Md Masum Miah

Users' Satisfaction of Digital Banking Services in Finland

Åbo Akademi

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Supervisors: Shahrokh Nikou, PhD (Docent)
Faculty of Social Sciences, Business and
Economics
Åbo Akademi University
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ABSTRACT

Subject: Digital Banking Services in Finland	
Writer: Md Masum Miah	
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Supervisor: Dr. Shahrokh Nikou	

Abstract:

Digital banking services are widespread in Finland. Users utilize online banking services to make transaction in Finland. It is imperative for banks to understand what customers want from them. Bank can develop their digital banking services according to their customer's requirement. This study uses a mixed-methods to measure customer's satisfaction and loyalty on digital banking services in Finland by adopting UTAUT2 theoretical framework and E-service quality dimensions. Six independent variables are used in this study, namely: performance expectancy, effort expectancy, responsiveness, reliability, personalization, and security to measure customer satisfaction and customer satisfaction as a mediator between independent variables and dependent variable (i.e., customer loyalty). 190 valid respondents participated in an online survey. Partial Least Squares Structural Equation Modelling (PLS-SEM) technique is applied to analyse the data. Findings show that only responsiveness has no influence on customer satisfaction among those six variables. All the other variables have positive impact on customer satisfaction, and customer satisfaction has positive influence on customer loyalty of digital banking services in Finland.

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ABBREVIATIONS LIST

PEOU	Perceived ease of use
PU	Perceived usefulness
TAM	Technology Acceptance Model
TPB	Theory of Planned Behaviour
TRA	Theory of Reasoned Action
EMC	Expectation confirmation model
PBC	Perceived Behavioural Control
UTAUT	Unified Theory of Acceptance and Use of Technology
PE	Performance expectancy
EE	Effort expectancy
PR	Personalisation
SE	Security
RL	Reliability
RS	Responsiveness
CS	Customer satisfaction
LO	Loyalty

1   INTRODUCTION

In today's world, the economy is changing very fast. The importance of developing new digital products and services is increasing day by day to meet customers' needs and demands. Also, digitalisation has become a trend. Digital businesses have no boundary as a result; the company can efficiently run their business in many countries around the world. According to Morabito (2014), digitalism is blurring company boundaries. Therefore, organizations are working more closely with their customers and their partners. So, the number of competitors are increasing, and competition is getting tougher since everyone has the access to the global market. Although the competition is getting harder all the time, new actors are coming into the existence because of digitalisation. Organizations face new problems to keep their current market position and to attract new market segments. Hence, every company is trying to gain the competitive advantage by providing better customer services and experience. According to Anderson and Forneel (1994), it has already been proven that better customer value would lead customer loyalty which helps to earn better profit. Anderson and Forneel (1994) also further stated that the customers who are loyal to the company buy more often and in more significant volume and these loyal customers create the new customer for the company. Making loyal customer has been a frequent situation in every industry over the years. Digitization has become one of the most critical parts of our daily routines which makes the customer loyal. According to Kaplan and Heinlein (2010), digitization and especially social media have been claimed to transform consumer behaviour. According to the Forrester Research (2008), consumers are increasingly spending the vast amount of their time in online and using social media. According to the Ericsson Consumer Lab (2012), customers are browsing social networking sites such as Facebook, Twitter, and applications with various devices such as smartphones, tablets, and laptops. The Internet is beneficial to make the best use of these devices for getting information, utilizing various digital services. According Finnish Bankers' Association (2002), Finland launched internet-based banking service in 1996. After that, it is becoming popular day by day. Karjaluoto et al. (2002) argue that more than one third of Finnish people are using online services of different banks. Banks are also introducing new and innovative service for their customer in order to enhance their satisfaction levels. Bank's innovative digital services give them the competitive advantage over their competitors. But, there are no specific criteria to be

successful in the digital banking. The introduction of new technologies in banking sector can be a way to improve the quality of services and adapt to the digital trend.

This thesis will investigate the benefits of digital services and provide guidelines for banks in Finland who want to improve digital services. The purpose of the thesis is to identify what kind of digital services customers expect from banks and how it can be created, measured, and managed. The background of the research, the research problem, the research questions, the objectives, and the limitations, as well as the methodology and structure of the study, will be well explained in this chapter.

1.1 Background

Banks are the backbone of Finnish economy. So, banks of Finland should meet the challenges of global market otherwise they would not be able to survive in the competitive business. Finnish banks have to introduce different kinds of productive and innovative ideas with which they can give better services to their customer. Hence, European Union has taken some important initiatives to motivate banks to introduce new ideas. According to the European Commission (2018), European Union emphasizes on "smart use of ICT". "Smart use of ICT" means the ability of the companies to exchange data electronically. Thus, it would be helpful to avoid paper-based, manual data processing. It also refers to unprecedented opportunities for banks, as a result, they would be able to enter into the new markets by enabling them to take part in the global market. Banks are playing a significant role in world economy. Literature shows that the digitization in its various forms is positively related to an organization's growth, performance, and competitiveness (Bharadwaj and Soni, 2007). According to Gilmore et al. (2007), it seems that many private sectors do not use the full potential of new technology because of lack of knowledge and unawareness. So, there is enough scope of using digital tools. There are several studies which cover the importance of adoption process of new technologies, e.g., Carroll and Wagar (2010). So, every organization understands the importance of digitalization but still, there are some confusions regarding digital services in banking sector. Technology has a great impact on the service industry because it changes the way of service delivery. According to Karjaluoto et al. (2002), internet is the most convenient way to deliver services to the customers. In case of bank, customers can have access to their account any time. Financial sector in UK and Australia has been encouraging their

