SYNOPSIS OF THE THESIS

Impact of Mobile Banking on Customer Satisfaction with reference to Retail Banking

Submitted
in partial fulfilment of the requirements for the award of the degree of

DOCTOR OF PHILOSOPHY

in

MANAGEMENT

By

B.S. JAYACHANDRA
UID No. 14JU11300007

Under the Guidance of

Dr. Arcot Purna Prasad
(Research Co-Supervisor)
Associate Professor
School of Business Management
Christ University
Bangalore, Karnataka

Dr. Bhagabat Barik
(Research Supervisor)
Professor
Faculty of Management Studies,
ICFAI University, Jharkhand,
Ranchi.

ICFAI UNIVERSITY JHARKHAND
RANCHI
JULY 2022

CONTENTS

1. INTRODUCTION

Over the past few years, the world has witnessed significant changes in the area of wireless communication systems. This has provided various opportunities to business, while consumers are enhancing the use of mobile devices for their daily activities (Zhou *et al.,* 2016). One particular area of interest is the growing adoption and acceptance of mobile payment services around the world. The use of mobile payment technology has tripled in the last few years. Despite its growth potential, researchers have paid little attention to the factors that influence the intention to use mobile payment services in the emerging market.

Since electronic banking first appeared, Web apps have gained rapid popularity due to the advantages they offer banking entities in terms of comfort and ease when performing client transactions, increasing market coverage, and service quality. In contrast to traditional banking activities, online banking provides more features and functionalities at a lower cost (Laukkanen, 2010).

Online banking and mobile apps of financial entities allow users to, among other advantages, access their accounts from any location and at any time. Such accessibility represents an advantage over traditional banks. Despite all of this, it is important to highlight that the number of clients that operate through online banking has not increased as much as it was expected. Aspects such as the lack of differentiation between banks, lack of trust in the system, impersonal treatment, or lack of security have caused reluctance from many customers to use such tools (Mallat &Tuunainen, 2008).

In India, one of the biggest emerging markets in the world, the use of mobile payment services has significantly increased in the last few years (Madan &Yadav, 2016). Few significant factors are behind the increased usage of mobile payments in the country; for example, high internet connectivity, accessibility of mobile data, strong wireless network, inclination towards new and innovative technology, digital India policy, and various financial inclusion initiatives (Sinha *etal.,* 2019). Few studies also shared other benefits associated with digital payment services including cashbacks, rewards, cash discounts, etc., for the use of mobile payments and other online platforms. All these

features enhance the user's inclination to use and adopt mobile payment services (Pal *et al.,* 2020).

2. NEED FOR THE STUDY

Many people are having a mobile phone but no bank account in India. And setting up bank branches is not only expensive but time-consuming. According to some studies it could easily take more than two decades for bank branches to reach the entire 1.3 billion populations. The way out is mobile banking - using handsets to enable some of the banking functions like payments, money transfer, and so on. The present study is an attempt to answer such questions in the environment of newly introduced technology-enabled banking services. Relatively, little empirical research has been carried out in India about mobile banking, to examine the extent of utilization, reasons for the adoption and non-adoption, level of satisfaction, problems faced by the customers, etc. Though there are few studies conducted in the field of e-banking in India, most of them are sector-specific or region-specific. No significant research studies have been attempted by previous researcher's exclusively on mobile banking factors on satisfaction and there are no such research works documented on the preferences of the bank customers. Therefore, the researcher felt that there is a dare need to have a holistic study from the angle of bank customers using mobile banking services. Therefore, the present study is a pioneering one and is intended to bridge this gap to some extent.

3. STATEMENT OF THE PROBLEM

The large population of visually impaired persons in India highlights the market size and potential of this special segment to consume banking services. Despite all technological developments in banking and RBI initiatives to include visually impaired people, mobile banking shares an unfavourable response towards existing inclusive banking initiatives. Therefore, it has become very important for banks to offer independent banking solutions and features that are fully accessible. This study will concentrate on understanding the banking pattern of mobile banking and its

influence on customer satisfaction. The competence levels of mobile banking users are improving as they can access computers and Mobile phones (Williamson *etal.*, 2001). Therefore, Mobile banking has been considered in this study for assessing its various factors influence on customer satisfaction.

4. SCOPE OF THE STUDY

Indian telecommunication service scenario indicates that cellular or mobile phone service was growing tremendously in the last five years. As per TRAI's report on the telecommunication industry in India, the wire-line phone connections were declining in the last few years and mobile phone connections were increased very fast. India's total mobile subscriber base including active and inactive users has reached 1,176 million in 2018. The proportion of active subscribers was approximately 87.28 percent of the total wireless subscriber base. Mobile customers in urban areas reached 647.52 million. India has 528.48 million mobile users in rural areas. Mobile phone density in India was 89.78 in 2018. Mobile service tele density was 155.48 in urban areas and 59.15 in rural areas. So, it indicates that there is a great scope for Mobile banking as the numbers of mobile users in India are increasing rapidly. Now a days, retail customers in banks are also more accessible to mobile banking. So, a deeper understanding of mobile banking and various parameters of it with respect to customer satisfaction will broaden the customer friendly business among bankers. The research study will enlarge the scope for finding new market, innovative product and suitable market segmentation among the new players in the area of mobile banking.

5. REVIEW OF LITERATURE

Mobile banking is considered the most value-adding and important mobile commerce application available (Chaouali *et al.*, 2017). Laukkanen and Kiviniemi (2010) defined mobile banking as "an interaction in which a customer is connected to a bank via a mobile device such as a cell phone, smartphone, or personal digital assistant." Mobile banking services allow customers to check account balances, transfer funds between accounts, and make electronic bill payments. They thus have vast market potential

because of their always-on functionality and the option for customers to bank virtually any time and anywhere.

There is a growing body of academic research examining the determinants of m-banking acceptance and its utilization (Standing and Karjaluoto, 2009). Studies have been conducted in various countries to better understand consumers' attitudes toward this emerging mobile technology. For example, Mattila (2003) focused on the drivers and inhibitors of m-banking services. The author found that complexity, compatibility, relative advantage, and observability are the significant factors influencing consumer decision-making in m-banking adoption. Also, security and confidentiality of information are fundamental prerequisites for any m-banking service to be successful.

While Mattila (2003) primarily focused on the Finnish market which was already gearing up for m-banking, Luarn and Lin (2015) conducted a survey in Taiwan where mobile banking was still at an infant stage. The traditional Technology Acceptance Model (TAM) framework was extended by adding one trust-based construct (perceived credibility) and two resource-based constructs (perceived self-efficacy and perceived financial cost) in the m-banking context. They found that all factors have a significant effect on behavioural intention, and perceived credibility is the most contributing factor to intention.

Tao Zhou, (2014), initiated a study to find out consumer's mobile banking acceptance by incorporating model TAM with work on observed advantages as well as its threats. It has been seen that observed usefulness, social insecurity, performance risk, and advantages straightway impact opinion concerning mobile banking, and that opinion is the crucial element of mobile banking acceptance. Additionally, there is no straightforward relationship between recognized usefulness and aspiration to use was realized.

Kumar, Banga, and Sharma (2014) found that nationalized banks were concentrating more on increasing their credit risk and capital requirements as compared to the private and foreign banks as their increase was more of the other two categories of banks. The private banks were concentrating on their Tier-1 capital requirement as compared to the other two categories of private and foreign banks taking care of the internal procedures of banks and creating more awareness about supervising review. It

was suggested that proper action should be taken to make compliance more transparent and effective.

Technical Committee Report, RBI (2014) described that the Mobile banking transaction is economical compared to the traditional banking channels and hence there is a need for banks to encourage the mobile banking channel in a big way keeping in mind the long-term economic gains. Bank-specific applications and individual platforms have a major role in building brand loyalty, an alternate uniform/common platform, interoperability, and a similar seamless transactional experience to the users/customers of all banks would encourage mobile banking.

In connection with Li *etal.,* (2014), one can see the connection, with the findings, who considered these facilitating conditions (FCs), the strategies involved with mobile banking were helpful with the motive of taking on of the system of banking in mobile.

In this domain, another similar study was conducted by Singh and Aggarwal (2013) in the context of India and they discovered that residents of urban areas were extra predisposed to accepting new technologies than rural peoples. On the other hand, the reading verified and offered the opinions of rural Indians empirically, which could not be established overwhelmingly, and also it completely overlooked the urban Indians.

