and the customers who fall under the age bracket of 41 to above were found to be more apprehensive towards the use or adoption of technology due to their risk resistant nature and vicarious innovativeness is found in those people because in this people adopt the technology concept without adopting the technology itself due to maximum exposure to advertising or personal network who own the new technology. Whereas in occupation serviceman have limited resources and accountability nature of work make serviceman more apprehensive and domain specific because they works under a scripted format of software rather than self-employed who lives in vibrant environment where change in people or adoption of new technology is required with changing environment. As far as education is concerned surprising result came out that upto 12th class customer found to be more apprehensive for technology may be as we discussed earlier that they found technology more convenient and ease of use because of attaining habit of using the technology but feel apprehensive for the technology other than their domain specific area so domain specific. Innovativeness found in this segment of customer.

Conclusion and Recommendations

The study quantified the factors which categorize consumer innovativeness in innate, domain, vicarious and personal characteristics (age, gender, education, profession) their influence on consumer adoption behavior of online banking. The literature on online banking identifies lack of awareness and security concerns as prime reason for slow adoption of online banking among consumers but very few studies categorize the innovativeness & their influence on consumer adoption of online banking. The study found that male customers are more techno friendly, feel online banking as more convenient and ease of use and females were found to be more apprehensive towards the use of online banking rather than males. Innate innovativeness was also found in males which energizes the adoption of online banking among consumers whereas on the basis of age group of 41 and above found online banking more convenient and ease of use but apprehension was also found among consumer of this age group due to vicarious innovativeness due to this consumer of this segment not actually adopt the online banking but accept the concept of online banking by word of mouth but age group between 31 to 40 found to be more techno savvy and feel that online banking enhances their job performance. Results on the

basis of occupation deduced that self-employed respondents found online banking more convenient, ease of use, techno savvy due to vibrant nature of their job than service man where domain specific innovativeness exist because they are suppose to do work in predefined systems so past experience do effective in case of the servicemen. Professionally qualified customers were found to be more techno savvy which enhanced their job performance by adoption of technologies whereas study also deduces that respondents upto 12th class find online banking more convenient and ease of use but on the same hand they are more apprehensive towards the use of online banking; domain innovativeness was found more in this segment where as innate innovativeness found to be more in professionally qualified males of age group of initial ages. In order to facilitate the adoption of online banking among consumers managers might present the service to prospective customers as a complementary mode of banking which has several practical advantages including the free service, time saving, lower costs and accessibility at any time. Managers should aim their communications toward students, who form a prospective "near future" target. Banks should use social networks like Facebook and Twitter more to keep their customers updated about any changes in services or offers. It is also suggested that Staff of banks should make effective communication to overcome their customers from apprehension towards the adoption of technology. The study also suggests that Bank managements should make more efforts to build awareness among their consumers by emphasizing the benefits of online banking.

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