customers to use online sites to take services (Al-Hawari and Ward, 2006). Finnish banks are also providing different types of digital services to their customers. Jabonoun and Al-Tamami (2003) mentioned some benefits of digital services in banking sector, such as, online transaction reduces the number of employees which would help banks to cut their cost. Jabonoun and Al-Tamami (2003) also mentioned that banks do not need to make sure big physical space for mass customer as customer can take their required services through digital platforms. Banks can charge less service fees and interest rate as they are able to cut down their costs because of digital services. Human interaction is a critical and challenging factor in the case of service delivery. Service quality can vary with service provider's mental condition (Kotler, 2000). Banking sector can overcome this challenge through digital services as there is no need for any kind of human interaction, thus, very less chance of error or mistakes because of less human interaction.

Lewis and Soureli (2006) argued that customers always like to get quick, customized and secured services from bank. Lewis and Soureli (2006) further argued that only satisfied customer can be converted into loyal customer. So, it is important to understand the customer's satisfaction level on digital services on banks. The aim of this thesis is to examine how the digital services play the role to satisfy customer from the perspective of banks and how customer satisfaction leads to customer loyalty. This research will lead to conduct further research on this topic.

1.2 Research objectives

Every bank understands that they need to focus on understanding, creating, and delivering quality digital services to the customers. The whole concept of customer satisfaction level measurement on digital services of Finnish banks is unclear for most of banks. The missing understanding about customer satisfaction on digital services has created a need to conduct a study that would define the concept of customer satisfaction related to digital services in banking sector. The results of this thesis would provide guidelines on how to satisfy the customer. Furthermore, understanding and practice of quality digital services are different issues and the link between knowledge and its practice. So, this thesis would include the empirical evidence to identify how customers would be satisfied and become loyal to digital services of Finnish banks and examines what modification should be done to existing services.

1.3   Research questions

According to Yin (2003), a proper research question development is the most crucial part of a research as it leads to select an appropriate research method. Considering all the above-discussed issues and identified gaps and problems, this thesis formulates the following research questions:

RQ1: In case of digital services of banking sector in Finland, what are the most critical factors to make customer satisfied and their interrelationship among different factors to convert satisfied customer into a loyal customer?

Nowadays banks are not only paying attention to their digital platforms to expand their businesses, but also customer satisfaction creation is the focus of banks. The satisfied customer becomes loyal to the company. According to Ehigie (2006), loyalty makes customer to buy the same product or service again and again. Ehigie (2006) also mentioned that customer satisfaction is highly related to customer loyalty. So, it is essential for every bank to understand the value of the loyal customer and ensure the quality of product or service for the customers so that they become loyal. Lam and Burton (2006) found that loyal customers do not change their mind so quickly, they purchase service from the same suppliers. The value is delivered to the customer, and the provider needs to create customer value to stand out from its competitors. Customer satisfaction creation can be used as a competitive advantage. The outcome of thesis would be considered as a framework, which would enable organizations to create and manage customer satisfaction.

1.4   Banking sector and its digital services in Finland

There are more than 1000 branches of Finnish banks in Finland (Finanssiala, 2015). There are some international and Finnish local banks who are dominating in the banking industry of Finland, such as, Nordea Pankki Suomi, Danske Bank, Handelsbanken, Osuuspankki (OP), Säästöpankit, Aktia pankki, S-pankki, POP pankki, Ålandsbanken. They all provide online banking services in Finland because digital services of banking sector is very popular in Finland. According to Finanssiala (2015) only OP and Nordea contain more 62% market share of Finnish banking sector. Finnish banker association

(2002) mentioned that digital services of Finnish banks have been improving day by day since 1996. Finnish customer is currently using digital banking services through website and mobile apps. There are some unique services of them which are given below:

E-payment and online transaction

Every banks in Finland has e-payment and online transaction system. Customer can buy any kind of product or service through net banking (Nordea, 2016). Customer just need to put the net banking account number and pin code to make sure the payment. Online transaction is one of the most convenient systems of Finnish banks to transfer or pay money to another person's or company's account. Online payment can be done through bank's website or app.

E-identification and E-invoice

There are several services offered by Finnish government where the banking system is used to identify the people, for example, Posti is offering netposti where people can use their net banking to prove their identification (Posti, 2018). The customers of Posti receive the electronic letter through netposti if they have online banking access. E-identification is used in the different sectors such as the hospital, tax office, and many others. Nordea has an agreement with various companies to send e-invoice to their customer (Nordea, 2018). Banks send e-invoice to the company or person for collecting money on behalf of the product or service seller.