Bhat and Khan (2013) detected that there were significant variations between private sector banks (JKB and HDFC bank) and public sector banks (PNB and SBI) regarding each of the overall perceived and expected. It was also observed that their respective customers provided a significant score and hence accepting the research hypothesis. They suggested that banks should develop more proactive market strategies to reach and retain customers. The management must adapt to customers' orientation programs and reinforce their relationship with them.

Chen (2013) initiated a study to analyse the impact of circulation and accepters of mobile banking services (MBSs), observed risk, brand attention, and brand image of MBS supporters, on attitude towards using MBSs, and on the aspiration to use MBSs. In consensus with sample usage frequency in MBSs, this study categorizes the sample population into distinct behavioural sections (frequent/infrequent users) to focus sample features and behavioural models. The methodical outcome of the study shows

that mobile banking users with distinct behavioural habits have different perceptions of invention advantages and insecurity.

Arvidsson (2013) initiated an examination to identify consumer's behaviour on acceptance of the mobile settlement method. The outcome of research shows that the most essential element describing if users are preferring to practice mobile payment services is the ease of use or not. Additionally, related benefits, high trust, low insecurity, higher age, and low income were accompanied with a positive view on accepting the service. The outcome of the study shows that the study of the invention in the payment industry cannot depend on technology adoption models and innovation diffusion theory all alone.

Mishra & Sahoo (2013), stressed the fact that m-commerce's implementation in India with the usage of behavioural theories is very clearly projected in the performances of consumers respectively. The various factors that she discovered were the outlooks, subjective norms (SNs), and observed behavioural controls. These factors that she noticed were the main antecedents of behavioural intentions (BIs) which moved forward with the usage of m-commerce. According to her study, this focused on the point that psychological factors play an important role than technological aspects for the taking on of m-commerce. Mostly it was noticed that the person's attitudes and the approval were related to the end-users of BIs. Focusing on the point, which was highlighted by her, says that if marketers encourage constructive outlooks toward m-commerce, then it will serve better and would enhance the charges of implementation in the area of mobile banking. Referring to the point, one can say that the study lacked the element based on an absence of investigation using theories similar to the Theory of Planned Behaviour (TPB)

Yadav *etal.*, (2012), looked into the suitability and iniquitousness that was established in consumers who favoured mobile strategies, which are responsible to make a stick from their customary practice to the latest technology in mobile banking. In connection to this, it was noticed that the impact of this had on mobile battery, which becomes comparatively short. It became the reason that was regarded as the main limitation to obligate them not to follow the practice of mobile banking for their customer.

Grewal's (2012) empirical study established that the uprisings in (ICT) that is information communications and technology. Its dealings have overwhelmed obstructions instigated by non-educated people; obtainability and charge affected by a large percentage of 70 in India are in countryside areas. It highlighted that the cost of mobile service charges is less compared with other countries with India. Moreover, individuals are keen on paying for several limitless data plan services. This made the Government of India assist pleasing enterprises to progress the development of m-commerce and m-banking. Another important element to be taken care of was the safety measures that were the main complications to the acceptance of these up-to-the-minute technologies, in line with the conclusions of others.

ShumailaYousafzai, MirellaYani-de-Soriano (2012) initiated a study to intensify the awareness of customer's genuine e-banking attitude by associating the shape of automation inclination with the TAM Model and demographics like age and gender into one combined structure. The outcome of the study shows the importance of customer-precise elements in predicting a genuine attitude. Technology expedition, age, and gender average the beliefs-intention relationship. Users with distinct levels of automation-related ideas and demographics carry dissimilar views about technology. The connection between usefulness and attitude was intense in the case of young males with a great level of positivity and creativeness (explorers and pioneers), while the connection between the ease of use and behaviour was intense for old women with a high level of displeasure (paranoids and laggards).

6. RESEARCH GAP

Technology is rapidly changing the way personal financial services are being designed and delivered and thus the entire environment of banking services is being changed with the introduction of multi-channel service systems. Recent developments in electronic distribution service channels have become increasingly sophisticated. Adoption of IT-enabled services has reduced the costs and widen their market for the service providers. With this development, the users enjoy a broader variety of services, and their operations are now more convenient and not bound by office hours. The technology used by the banks to provide the latest services is already very advanced.

However, electronic banking, or virtual banking in general, cannot entirely replace the existing traditional channels. Despite the convenience and other benefits that the service can offer, not everyone uses e-banking or online banking specifically. A significant portion of the highly educated consumer segment is still opting for branch banking.

Owing to the entry of *de nova* domestic private and foreign banks, the Indian banking sector underwent drastic changes in terms of competitive landscape and banking practices. To grow by widening the market, the banks must always be equipped with the changing technological environment addressing consumer concerns. Due to the increasing importance of modern information and communication technologies for the delivery of retail banking services, the analysis of the determinants of technological banking adoption has become an area of growing interest to researchers and bankers.

The most recent technological advancement is the evolution of e-banking. Various alternative modes of providing banking products are evolved and gained popularity in the recent past, such as telebanking, Automated Teller Machines, e-banking, credit & debit cards. The most recent one is e-banking which has a major impact on the financial market. Banks got the sense that internet facility will open up new horizons for banks and will help them to adapt to globalization effectively. According to Thulani et al., (2009) and Henry (2000), "Internet banking refers to systems that enable bank customers to get access to their accounts and general information on bank products and services through the use of bank's website, without the intervention or inconvenience of sending letters, faxes, original signatures, and telephone confirmations".

Extensive research related to technology-based banking services has been carried out internationally from various perspectives. Some studies have analysed the adoption and growth of online banking, while others describe the benefits to be gained as far as the organization is concerned, main obstacles of growth in the number of online banking users, etc. Studies from various locations of India have also been conducted on customers' perspective regarding the factors which influence and discourage the

use of technology-based bank delivery channels etc. However, at the national level, there is a considerable lack of study concerning this area. Another area where there is limited literature review is the customer satisfaction due to the implementation of mobile banking in retail banking areas. Therefore, the present study is an attempt to know the factors influence of mobile banking on customer satisfaction in retail banking.

7. OBJECTIVES OF THE STUDY

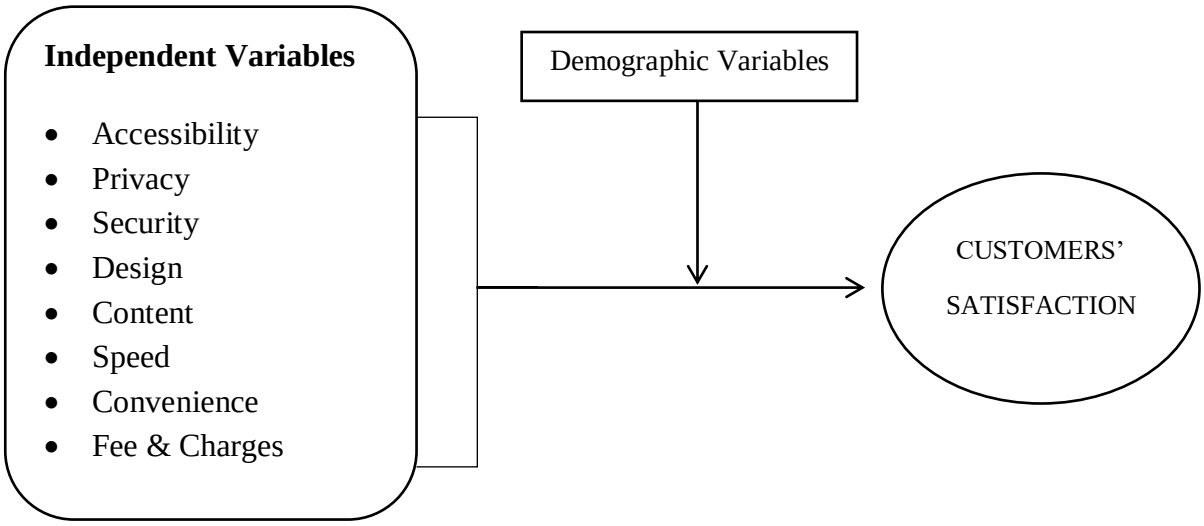
This study is aimed at assessing the impact of Mobile Banking on Customer Satisfaction concerning Retail Banking. The major objectives of the study are as follows:

1. To know the influence of demographic variables on the factors of mobile banking
2. To identify the influence of demographic variables on the customer satisfaction
3. To study the impact of mobile banking factors on customer satisfaction.
4. To provide suitable measures to improve the mobile banking transactions.