Application

App makes life easier. Finnish banks are offering different services through different apps. Every bank in Finland has their own app for their customer to operate their account. Customer can check their account balance through mobile app very easily. Not only have that, customer can pay for any kind of transaction through app. There are some unique and different apps in the market right now such as SIIRTO app, code app, mobile pay app and so no. SIIRTO is an app which is used to make payment easy and Nordea Bank is currently offering this app and they have collaboration with mobile operators in Finland (Nordea, 2018a). Payee and payer need to have the same app and registered to get the service. Once customers are registered then they can pay or transfer money by using

mobile number. Code app is another popular app to make secure payment. Nordea has code app to make the payment easy and secure.

1.5 Overview of research methodology

In this thesis, literature and relevant articles and papers are reviewed very carefully to develop a conceptual framework. Inspired by the proposed conceptual framework, will several hypotheses will be formulated. A questionnaire will be designed and developed according to the research theoretical focus, thus this thesis makes use of a quantitative research approach. The electronic platform will be used to collect data from respondents. There are several sampling techniques. In this study, only those customers can participate who have taken services from bank in Finland through digital platform at least once. The result will be analysed and interpreted with the help of proper software to show the relationships between the antecedent factors and outcome variable.

1.6 Structure of the research

Research structure gives a proper overview of the whole studies which helps a general reader to understand how the research is designed. There are six chapters in this studies.

Introduction	•Research problem, objective and questions
Literature Review	•Customer satisfaction, digital services
Theoritical Background	•Different theories, conceptual framwork, hypotheses
Research Methodology	•Research method, design, sample selection, measurement scale and modelean value, standard diviation, and corelation among variables
ConclusioResult and Findingsn	•Mean value, standard diviation, and corelation among variables
Conclusion	•Summerization, limitations and further scope of reaearch

Figure 1: Structure of research

This thesis starts with the introduction chapter. It describes the background of this research, sets the research problem, research questions, and objectives of the study. Banking sector and different digital services of banks in Finland are the parts of this chapter.

Relevant literature is reviewed in the second phase of this research which explains how to create customer satisfaction on digital services in the banking sector. This chapter of this thesis will provide information about customer satisfaction, digital services of bank and customer's loyalty.

In the third chapter, the objective of this research is to design a framework based on earlier studies. In this chapter, different relevant theories will be discussed and based on these theories a research framework will be developed for this study.

In the fourth chapter, choice of method, alternative methods, ethical consideration, application of the method, data collection procedure, data analysis method and research quality have been discussed.

In the fifth chapter, the results of this research is described with the help of the framework. In this chapter, the collected data is analysed and interpreted with the help of different tables and diagrams. Research findings and its background are be presented in this chapter.

In the sixth and the final chapter of the thesis, discussions, and conclusions are presented and explained. Also, further research suggestions and limitation have been provided.

2   LITERATURE REVIEW

In this chapter, the definitions of customer satisfaction by a number of authors are going to be reviewed. After that, different literatures are reviewed which are related to this study.

2.1 Customer satisfaction

According to Kotler and Keller (2012), customer satisfaction is a person's feelings of pleasure or displeasure resulting from comparing perceived product's outcome about his or her expectations. The authors elaborate that customer becomes dissatisfied if the performance does not fulfil their expectations. Although, customer satisfaction can vary from person to person. On the other hand, the customer can be satisfied in case of performance matches customer's expectations and, the customer could be delighted or highly satisfied if his expectations are surpassed by the performance (Kotler and Keller, 2012). Woodroof (1997) illustrates satisfaction as the customer's senses in response to evaluations of his or her experience with a product or service. According to Perreault and McCarthy (2002), satisfied customer indicates that a company is fulfilling the needs, demands, desires, and expectations of customers.

According to Kotler and Keller (2012), there are several methods to measure customer satisfaction. Kotler and Keller (2012) also argued that customer satisfaction could be followed directly by cyclic surveys. Monitoring the customer loss rate is also one of the ways that could be done efficiently to know the customer satisfaction level. Finally, mystery shoppers is another technique where some people could be hired by the company to pretend potential buyers. These employed people would give feedback on their experience, benefits, and limitations of buying the product or service from the company and its competitors (Kotler and Keller, 2012). From these people, a company can get the idea about their product or service quality.

In the context of online banking services, there are some factors which influence customer satisfaction such as security, responsiveness, accessibility and goodwill (Yaobin and Tao, 2005). So, these factors help to build an initial trust of the customer. There is some theoretical frameworks to measure customer satisfaction such as Expectation-

confirmation theory (Oliver, 1980) and so on. But, technology related customer satisfaction measuring theory can be useful for measuring customer satisfaction of digital services of the banking sector as online environment is changing very quickly (Bhattaacherjee, 2001).

2.2 Digital service quality

According to Ma and Zhao (2012), service quality can be defined as a judgment of customers over a bank's performance; it can be excellent, superiority or negative. So, banks try to develop and maintain excellent service quality for their customers to retain and make them loyal to the banks. If the service quality is extraordinary, then the customer would buy the same service, but if a bank cannot deliver excellent service to their customers, then it would lead negative impact on business because of adverse word-of-mouth (Ma and Zhao, 2012). As a result, the competitor would be able to develop excellent and high service to capture those customers and take advantage of reduced service quality of other banks. Service quality is the difference between what an organization provides to their customers and what customer expects from a company (Parasuraman et al., 1988). There are some scales developed by different scholars. For example. Parasuraman et al. (1991) developed 22 items scale to measure various dimensions of service quality, such as reliability, tangibility, empathy, responsiveness, and assurance.

Nevertheless, the difference between traditional service and Internet-based service is substantial. Nowadays, digital service like online banking and different apps have a significant influence on the bank's profit and its customers. Rowley (2006) defined digital service as an interactive service between customer and bank using the internet. Parasuraman et al. (2005) also added digital service is a medium of interaction between customer and company where the company has to make sure about the efficiency and effectiveness of their services. So, banks must listen to their customer's need and expectation to survive in this competitive business world (Santos, 2003). Thus, the customer has more power in case of online-based services because many competitors are offering the same or even better services. The customer can move to other banks without any cost if the current bank does not improve their services. Santos (2003) stated that digital service quality is a process of customer's assessment and the final decision on

services of virtual market. Digital banking service has changed the customer's attitude toward taking different services.

Jabnoun and Al-Tamimi (2003) stated that measuring digital service of the bank is different than traditional service because there is less human involvement. So, regular service measurement scale cannot be used to assess digital service. The main problem, in case of digital service measurement, is to develop dimensions and measurement scale. Rowley (2006) mentioned the critical point of digital service measurement is to find the proper relationship among customer's experience, the satisfaction of customer, and loyalty.

2.3 Customer satisfaction and loyalty

Customer satisfaction is a core marketing concept which generates customer's loyalty. Kotler (2000) mentioned customer satisfaction is a personal positive or negative feeling after using product or service, which comes from comparing between product or service's perceived value and actual value. Most of the time, the customer cannot judge the real performances before the consumption. According to Anderson and Srinivasan (2003), satisfaction depends not only on the actual product performance but also pre and post purchasing experience. Pre-purchasing experience comprises product searching, evaluating and so on. On the other hand, post-purchasing experience includes after sales services such as returning product, refunding money and so on. Mckinney et al. (2002) found two different way to satisfy the online customer. The first way is to ensure the quality of information to customers and second way is system performance to deliver information. Satisfaction is one of the most critical variables to make customer loyal (Castaneda et al., 2009). Anderson and Srivasan (2003) mentioned dissatisfied customers like to search for more information from different alternatives but the satisfied customer does not move smoothly to other company. Satisfied customer frequently visits the same website when they need to buy something in the future (Alba and Hutchinson, 2007). According to Taylor and Baker (1994), customer satisfaction is one of the key determinants to customer satisfaction. So, there can be a relationship between customer satisfaction, and loyal customer.

3   THEORITICAL BACKGROUND

There are so many theories and researches which can be helpful to develop the research model for this thesis. These theories would be reviewed to develop a proper research model. Some of the previous theories are discussed below:

3.1 Technology Acceptance Model

Technology Acceptance Model (TAM) is widely used model which was developed by Davis et al. (1989). This model was developed based on Theory of Reason Action. TAM is used to explain why people use technology. According to Chui et al. (2009), TAM is the best for explaining the initial behaviour of a customer. The primary goal of TAM is to find out determinants of accepting new technology. TAM can be an appropriate model to elaborate behaviour and experience of a customer in case of new technology (Davis al et., 1989). The TAM model is illustrated in Figure 2.
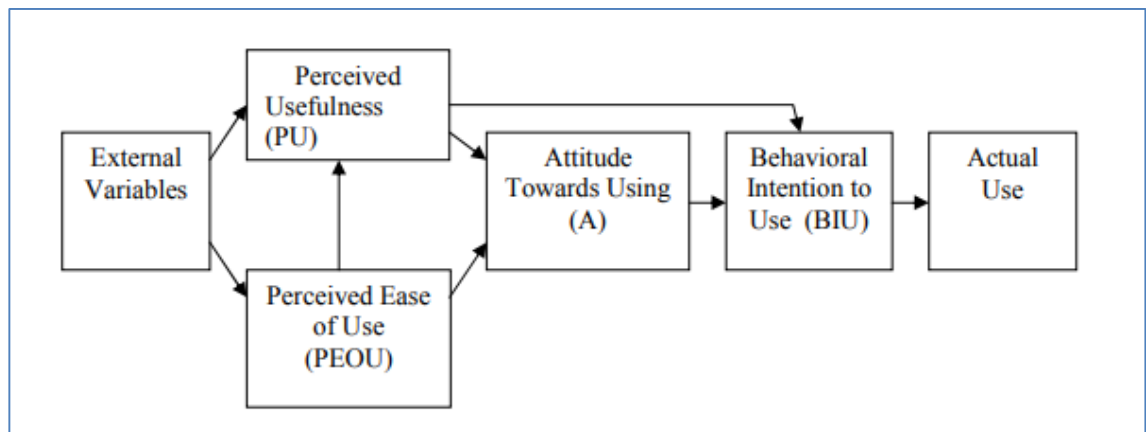
Figure 2: Technology Acceptance Model by Davis et al. (1989)