8. RESEARCH MODEL & OPERATIONALISATION OF VARIABLES

The systematic study of the research problem in addition to their theoretical framework and its implications requires designing a study model for the dependent, independent variables where the Mobile banking services and demographic variables are Independent, and customers' Satisfaction is dependent.

Proposed Research Model



Source: Prepared by Researcher

- **Accessibility**

Accessibility is defined as the capability of users to acquire information and services of the website which is depended on many factors such as size and format of materials, users' hardware/software, internet connection, spatial conditions, and users' strengths/weaknesses (Hackett & Parmanto, 2009). Service accessibility as reflected in the number of banking offices per unit of the market represents an important component of the overall level of service provided to financial consumers, the technology internet has produced internet banking that serves Bank's customers to do banking transaction anywhere as long as they can access to the internet (Gunther,1997). Consumers may access the websites or applications based on how easy they are to use and how effective they are in helping them accomplish their tasks (Zeithaml *etal.* 2002).

- **Security**

Often, websites gather a diverse set of users'/customers' information. For the same reason, security is considered an important concern (Liao & Cheung, 2002). Despite technological advancements in internet security such as authentication, biometrics, call back modems, encryption, digital certificates, firewalls, filtering routers, password protection, PC hardware security, and smart cards would increase customer confidence in using online banking services (Ranganathan & Ganapathy, 2002). There are various studies on security as one of the most important indicators of internet banking and all have emphasized that the security of internet banking impacts positively on the satisfaction of customers (Jun & cai, 2001; Liao & Cheung, 2008). Therefore, this study proposes that security is a significant impact on customers' satisfaction.

- **Mobile Banking App Design**

In terms of human – Mobile App interactions, the type of App designing is highly important and impacts intensively on users' performance (palmer, 2002). In the meantime, Ranganathan & Ganapathy (2002) believe that App designing plays a vital role in attracting, retaining, and improving customers' interests in websites. More studies on internet service have especially focus on app designing and all authors agree that app should be designed in a manner to enhance customers' conception of the website and its services. Furthermore, desired app designing would increase accessibility and plays a critical role in its attractiveness. One of the best ways to improve app designing is that customers should be asked to evaluate it. Considering the overall recommendation of Liu *etal.*, (2008) & Zviran *etal.*, (2006), this study proposes that the website app has a significant impact on customers' satisfaction.

- **App content**

In mobile banking, app content is one of the most important factors impact m-banking (Ahmad *et al.,* 2011). It points out the desirability of app information in customers' viewpoints. Hence, many studies consider information content as a benchmark of app quality (Yoon, 2010). App content should provide profitable information on the type of provided services for facilitating users' better conception (La & Kandampully, 2002). Furthermore, users need to have supplementary information on banks,

recommendations by experts, financial reports, relevant links, and contact information such as address and telephone number(s). This study, therefore, proposes that the accessibility of website content has a positive impact on customer satisfaction.

- **Speed**

The speed of operations and rapid responsiveness has always attracted attention and it is the main concern of information systems and e-commerce (DeLone & McLean, 1992). Likewise, there is a significant relationship between the speed of downloading and users' satisfaction. Download speed depends on the content of materials, computing hardware, and connection method (Ma, Zhengwei, 2010). A speed that refers to the duration of response is highly considered in information systems and e-commerce due to an increase in focusing on the efficiency of operational resources. Therefore, speed and time saving are two vital considerations (Yoon, 2010). Speed is a factor to prevent time-wasting and as a radical consideration to attract the satisfaction of customers from internet banking services. Hence, Aldawani & Palvia, (2002) are considered as important factors in users' satisfaction and one of the main measures to evaluate websites.

- **Fee & Charges**

Affordability of internet connection is a significant factor in influencing internet usage (Venkatesh and Brown, 2001). Perceived costs refer to the people who believe that using online banking will cost money. One-time investment for a mobile device is a necessity in the present world. Based on the study of Petrazzini and Mugo (1999), the cost and pricing of internet service are broken down into setup costs and operating expenses which is much higher in developing countries than in developed countries. The costs vary depending on the number of Internet Service Providers in the country. Another major consideration is the monthly internet access expenditure which has a bigger slice of a person's monthly expenses. Based on the study of Martin (2003) on digitally divided society, lower socioeconomic groups would be less likely to use the internet and pay a monthly internet service subscription fee.

The cost associated with internet access fees and subscription charges is a significant barrier to mobile banking. Fee and charges discourage non-users from using internet

banking services because they feel that it would entail more costs than the relative advantage (Kuisma *etal.*, 2007). It is, therefore, this study proposes that the financial considerations, including the cost of a web-enabled mobile phone and subscription fees, will influence customer intentions to use mobile banking.

- **Privacy**

Privacy in banking transaction is linked with financial risks (Cheng et al., 2006). Both factors are major concerns of trust and are considered obstacles to the adoption of mobile commerce (Gao and Bai, 2014). In the banking context, privacy refers to the ability of the bank to authenticate and protect consumers' personal information from unauthorized access which is free from invasion, interception, and theft (Lee, 2009). It follows legal and ethical practices such as Federal legislation that prevents corporation and government manipulation of personal information. This study, therefore, proposes that the ability of the bank to provide protection to consumers' personal information has a positive impact on customer satisfaction.

- **Convenience**

Berry et al., (2002), in their study have described Convenience as the customers time and effort perceptions related to buying or using a service. Convenience can be thought of as a means of adding value to customers by decreasing the amount of time and effort a customer must expend on the service (Colwell et al., 2008). The construct 'Convenience' has been generally treated as a concept of anything that can be done with ease and minimal effort. Service convenience has an impact on customer satisfaction and repeats purchases from a service organization (Seiders et al., 2007). Aagja et al., (2011) conducted a study in the Indian context and found that access, benefit, and decision convenience dimensions have more importance, whereas dimensions like transaction and post-benefit convenience are less relevant in the retail context. They found that the higher the perceived service convenience level, the greater was the impact on customer satisfaction. This study, therefore, proposes that the various aspects of convenience with respect to service (Such as decision convenience, access convenience, transaction convenience, benefit convenience, and post-benefit convenience) have a positive impact on customer satisfaction.

- **Demographic profile as moderating variables**

Previous studies on online banking have proved that demographic variables influence toward the adoption of new technology-based services. Out of all demographic variables, gender and age are the most studied demographic characteristics in the online banking context. For example, when compared to women, men are task-oriented and more receptive to technological innovations such as mobile banking services (Cruz et al., 2010 & Laukkanen, 2016). As an individual's age increases, the adoption probability decreases. Older customers have a lower propensity, negative attitude and are more resistant to change toward using mobile banking services (Laukkanen, 2016). Based on the study of Joshua and Koshy (2011), younger generations are the typical users of online banking.

Marital statuses, level of education, and household income have been pointed to have a positive impact on the adoption of online banking services. Some authors argue that marital status was significantly associated with the adoption of mobile communications and mobile banking (Iddris, 2013). Individuals with a higher level of educations have access to technology and the internet is more comfortable in using self-service technologies given that they have greater internet literacy and self-efficacy (Meuter *et al.,* 2005). Income and wealth influence the use of the internet (Porter and Donthu, 2006) and the online banking system (Mann and Sahni, 2012). This study, therefore, proposes that demographic dimensions (Sex, educational qualification & income levels) have a positive impact on customer satisfaction.

- **Customer Satisfaction**

Customer's satisfaction is a mood or reaction by consumer/customer to buy and consume a product. In marketing terms, customer's satisfaction is woven with the experience of buying the goods or services. When the outcomes are evaluated by customers, they are in turn comparing the results of their own experiences with expected results (Chiu *etal.,* 2017). In other words, customer satisfaction is a degree of a positive feeling of the customer to the service provider. According to Oliver, customer's satisfaction is a response to consumer's prosperity and answering this radical question that whether the product/service has provided an enjoyable level of consumption-related prosperity or not (Vinita Kaura, 2013). Lingfield believes that

customer satisfaction is a feeling in psychological terms that is the result of comparing the products with customers' needs and demands as well as social expectations from the products. In the case of mobile banking service dimensions have been found to affect customer satisfaction. Hence this study was adopted customer satisfaction as the dependent variable to measure the impact of retail banking services:

9. RESEARCH HYPOTHESES

H1: Accessibility of mobile banking influences Customers' Satisfaction.