In Technology Acceptance Model, there are two determinants. According to Davis (1989), these are perceived usefulness (PU) and perceived ease of use (PEOU). PU can be used to know whether or not someone is experiencing proper benefits according to his requirement. PU is the primary way to understand the behavioural intention. But there are some external factors such as attitude and so on which influence PU. On the other hand, PEOU is a way to know the usefulness of technology. There may have a causal relation between PU and PEOU although they have separate constructs. Typically, the new user faces problem in case of using new technology, but he feels comfortable when he becomes

used to that technology. Changing process, psychology, and satisfaction are integrated to develop TAM model. There were some missing factors such as social and cognitive factors. Venkatesh and Davis (2000) developed a new model which is called TAM2 and added social and cognitive factors in this new model. The TAM2 model is illustrated in Figure 3.
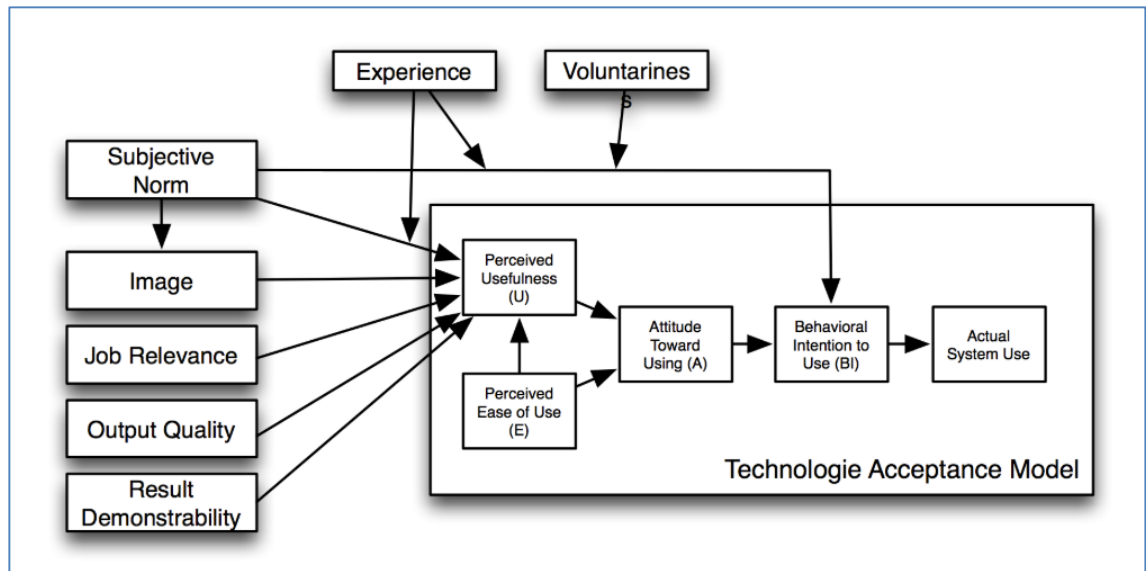
Figure 3: Technology Acceptance Model 2 by Venkatesh and Davis (2000)

The controversial point about TAM is that model cannot be able to determine the post-behaviour of the customer in the case of reuse of same technology. For a reason, Hou (2016) had an experiment with three separate model (Expectation confirmation model, Technology acceptance model, synthesized model) to understand which model can provide the best explanation of customer satisfaction, retention, and loyal customer. His outcomes show that other models like EMC are much better than TAM because PEOU does not have any real impact on the customer. If the user is highly experienced, he will need less effort. There is three main barrier to use this model in this research. First one is customers of Finnish banks are experienced enough in case of using different digital services of banks. The second one is TAM will not be that much useful for this research as it cannot explain post behaviour of the customer. The final one is, this model didn't consider any personal and demographic factors which are required for this research. But, this model can be used partly for this research as it contains some essential variables which are related to this research.

3.2 Theory of reasoned action

Human behaviour is affected by the behavioural intention. And how this behavioural intention works is showed by the Theory of reasoned action. Theory of reasoned action (TRA) is a behavioural intention model established by Fishbein and Ajzen in 1975 that explains causes of behavioural including inside and outside factors. It demonstrates the range of behaviour and intention. Figure 4 illustrates TRA model.
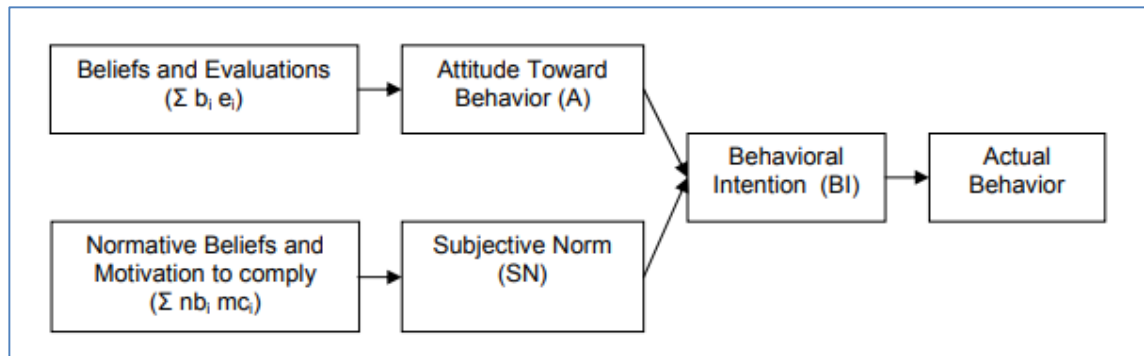
Figure 4: Theory of Reasoned Action by Fishbein and Ajzen (1975)

Fishbein and Ajzen came up with two type factors that are used to determine the behavioural intention. These are attitude and subjective norm. Attitude is simply about the belief in the behaviour which includes the belief in the outcome of the behaviour and the evaluation of these type of behaviour. Attitude can be a positive or negative feeling about performing a specific behaviour. If one has positive feeling about a product, there is a high possibility that individual will sell the product. And another type of determinant is the subjective norm or normative component which is the social desirability or the social acceptance of the behaviour. It is the combination of the normative belief and the motivation to comply with others belief. Motivation can be positive or negative which can be done by an individual or a group.

Target behaviour should be done based on the volitional control (Hale et al., 2002). Volitional behaviour is the intention in which there is no external control. Customer's individual decision leads them to buy the product. Volitional behaviour is the conscious action or the habit over time. Examples are: shopping for a new house, smoking, exercise. On the hand, the non-volitional behaviour is affected by the external condition. Based on knowledge and skill or the environmental difficulties, non-volitional behaviour forms. It is challenging for the TRA to explain non-volitional behaviour.

If TRA uses only the attitude or subjective norm, there is a high possibility to have an inaccurate result. It is better to use both factors, because these factors are correlated. According to Sheppard et al. (1988), TRA model has the validity that shows that it is efficient to use this model in modelling the behaviour. However, in any case, the suitable change should be considered to propose or conduct new research as there is no choice of different components in TRA model.

3.3 Theory of planned behaviour

There are some limitations in Theory of reasoned action. Dr. Martin Fishbein and Dr. Icek Ajzen extended the theory of reasoned action to the theory of planned behaviour in 1980 to overcome the limitations. TRA works most effectively when connected to genuine practices that are under a man's volitional control. A person may not be able to perform his actual action, even though he make his decision based on attitude and subjective norm. Here comes the confliction between the goal intention and the behavioural intention. Figure 5 illustrates Theory of Planned Behaviour (TPB).
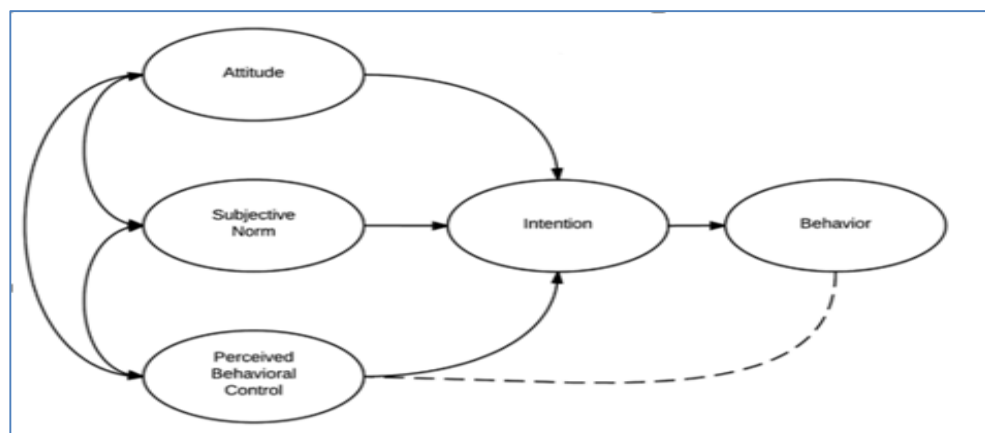
Figure 5: Theory of Planned Behaviour by Ajzen and Fishbein (1980)