H2: Privacy of using mobile banking services influences Customers' Satisfaction.

H3: Mobile banking Security influences Customers' Satisfaction.

H4: Mobile banking website Design influences Customers' Satisfaction.

H5: Accessibility of mobile banking website Content influences Customers' Satisfaction.

H6: The Speed of operations and responsiveness of mobile banking services influences Customers' Satisfaction.

H7: Convenience of mobile banking operations influences Customers' Satisfaction.

H8: Affordability of mobile banking fees & charges influences Customers' Satisfaction.

10. DEVELOPMENT OF RESEARCH INSTRUMENT

10.1 Reasons for choosing a questionnaire.

The self-administered questionnaire is chosen as a tool for data collection in this study because of the following reasons.

Questionnaire surveys are cheap, without significant capital investment and quick research tool. However, there is a commonly held view that, because of these elements

(cheep, quick response, easy construct, and less capital investment), questionnaires can be easily constructed and used without training.

Another important reason questionnaire studies can be used in the systematic collection of information and may help to define the incidence of objective, identify an etiological factor and investigate the quality of life, as well as predict some aspects of behaviour. Another reason for choosing a questionnaire is because it is the best method to collect original data describing a large population (Eaden, *etal.,* 1999), hence a large number of responses from the target population could be collected and a large number of questions can be asked (Eaden, *etal.,* 1999).

10.2 Questionnaire format

The questionnaire started with a brief introduction, which explained the purpose of conducting the research and the importance of the research. The respondents were informed that data collected is only for academic purposes and the participation is purely voluntary and that they should be mobile banking customers. The respondents were informed that they have the right to withdraw at any time during the survey if they want and were ensured the confidentiality of the data collected. Also, the respondents were provided with the contact information of the researcher (i.e., Mobile number and an e-mail address) and were encouraged to raise relevant inquiries about the study, if they wished.

The research questionnaire used in the study consisted of 3 - parts,

- **Part-A** & **Part-B** consists of Close-ended questions on *factors that influence mobile banking*. These sections of the questionnaire were very critical as the key constructs (that is, factors influencing mobile banking) were offered for a rating on a five-point Likert scale. These key constructs were selected during focus group interviews from among the list identified through a review of the literature.

- **Part-C** was seeking demographic details such as age, occupation, education, and income level from the respondents. The demographic information will be used for various tests to understand their impact on Mobile banking.

10.3 Scaling Technique

Scaling is considered an extension of measurement which involves creating a continuum upon which characteristics of measured objects are located (Malhotra and Dash, 2011). The scale provides a representation of the groups along which participants arrange themselves, thus allowing a description of the distribution of respondents along the scale.

The questionnaire was kept short and precise to improve the response rate. The questionnaire comprised of dichotomous questions, multiple-choice single response questions, multiple-choice, multiple response questions, besides rating questions. Hence, nominal, ordinal, and Likert scales were employed in the questionnaire development, which is explained below.

In this study, various factors of mobile banking services and customer satisfaction are measured with a five-point Likert scale with all the anchors at the same distance. The anchors used in the scale range from 1-Strongly Disagree, 2- Disagree, 3-Neither agree nor Disagree, 4-Agree, 5-Strongly Agree. This study restricts to a five-point Likert rating scale because it will be easy for respondents to understand the five-point Likert scale and use it (Malhotra and Dash, 2011).

For measuring the demographic characteristics such as sex, marital status, and area of residence of respondents, a nominal scale was used. Also, for measuring other demographic characteristics like age, education levels, occupation, and mobile usage, an ordinal scale is used in this study. Thus, an ordinal scale indicates the relative position between the respondents.

10.4 Questionnaire Pre-test

Pre-testing refers to the testing of the questionnaire on a small sample of the target population to improve the questionnaire by identifying and eliminating potential problems related to all aspects of the questionnaire including question content, wording, sequence, form, and instructions (Malhotra and Dash, 2010). As stated by Malhotra and Dash, (2010), a personal interview is the best method to conduct an initial pre-test and once the change is made to the questionnaire, this could be followed by another pre-test conducted by mail, telephonic or electronic means depending on

which of those methods are to be used in the actual survey. In this research pre-testing of the research question was done in two parts,

10.5 Focus group discussion with Respondents:

Prior studies have extensively used Focus Groups as an interview technique for validating their research instrument. Problems that arise from focus groups include the difficulty of identifying differences of opinion between several groups. Focus groups tend to discuss a topic an hour with 10 people (four bank managers, three university professors, and three data analysts). Each person has an equal interview period in ensuring balanced discussion and focus on the research questions being discussed. From this group discussion, some of the structure, content, or vocabulary of the questions related to issues is identified and after that final instrument was prepared.

10.6 Pilot-Study:

Pilot Study as per Connelly (2008), the ideal sample size to be considered for pilot study should be 10 % of the population size that is 50 respondents on a safer side 54 responses were chosen for the pilot study within the time frame of 2 weeks. Questionnaires' internal consistency and reliability were assessed by conducting Cronbach's Alpha Test., Connelly (2008). The exploratory survey was conducted on 50 customers. The personal contact approach was used to collect data from customers. The customers were also asked to look for any difficulties with wording, problems with leading questions to again recheck on the content and face validity. The pre-test data yielded, and an inter-item analysis was then conducted to know poorly or highly associated with research objectives.

11. SAMPLE AND SAMPLING PROCESS

11.1 Study Population

According to Saunders (2007), Population refers to a full set of groups from which a sample is taken. The objective of this study is to measure the factors influencing mobile banking services on customer satisfaction in Indian retail banking. Hence, following the objective of the study, the target population includes 4(SBI, Bank of Baroda, ICICI & HDFC) banks from the Bengaluru city (Top 2 mobile banking providers from each public and private sector; Source: IBEF Banking Industry Report, Jan-2020). All respondents are clients who have bank accounts in the selected banks in Bengaluru city. The reason for choosing this population was that these individuals are who engage in retail banking and could very well be among the potential customers of mobile banking services now or soon.

11.2 Sampling Frame

A sampling frame refers to a complete list of population elements from which a sample may be drawn. In this study, each mobile banking customer from the selected bank was finally included to become a member of the population.

11.3 Sampling Method

Hair *etal.,* (2003) Suggested that convenience sampling can help the researcher to complete large tasks in a short amount of time and cost-effectively but suffer from bias due to the differences that exist in the target population. In order to encounter the above biases, this type of sampling is used for the pilot study only.

The sampling technique used in this study was Cluster sampling. In this case, the concept of area sampling is used.

Based upon the geography, the entire Bangalore city is divided into five clusters and the no of branches of the four banks in each cluster is given below. In the first stage, it is followed the method of SRS where three clusters such as Bangalore South, Bangalore East and Bangalore Central out of above 5 clusters is chosen. While

selecting, proper care has been considered so that each cluster should carry the branches of four banks. In the second stage, four sub clusters have been chosen based upon the SRS method. So, from Bangalore East, Krishnarajapuram; from Bangalore South, Jayanagar and from Bangalore central both Rajaji Nagar and Malleshwaram is taken for further study. In the third stage, from each location at least one branch for each bank is chosen by SRS method. In the fourth stage, i.e., in branch level, SRS method is used for data collection. Simple cluster sampling method is used so that from each sub cluster equal samples are collected. Also, it has kept in mind that equal sample should be collected from each bank. Considering these two points in mind approx. 30-35 no of samples are collected from each branch in the respective location. The details of which are given below.

Name of the Bank	**Branches/Clusters**				
	Bangalore South(C1)	Bangalore East(C2)	Bangalore Central(C3)		Total
SBI	(Sub Cluster I) Jayanagar	(Sub Cluster II) Koramangala	(Sub Cluster III) Malleshwaram	(Sub Cluster IV) Rajajinagar	
No. of Samples	32	33	30	30	125
ICICI	Jayanagar	Koramangala	Malleshwaram	Rajajinagar	
No. of Samples	32	30	33	30	125
Bob	Jayanagar	Koramangala	Malleshwaram	Rajajinagar	
No. of Samples	30	30	30	35	125
HDFC	Jayanagar	Koramangala	Malleshwaram	Rajajinagar	
No. of Samples	31	32	32	30	125
Total	125	125	125	125	500

The data collection was happened during the period of Covid-19 where social distancing was the major criteria in the banks. Some of the branches were reluctant to allow into their branch premises too. So, the google form was sent to the customers who agreed to give their responses and final data was collected.