TPB shows the situation where a person has incomplete volitional control. In the theory of reasoned action, it is discussed that human intention is mostly dependent on attitude and their subjective norm. A person's internal feeling is the strongest factor that leads him to act the actual performance. Although there are some external motivational factors that contribute. It is obvious that the actual behaviour depends on the behaviour intention and volitional control. Ajzen (1985), people avail the opportunities and resources in order to perform. Factors such as skill, time, and money have at least a little amount of impact

on the behaviour. These are called non-motivational factors, which have actual control over people's behaviour. According to Ajzen and Fishbein (1980) belief is nothing but the actual behaviour. Belief and behaviour are linked to the anticipated result. Belief is a person's individual judgment whether to perform or not. It contains the person's experience and personal opinion. It is entirely the informal calculation of the performance. However, there could be several behavioural beliefs for a specific. But only few of them are readily accessible which drive them to perform. In TPB, perceived behaviour control, a third factor, added to TPB in addition to attitude and subjective norm. Attitude is all about a person's internal positive or negative feeling about performing (Robinson and Doverspike, 2006). That means, to what extent he or she want to do the performance willingly. It is likewise interesting to bring up that how the state of mind towards attitude is shaped if there are no past experience and that way it desires. Experience and belief build up attitude which either can be strong or weak. Therefore it is sensible to state that looking into the attitude towards behaviour have avocation to discover aims to carry on in a specific way.

Subjective norm is the social perspective about the performance. How the social or external factors dominate in human behaviour are found in the subjective norm (Martin et al., 2010). It is the behavioural expectation from individual or group such as friends and family. Normative belief includes the key individuals or characters around the individual, particularly their desires as he sees them to be. Perceived behavioural control alludes to individuals' impression of their capacity to play out a given behaviour. Perceived behavioural control (PBC) factor reflects past involvement and additionally external components, for example, foreseen obstructions, obstacles, opportunities and resources that may impact the execution of the actual behaviour. The factors of the perceived behavioural control will help to facilitate or avert them from performing successfully, or it can be different from real control.

Perceived behavioural control may not be extraordinarily reasonable when a man has moderately little data about the behaviour, when necessities or resources have changed, or when new components have entered into the circumstance (Rotter, 1966). Under this circumstances, a low accuracy can be added by the measurement of perceived behavioural control to understand behavioural prediction. However, the fruitful behavioural attempt can be predicted when the perceived behavioural control is real.

3.4 Unified Theory of Acceptance and Use of Technology

Venkatesh et al. (2003) developed unified Theory of Acceptance and Use of Technology (UTAUT) after reviewing eight different theories and models. In organizational contexts, UTAUT is one of the most applicable theory which can explain the variance in behavioural intention and technology use (Neufeld et al., 2007). UTAUT has four constructs such as performance expectancy, social influence, effort expectancy, and facilitating conditions. Performance expectancy explains how much benefits consumers are getting by using technology. Effort expectancy shows how much effort consumer needs to use the certain technology. Social influence means the consumer can be influenced by his near people such as friends and family members. The last factor is facilitating conditions which indicate consumer's resources because the performance of technology depends on consumer's available device and technology. Figure 6 illustrates UTAUT model.
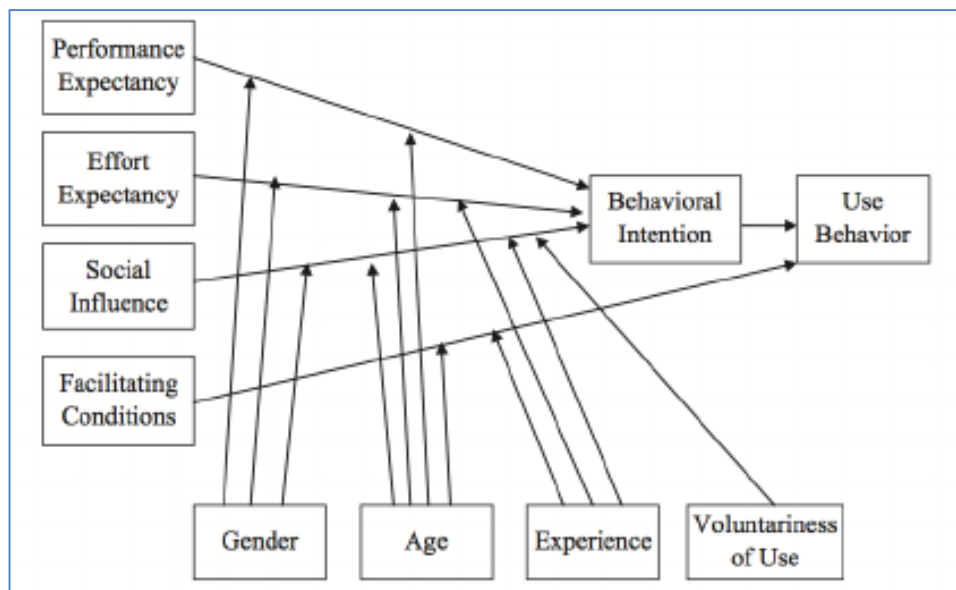
Figure 6: Unified Theory of Acceptance and Use of Technology by Venkatesh et al. (2003)