11.4 Sample Size

Sample size is one of the important aspects in data collection. The final sample size for mobile banking customers was determined by using Cochran's formula which comes to $((1.96)^2 (0.5) (0.5)) / (0.05)^2 = 385$. So, a minimum of 385 no of respondents are required. However, considering 4 different banks with both response and non-response error, we have considered approx. an extra of 7.5% for each case. So, a total of 385+115 which comes to 500 for the final sample size.

The same has been checked by Hair's criterion (Hair *etal*., 2013) which estimated minimum sample size (100) was at least five times the estimated parameter. A total of 500 (125 from each bank, the mobile banking customers are identified with the help of the database available at branch manager) mobile banking customers are chosen from the targeted banks for this study.

12. SOURCES OF DATA

The study was based on both primary and secondary data.

12.1. Primary Data: The primary data was collected through a personnel contact approach (schedule) using a structured questionnaire along with a google form from selected banks (SBI, Bank of Baroda, ICICI & HDFC) in Bengaluru. A total of 125 samples were collected from each Bank present in the Bangalore Urban. Based upon the available data base, advice by the banking officials and randomness, four major bank branches were chosen for data collection. From each branch, the researcher has tried to collect 30-35 samples. In case of public sector banks, not much variation was observed, but in case of private banks, there is a little variation considering the number of samples collected from each branch. This is because of availability and randomness

of the people. To avoid biases, equal proportion of sample was chosen from each bank so that 125 nos. were finally taken for the study purpose.

12.2 Secondary Data: The study also relied on a secondary source of data. Secondary data sources primarily include literature published in journals, magazines, newspapers, textbooks, articles, government reports, etc. Also, relevant research articles on mobile banking services and customer satisfaction towards mobile banking services have been identified, reviewed and analysed.

13. DATA COLLECTION

Data were collected from the State Bank of India, Bank of Baroda, ICICI Bank & HDFC Bank in Bengaluru city. Customers were contacted based on randomly through a self-administered structured questionnaire. This method allows the researcher to compute the exact percentage and generally produces data that are easily quantified. Data was collected from selected four banks (SBI, Bank of Baroda, ICICI & HDFC) in two phases. In 1st phase of data collection, contacted mobile banking customers proportionately in two Banks (SBI & ICICI). A total of 250 respondents were chosen in first phase, with 125 respondents from each bank. In second phase of data collection, there are 250 customers (125 respondents from each bank) chosen from another two Banks (Bank of Baroda & HDFC).

14. RELIABILITY AND VALIDITY OF RESEARCH INSTRUMENT

The majority of social science research is the enumerating of human behaviour, i.e., using any kind of measurement instrument to observe human behaviour. According to Smallbone & Quinton (2004), the measuring instrument of human behaviour belongs to the widely accepted, to describe reality, easy approach of empirical-analytical or positivistic view. Needless to say, each type of measure has specific types of issues that need to be addressed to make the measurement meaningful, accurate, and efficient. Because of these reasons, more behavioural research takes place within this paradigm, measurement instrument must be valid and reliable.

14.1. Reliability

Reliability is concerned with the consistency, stability, and reproducibility of measurement results (Hair *etal.,* 1995). Reliability is the most important determinant of measurement instrument's quality, such that, it helps to identify the inconsistencies and their effect on the measurement results. In this study, the reliability of measurement items Cronbach's alpha (α) reliability coefficients was used to measure the internal consistency of each measure. Reliability coefficients more than 0.7 were considered acceptable in the present research to determine the impact of mobile banking on customer satisfaction with reference to retail banking.

14.2. Validity

Validity is related to the accuracy of measures. Malhotra and Dash (2010) defined validity as "the extent to which differences in observed scale scores reflect true differences among objects on the characteristic being measured, rather than systematic or random error". In other words, validity refers to the degree to which a scale measures its significances to measure (Hair *etal.,* 1995). In this study, Content Validity for the questionnaire was obtained from four faculty members of the School of Management, Bangalore University, as per the suggestions of experts some of the questions was modified or deleted.

15. DATA ANALYSIS

According to Hair *et al.*, (1995), the main aim of the "statistical techniques" is to assist in establishing the plausibility of the theoretical model and to estimate the extent to which the various explanatory factors seem to be influencing the dependent variable. The primary purpose of this research study was to measure factors that influence mobile banking in Indian retail banking. Statistical Package for Social Sciences (SPSS, version-24.0) was used for Analysing the preliminary data. In this research, frequency, percentage, mean, standard deviation and regression analysis was done for data analysis. Frequency: used to review the study sample answers. Percentages: show the proportion of answers for a particular variant of the total answers. Mean: Display the average answers to a particular variable. Standard Deviation: Shows the degree of dispersion of answers from its mean. Regression: was used to find the influential relationship between dependent and independent variables.

16. FINDINGS

From this research it was indicated that mobile banking provides a better banking experience for customers, the fact that customers can check their balance, perform transactions without visiting any bank provides an easy and comfortable experience for them, with mobile banking customers can be assured about their online security if the bank has taken the proper precaution and security measurement required when making transactions online.

1. The study had a response rate of 97 % with more male (64.5%) compared to female respondents (35.5%). The majority of the bank customers found that the maximum of 35.9% of customers is in the age group 26 – 35 followed by 32.6% in the age group 36-45. It is also found that 25.2% are in the age group up to 25 and a minimum of 6.3% in the age group above 46 with the composition consists of 63.1% of married customers and 36.9% of unmarried customers.
2. The majority of the bank customers had used banks for up to 5 years. 39.8% who were found that the customers are graduates followed by 33.7%, 21.2%, and 5.3% are with the educational status of post-graduate,

up to higher secondary and above post-graduate respectively had IT skills with the majority being self-employed. The respondents understood what digital banking entailed. On the speed of transactions, it was revealed that mobile money was the most frequently used digital channel. Mobile banking was used because it is considered fast, 74.3% of the respondents were to a large extent satisfied with the speed of digital banking. The speed of processing transactions was considered fast (mean7.52). Banks have measures that they undertake in case the process of transaction is slow. A strong positive relation existed between the speed of transactions and customer satisfaction ($p=0.024$ and <0.01).

3. On the accessibility of mobile banking, it was revealed that the ability to transact at preferred timing was considered the most important factor while looking at accessibility. Mobile banking was the most accessible form of digital banking with 61.7% indicating to a moderate extent they could access banking services. 54.9% revealed that their bank was accessible as they could transact, pay bills and access their bank accounts. 50.8% were faced with challenges resulting from the use of technology. There was an increase in accessibility of mobile banking as proved by the increase in the number of ATMs and internet banking. Banks had increased on agency banking to capitalize on the growing customer base thus increase on their accessibility.
4. Banks ensured customers were informed on how they could access different digital banking channels. It was however noted that there were no specialized digital services for persons living with various forms of disabilities such as the blind. A positive strong relation exists between customer satisfaction and accessibility existed ($P=0.041$ and < 0.01).
5. Mobile money was the easiest digital channel to adapt. There were at least five transactions carried out by bank customers in a day. The majority of customers had been using banks for up to 5 years. 62% of customers did not have any problem adapting to the mobile banking platforms offered. 60.9% had between 3-4 mobile banking channels. 84% indicated that mobile banking was very reliable however 86.9% had used mobile banking channels that they failed to adapt citing wrong transactions as the main reason for this failure. Mobile banking was adaptable as revealed by

an increase in the number of financial transactions. There were reduced complaints by customers as banks used various ways to pass information and create awareness on mobile baking to ensure adaptability.

6. Digital channels were affordable as 66.9% had never failed to transact due to transaction fees. Use of pay bill numbers was considered the most affordable as there were no transactional fees levied. 50.9% indicated that affordability is important while carrying out digital financial transactions.
7. The results depict that the Convenience (F=5.405, p=0.001) has the existence of statistical differences in the preferred form of Mobile banking by respondents based on their age group. An analysis of variance (ANOVA) followed by a post hoc (Games-Howell procedure) test is used for understanding the significant difference between the age groups. It is found that age groups of 18-25 & 36-45; 26-35 and above 46; 36-45 & above 46 are the age groups that are significantly using the mobile banking.
8. The results of the current study indicate the relationship between education level and mobile banking factors by the ANOVA & Games-Howell post-hoc test it indicates that the p-value is more than the accepted level (0.005) of significance, for all the variables. This implies that level of education does not have significant effect on mobile banking factors of customer satisfaction. Therefore, it implies that mobile banking usage behaviour is not predicted or explained by educational level which is in line with the ANOVA test result. Consistent with the above finding, Ismail et al. (2012) and Lee et al. (2003) on their study found that education has no significant impact on customers' internet banking adoption behaviour. Annin et al. (2013) and Alagheband (2006) also found that educational level has no significant impact on consumers' willingness to use e-banking services.
9. The results of the current study indicate the relationship between education level and mobile banking factors by the ANOVA & Games-Howell post-hoc test it indicates that the p-value more than the accepted level (0.005) of significance, for all the variables. This implies that educational level does not have significant effect on mobile banking factors of customer satisfaction. Therefore, it implies that mobile banking

usage behaviour is not predicted or explained by educational level which is in line with the ANOVA test result. Consistent with the above finding, Ismail *etal.,* (2012) and Lee *etal.,* (2003) on their study found that education has no significant impact on customers' internet banking adoption behaviour. Annin *etal.,* (2013) and Alagheband (2006) also found that educational level has no significant impact on consumers' willingness to use e-banking services.

10. The study results imply the relationship between occupation type and mobile banking factors by the ANOVA & Games-Howell post-hoc test it indicates that the p-value is less than the accepted level (0.005) of significance, for only one variable i.e., Privacy (F=6.729, p=0.001). The majority of the variables are not significant to the occupation type of the respondents. This implies that occupation type has no significant effect on mobile banking factors of customer satisfaction except the privacy factor. Therefore, it implies that mobile banking usage behaviour is not predicted or explained by educational level which is in line with the ANOVA test result. Similar to the above finding, Ismail *etal.,* (2012) found that occupation has no significant impact on e-banking adoption. Sheshadri *etal.,* (2014) also infer that there is no significant difference in the customer adoption of electronic banking based on occupation. This implies that occupation has no role to play in the customer adoption of electronic banking.
11. In case of convenience, there seems to be a significant difference between Students and Govt. Services. This may be due to the less earning capability of the students, and they mostly depend upon their parents for any consumption. In case of privacy, there is a significant difference between students, self-employed persons and other category of occupation. In case of design, apart from student & other occupation, people those are engaged in private jobs also shows significant difference. For content and fees and charges factors, the difference is observed in all the occupation levels. However, in case of speed, it is significant between students and other categories of occupation. The analysis implies that the students play a vital role in mobile banking factors.
12. The present study indicates the relationship between family income levels

and mobile banking factors by the ANOVA & Games-Howell post-hoc test it indicates that the p-value is less than the accepted level (0.005) of significance, for all the variables except accessibility and security. This implies that family income levels have significant effect on mobile banking factors of customer satisfaction. Therefore, it implies that mobile banking usage behaviour is predicted or explained by family income a level that is in line with the ANOVA test result. Contrary to the above, Alagheband (2006) and Annin *etal.*, (2013) in their study investigated that income has no significant impact on e-banking adoption. Further, Izogo *etal.*, (2012) found that income does not have a significant effect on customers' adoption and usage of e-banking. This implies that there is significant difference in their e-banking adoption behaviour between consumers who are indifferent income groups.

13. Privacy is significant in case of gender which shows that male and female behaves differently when the concept of privacy comes into picture. This may be due to the fact that the risk factors that are undertaken by males and females are quite different when financial transactions happen.
14. Marital status has a difference with all the factors of mobile banking except accessibility and convenience. This may be due to the fact that time and effort in accessing the mobile banking does not differ with respect to married, unmarried and other category of people.
15. From the analysis of customer satisfaction with demographic variables, it is found that only occupation and marital status is significant at 5% level of significance whereas other variables such as age, gender, income and educational qualification does not have an impact on customer satisfaction. This indicated that there is no difference in the age group, gender, income and educational status with customer satisfaction. In case of occupation, the significant difference is observed between students with Govt. service, Private Service and other category of occupation. This is also observed while the factors of mobile banking are analysed with the demographic variables.
16. It is found that marital status and gender is playing as moderator role with accessibility and convenience as independent variable and customer satisfaction as an outcome variable and with Convenience as independent

variables and customer satisfaction as dependent variables respectively.

17. The SPSS output for hypothesis testing is given below,

Hypothesis	Independent to Dependent Factor	Beta	t	P-Values	Results
H1	Accessibility and Customer Satisfaction	.064	2.052	.041	Supported
H2	Convenience and Customer Satisfaction	.072	2.059	.040	Supported
H3	Privacy and Customer Satisfaction	.160	2.541	.011	Supported
H4	Security and Customer Satisfaction	.129	2.080	.038	Supported
H5	Design and Customer Satisfaction	.247	5.157	.000	Supported
H6	Content and Customer Satisfaction	-.698	-8.152	.000	Supported
H7	Speed and Customer Satisfaction	.126	2.264	.024	Supported
H8	Fees & Charges & Customer Satisfaction	.804	10.255	.000	Supported

16.1 OBJECTIVE-WISE FINDINGS

The researcher has drawn certain findings according to the objectives of the study and it is compiled as follows:

Sl. No	Objective	Findings	
1.	To know the influence of demographic variables on the factors of mobile banking	a.	The ANOVA results extracted from SPSS output reveals that the p-value that is more than the accepted level (0.05) of significance for all the factors, except for one variable i.e., Convenience, which statistically signifying the differences in the preferred form of Mobile banking factors based on their age group. In order to understand in detail, it was found that in case of convenience, the age group between 36-45 years and 18-25 years (p=0.001), 26-35 years and above 46, 36-45 and above 46 are significant while using the mobile banking. This implies that each age group shows a significant difference considering convenience as a mobile banking factor.
		b.	The second demographic variables i.e., educational level does not have an impact on the factors of mobile banking factors.
		c.	In case of occupation, all factors of mobile banking show significant difference except accessibility and security. In case of convenience, there seems to be a significant difference between Students and Govt. Services. This may be due to the earning

			capability of the Govt. services which is less, and they mostly depend upon their parents for any consumption. In case of privacy, there is a significant difference between students, self-employed persons and other category of occupation. In case of design, apart from student & other occupation, people those are engaged in private jobs also shows significant difference. For content and fees and charges factors, the difference is observed in all the occupation levels. However, in case of speed, it is significant between students and other categories of occupation. The analysis implies that the students play a vital role in mobile banking factors.
		d.	In case of Income, all the factors show statistically significant except convenience. This may be due to the fact that when there is a requirement, people use the mobile banking. So, convenience does not play a vital role here.
		e.	Gender has a significant difference with the factors of mobile banking, Privacy which indicates that males and females have a significant difference to the privacy.
		f.	Marital status has a difference with all the factors of mobile banking except accessibility and convenience. This shows that except educational qualification, all other demographic variables have a significant difference with

			the factors of mobile banking. However, age, income and occupation have a major difference with respect to the various factors of mobile banking. This is also evident that people having different age have a different requirement to mobile banking and their usage. Also, income which is somehow related to occupation enables the customers to use their mobile banking operation.
2.	To identify the influence of demographic variables on the customer satisfaction	a.	In order to understand the deeper variation, customer satisfaction was tested with various demographic variables by using the same ANOVA test. It is found that only occupation and marital status is significant at 5% level of significance whereas other variables such as age, gender, income and educational qualification does not have an impact on customer satisfaction. This indicated that there is no difference in the age group, gender, income and educational status with customer satisfaction. In case of occupation, the significant difference is observed between students with Govt. service, Private service and other category of occupation. This is because of the fact that respondents with different occupation have a different requirement to mobile banking considering their both personal and professional life. Similarly, both the married and unmarried people show difference to the satisfaction level due to their usage and need for the mobile

			banking.
3.	To study the impact of various dimensions of mobile banking on Customer Satisfaction and to identify the stumbling blocks in respect of the use of mobile banking	a.	The analysis result shows the values of the difference in their coefficients. It is found that of coefficients the non-standardized constant (β 0) is .689 and (β 1) is Accessibility (0.079), Convenience (0.053), Privacy (0.119), Security (0.110), Design (0.206), Content (-.544), Speed (0.104), Fees and Charges (0.667). It means that if the customer satisfaction increases by 1 unit the mobile banking will increase by (.0.079) in case of accessibility and it shows that there is a positive and direct relation. Further, 7 out of 8 independent variables are affecting the customer satisfaction positively and significantly because the significance value in the concerned column is below 0.05. One factor i.e., Content has significant impact on the Customer Satisfaction the p value in this column is 0.000 which is below the critical value of p, which is 0.05. However, it is negatively correlated which shows that if the content for the mobile banking is more, there is chances of error which the customer does not like. Hence, it could be inferred that all the factors such as Convenience, Privacy, Security, Design, Speed, fees, Charges, Convenience and content were the dimensions that bring about a major change in customer satisfaction with m-banking.

4.	Other findings To ascertain the relationship of mobile Banking in the retail banking sector,		a) The exciting research studies and literature, it was indicating that the mobile has become a fifth appendage, an extension essential to get through the day. That makes your bank's approach to mobile a good gauge of your capability as an experienced business; one focused squarely on customers and how to delight them. With phones in their pockets, consumers should be able to research, compare, apply for, transact and engage with all your products and services in a simple, seamless, and occasionally surprising way. b) The findings of this research imply that the leaders in retail banking are no longer going mobile, they have gone. To satisfy customers, keep up with competitors, raise revenues and ensure an always-on connection, you need to mobilize, too. c) Let's talk about customer satisfaction first. From January 2017 to November 2019, banking via mobile phone was up 74 percent, according to the Adobe "Mobile Maturity Study." It's the only device with a steady uptick in use for retail banking since 2017. But by mobile, we do mean smartphone and its clear looking at the chart that, for retail banking use, the phone line trends up strongly while the tablet line flattens. So much for having more real estate for complex banking products. D) According to Fiserv's "Mobile Banking

			Adoption." Customers also increased the number and value of point-of-sale, ATM, and POS transactions, bringing increased interchange revenue to banks. Attrition is lower among mobile banking users, too.

17. RECOMMENDATIONS

Based on key findings of this study following recommendations were made:

17.1. ON THE BASIS OF FACTORS OF MOBILE BANKING PARAMETERS

17.1.1 SECURITY ISSUES

1. The results of this study indicate that security is one of the key factors for mobile banking adoption. It has a direct impact on customer satisfaction. Mobile phones used for Mobile Banking could be easily hacked remotely, posing security threats. To address this, banks should execute restricted functionality options while providing Mobile Banking services. Pandey (2009) suggested that due to this restricted functionality user needs to apply for adding a new payee or for increasing payment limit thus preventing the initiation of unauthorized payments from the user's mobile phone remotely.
2. Further to manage remote hacking of mobile and subsequent fraud; one-time password (OTPs) should be used. When a request is received, a password is sent to the user's phone via SMS. This password is expired once it has been used or once its scheduled life cycle has expired.
3. Many times, mobile phones engaged in wireless access protocol (WAP) based Mobile Banking, lack personal firewalls which may pose a security threat. Here banks should try to build customer awareness regarding the use of firewalls, regular updating of antivirus programs in mobile phones.
4. Mobile Banking is not much secured against potential threats of malicious code, phishing, and SMShing. To make it secure against malicious codes users must be

made aware of the use of antivirus and antimalware programs in JAVA-enabled phones and smart phones. Again, to protect users from the threat of phishing and SMShing consumer awareness is the key.

5. There is a fear that the recent increase in 'fund transfer limit without end-to-end encryption for banks' by RBI from Rs.1000 to Rs. 5000; may lead to an increase in fraudulent cases. This issue should be addressed very prudently as there is trade-offs for increased security, mainly higher operational cost to banks.
6. Real-Time Notification (RTN) after any Mobile Banking transactions should be made mandatory to quickly inform customers of suspicious or potentially fraudulent activities and empower them to immediately take action.

17.1.2. INTER-OPERABILITY ISSUES

1. Various telecommunication technologies viz. GSM, CDMA, GPRS, and a variety of mobile phones pose an interoperability challenge in offering Mobile Banking, but in practice, it is too early in the service lifecycle of Mobile Banking for interoperability to be addressed within the country. Solution for this would largely be dependent on the banks, telecom operators, and mobile handset manufacturers' mutual understanding, which is a must for achieving economies of scale and reducing operational cost.
2. To address interoperability, issue Mobile Banking service providers should adopt a common ISO-8583 message format. Once banking interfaces are well defined and money movements between banks follow the IS0-8583 standards interoperability issue would automatically get resolved.
3. Speed as a factor of mobile banking has an impact on customer satisfaction. The internet speed provided by the telecom companies affects the operation where the bankers must collaborate with the companies to provide better services.

17.1.3. NETWORK ISSUES

1. Accessibility is another factor of mobile banking. Customers always expect easy ways of getting access to mobile banking. Any problem during their transaction demotivates them. Network congestion creates serious problems in conducting Mobile Banking transactions; further network congestion at peak texting times is a major source of dissatisfaction among customers as they may not receive confirmation of the transaction.

2. For this, it is extremely important that SMS gateway providers can provide a decent quality of service for banks and financial institutions regarding SMS services. Therefore, the provision of service level agreements (SLAs) is a requirement for mobile service providers as it is necessary to give customers the delivery guarantees of all messages, as well as measurements on the speed of delivery, throughput, etc. Thus, SLAs give the service parameters in which a messaging solution is guaranteed to perform.

17.1.4. STANDARDIZATION ISSUES

1. Users availing of Mobile Banking services from multiple banks find it difficult to deal with different SMS short codes of different banks. So, RBI should give guidelines to standardize short codes for a particular type of transaction of the bank.
2. Mobile service providers should focus on developing applications for low-end java-based phones (in India penetration of smart phones and high-end java-based phones is low but rising very sharply).
3. Content in mobile banking also influences to the customer satisfactions. It is negatively related to customer satisfaction where standardisation becomes a challenge for the bankers.

17.2 DEMOGRAPHIC PARAMETERS

1. There are five major demographic variables which plays important role in customer satisfaction and factors of mobile banking. Out of these, marital status and gender act as moderating variables which infarct influences the customer satisfaction. So, the banks must take special care with respect to male vs. female and their marital status.

2. The second demographic variables i.e., educational level does not have an impact on the factors of mobile banking factors.

3. In case of occupation, all factors of mobile banking show significant difference except accessibility and security. Students, self-employed person's category are to be given importance because they use mobile banking more as compared to other category of people.

4. Income as a demographic variable affects the factors of mobile banking except accessibility. But it does not directly influence the customer satisfaction. So, the customers having different income range should be targeted by the banks so that they can use the mobile banking to a larger extent in future.

18. IMPLICATION OF FINDINGS

18.1 Theoretical Implication and Comparison of Results

The study found that the major difference with respect to previous literature was observed for demographic variables such as age, occupation, income and education. Age does not significantly influence the customer adoption of electronic banking which is in line with Sheshadri and Rani (2014). However, it is deviates from the research of Takele and Sira (2013); Izogo et al., (2012); Alafeef et al., (2011) which found that age has a significant effect on customers' adoption and usage of e-banking.

Educational level has no significant effect on mobile banking factors of customer satisfaction. This is in consistent with Ismail et al. (2012); Lee et al. (2003); Annin et al. (2013) and Alagheband (2006).

Occupation type has a significant effect on mobile banking factors of customer satisfaction which is against the research of Ismail et al. (2012) and Sheshadri et al. (2014) stating that occupation has no significant impact on e-banking adoption.

Family income levels have significant effect on mobile banking factors of customer satisfaction. In contrast with the above, Alagheband (2006); Annin et al. (2013) and Izogo et al. (2012) in their study investigated that income has no significant impact on e-banking adoption.

The factors of mobile banking which obtain from the analysis are in line with previous literature and research. All these factors such as accessibility, convenience, design, content, privacy, security, speed, fees and charges play a vital role in mobile banking and also influences to the customer satisfaction.

18.2 Policy level Implications

Through these study findings, policymakers were able to understand how mobile banking service has affected service delivery to customers, particularly non-business customers. Based on the findings from the study they were able to align mobile banking policies with the market to have a greater positive effect on service delivery.

The banks should develop the mobile banking service to get a lot of customers for banks and develop the system as much they can and improve the system to fastest than before and banks try to available all mobile banking product and services such as internet banking, web banking, POS and ATM because few banks provide all service together.

Another thing that the bank must consider is the cost of acquiring the present as well as prospect customers. There is a possibility that these customers may opt for mobile banking. So, the banks must devise suitable strategy to increase the no. of mobile banking customers.

Management of the banks should consider and work to increase the efficiency of their employee and use new program and system to develop banks daily work, also send employees to train inside or outside in country to develop their skills and experience and follow newest features of modern technology.

18.3 Implications for Government

The government should make a plan to adopt mobile banking service and provide it by governmental banks because they can use for paying salary by smart cards and directly transfer their amount to employee's account and all other payment who pay to the government employee and all other pension people.

Since the demonetization initiative of the Government of India of 2016, a swift rise in online banking and mobile banking transactions has been witnessed in India. The government has also taken several measures to encourage cashless payment and branchless banking to increase the efficiency of the banking system. Besides this complexity of life, rapid urbanization, growing traffic on roads, and busy lifestyles have also led to the growth of mobile banking in India. Banks and other intermediaries involved in online banking transactions are also considering this growing interest of users in online banking as an opportunity to reach their customers and provide them with a safe and pleasant mobile banking experience.

Though mobile banking technology is expanding across the globe, factors responsible for its expansion and growth are not uniform in different countries. Therefore, it becomes necessary to explore the factors affecting mobile banking usage in India.

18.4 Managerial Implications

The results of this study have important for managerial implications of mobile banking and mobile companies in formulating their marketing strategies as per the users' requirements to expand the penetration of their services. This study explicitly specifies the critical factors (e.g., accessibility, convenience, privacy, security, design, content, speed and Fees and Charges) affecting the mobile banking customer's satisfaction, which can be extremely useful for managers while devising mobile banking service strategies. As per the present study, accessibility, convenience, security, privacy, Fees and charges, design and speed are the most significant antecedent of mobile banking adoption. Therefore, measures can be taken to build and manage the belief formation of customers in mobile banking technology. Banks, along with other intermediaries, should also make efforts to increase public awareness about the uses, utility,

convenience, and other related benefits offered by mobile banking. These entities may devise campaigns to allay the fears of customers about the potential risks involved with mobile banking and make them more educated about the benefits of mobile banking.

The results of this study are also useful to regulators in implementing their policies regarding financial inclusion and the digital economy. This can be realized by creating a favourable financial environment conducive to the use of mobile banking technology and by formulating strategies to build the trust of people and create awareness about the use of it.

19. RESEARCH CONTRIBUTION

This research is about adding to the body of research in terms of factors that determine customer satisfaction in mobile banking. In both demographic as well as mobile banking factors, there are lot of disparity and similarity with respect to previous research. Some of the previous demographic factors such as educational level, age etc. did not give a deep understanding that the customer satisfaction is influenced by them to a large extent whereas occupation plays a vital role here. Marital status and gender act as a moderating variable which need to be taken care by the banks. Retail banking is a growing industry, and it is fuelled by technology augmentation. In this context, it is very important to the bankers to sensitise these and to monitor in a right direction for customer retention. Also, it is significant and other researcher can take up to add few more factors as the list is not comprehensive. The findings of this study indicate that customers of every age find mobile banking best for transactional tasks like checking balances and depositing funds.

20. CONCLUSION

The study concluded that mobile banking was mostly used as a digital channel. Further mobile banking was considered fast and reliable, and the speed was considered satisfactory. In this modern competitive business world, technology becomes an integral part of companies. Mobile banking is the type of technology by which the

banking sectors are performing their task more effectively as well as efficiently. Retail banking performances are accelerated through mobile banking. The life of the customers becomes easier, and customers want to use such type of technology to get fast and convenient services. Modern customers are satisfied with the usage of this type of technology-oriented service. Ensuring customer satisfaction is the main principle of marketing. Without ensuring customer satisfaction, no business will be successful. From this study, we can see that among many factors that determine the customers' satisfaction with mobile banking services; accessibility, convenience, privacy, security, design, content, and speed appear to be the most important determinants of customers' satisfaction.

21. LIMITATIONS OF THE STUDY

The study suffers from the following limitations:

1. The study is confined to *retail banking customers* in Bengaluru. The samples for the present study were collected from customers who avail mobile banking services.
2. Only the respondents from four banks (SBI, Bank of Baroda, ICICI& HDFC) are considered for the study, and the respondents from foreign banks, which have a different banking approach and culture, have been kept outside the ambits of the study.
3. Majority of the factors have been covered in this study based upon the literature review. However, some more factors may be explored by applying other appropriate statistical tools.

22. SCOPE OF FUTURE RESEARCH

The findings of this study show several directions for future research.

- The results of this study can be tested and verified in other public and private banks in India
- The results of this study can be tested and verified for other developing countries having a similar social and demographic structure as that of India, e.g., Indonesia, Malaysia, Sri Lanka, Bangladesh, etc.,
- Future research can also be conducted to re-examine and validate the theoretical model empirically
- Since the study concentrates on mobile banking in urban areas whose perceptions or opinions might differ from the rural population, there is a potential for studying mobile banking customer satisfaction in rural contexts wherein they may be less exposed to assistive technologies.
- Besides, a comparative study may be undertaken to understand the rural-urban divide in the inclusive banking potential of the Mobile Banking channel. Mobile banking is in the introduction stage in rural areas in India.

23. BIBLIOGRAPHY

1. Ajzen, I. (1985). *From intentions to actions: A theory of planned behavior*. German: Springer.
2. Ajzen, I. (1991). The theory of planned behavior. *Organizational Behavior and Human Decision Processes, 50*(2), 179-211.
3. Chen, L. D. (2008). A model of consumer acceptance of mobile payment. *International Journal of Mobile Communications, 6*(1), 32-52.
4. Cheong, J. H., & Park, M. C. (2004). *Mobile payment adoption in Korea: Switching from credit card.* Paper presented at the ITS 15th Biennial Conference, Berlin, Germany, September.

5. Dahlberg, T., Mallat, N., & Öörni, A. (2003). Trust enhanced technology acceptance model-consumer acceptance of mobile payment solutions: Tentative evidence. *Stockholm Mobility Roundtable*, 22-23.
6. Davis, F. D. (1989). Perceived usefulness, perceived ease of use, and user acceptance of information technology. *MIS Quarterly*, 319-340.
7. Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2013). Multivariate data analysis. Upper Saddle River, NJ: Pearson Prentice Hall.
8. Jeong, B.-K., & Yoon, T. E. (2013). An Empirical Investigation on Consumer Acceptance of Mobile Banking Services. *Business and Management Research*, 2(1), 31-40.
9. Kazi, A. K., & Mannan, M. A. (2013). Factors affecting adoption of mobile banking in Pakistan: Empirical Evidence. *International Journal of Research in Business and Social Science,* 2(3), 54-61.
10. Kaasinen, E. (2005). User acceptance of mobile services values, ease of use, trust, and ease of adoption. *VTT Publications* 566, 1-222.
11. Lee, K.C. & Chung, N. (2009). Understanding factors affecting trust in and satisfaction with mobile banking in Korea: A modified DeLone and McLean's model perspective. Interacting with Computers, 21(5-6), 385-392.
12. Lin, H.-F. (2011). An empirical investigation of mobile banking adoption: The effect of innovation attributes and knowledge-based trust. *International Journal of Information Management*, 31(3), 252-260.
13. Lule, I., Omwansa, T. K., & Waema, T. M. (2012). Application of Technology Acceptance Model (TAM) in MBanking Adoption in Kenya. *International Journal of Computing and ICT Research,* 6(1), 31-43.
14. Laukkanen, T., & Kiviniemi, V. (2010). The role of information in mobile banking resistance. *International Journal of Bank Marketing*, 28(5), 372–388.
15. Mallat, N., Tuunainen, V. K. (2008). Exploring merchant adoption of mobile payment systems: an empirical study. *e-Service Journal*, 6(2), 24-57
16. Ryan, R. M., &Deci, E. L. (2012). Intrinsic and Extrinsic Motivations: Classic Definitions and New Directions. *Contemporary Educational Psychology*, 25(1), 54-67.

17. Schierz, P. G., Schilke, O., &Wirtz, B. W. (2010). Understanding consumer acceptance of mobile payment services: An empirical analysis. *Electronic Commerce Research and Applications*, 9(3), 209-216.
18. Shin, D. H. (2016). Towards an understanding of the consumer acceptance of mobile wallets. Computers in Human Behavior, 25(6), 1343-1354.
19. Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2017). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. Computers in Human Behavior, 28(1), 129-142.
20. Zhou, T. (2016). An empirical examination of continuance intention of mobile payment services. Decision Support Systems, 54(2), 1085-1091.

****