UTAUT was used to know employees ability of acceptance new technology. But, Alvesson and Karreman (2007) found that there should be some changes if they want to use this theory to know consumer's behaviour. UTAUT2 has three additional constructs than UTAUT which can be helpful to consumer's opinion. These three constructs are

hedonic motivation, price, and habit. Hedonic motivation refers to the enjoyment. Brown and Venkatesh (2005) found hedonic motivation is significant in case of consumer behaviour. Dodds et al. (1991) stated that the consumer has to pay for using technology as they are working under any organization. Usually, organization arranges all the facilities to their employees for performing specific task. Kim et al. (2005) challenged that habit of technology use can be an essential factor as consumers would feel comfortable with regular use and they would be able to utilize these technologies better day by day. Chin et al. (2003) stated partial least squares are one of the best methods which was used to find out the effect of different variables in UTAUT2. Figure 7 illustrates UTAUT 2.
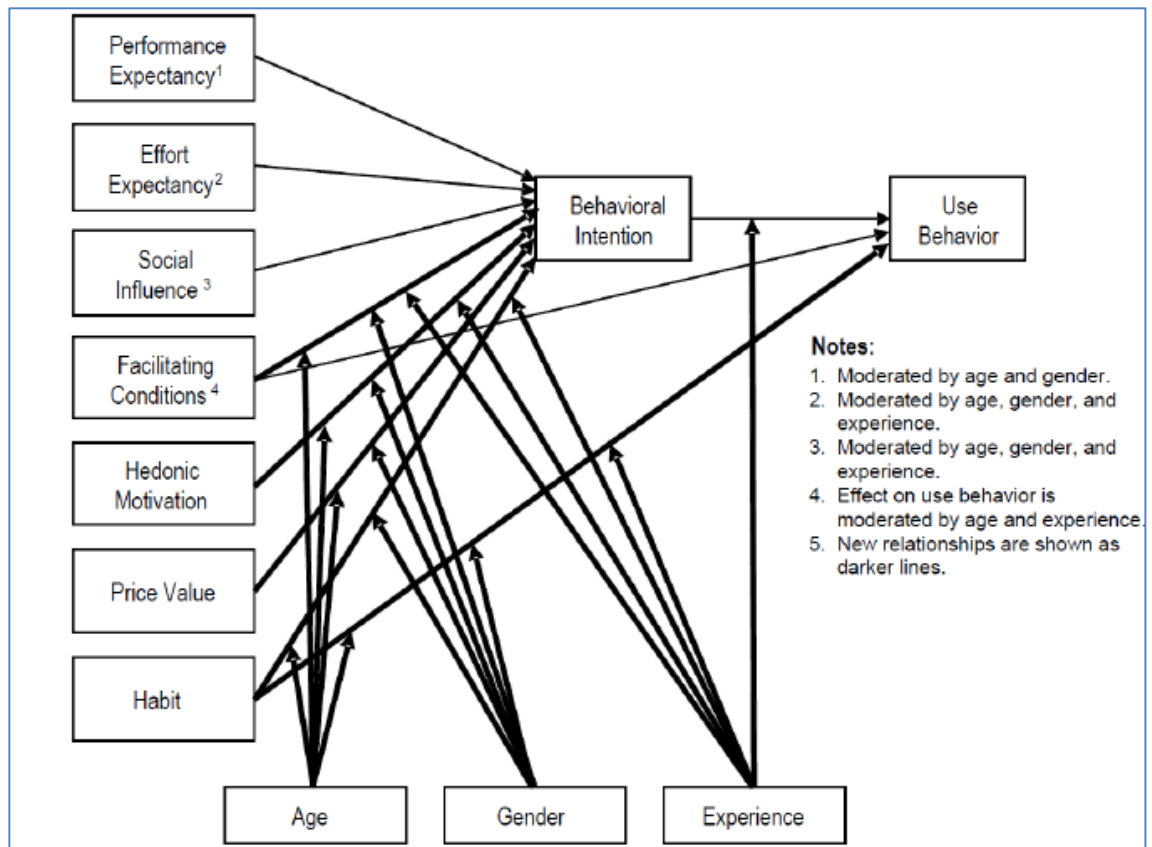
Figure 7: Unified Theory of Acceptance and Use of Technology 2 by Venkatesh et al. (2012)

Morris et al. (2005) found that old people cannot use technology like the young user. On the other hand, Venkatesh and Moris (2000) found that women are not active in case of technology usage. The authors used demographic variables such as age, gender and experience in both UTAUT and UTAUT2 theories because they want to find the

relationship among demographic information and independent variables. This theory can be handy to find behavioural intension of the consumer. It has some variables such as performance expectancy, effort expectancy are possible to use for this research as they are related to customer satisfaction. So, some parts of this theory can be used for this research.

3.5 E-service quality dimensions

Lee and Lin (2005) found that there are no specific criteria to measure e-service quality for online business. This model was developed from SERQUAL scale. Zeithaml et al. (2000) found several lacking in previous scales when they started new research for measuring digital service quality, such as less actual online customer's involvement and so on. Zeithaml et al. (2000) developed a new scale for measuring digital services which are called SERQUAL model. SERQUAL has seven dimensions which are given below:

(1) Efficiency, (2) Reliability, (3) Fulfilment, (4) Privacy, (5) Responsiveness, (6) Compensation, (7) Contact.

Lee and Lin (2005) conducted new research and proposed five dimensions to determine e-service quality which can be applied any online business. These dimensions are website design, responsiveness, reliability, trust and personalized service.
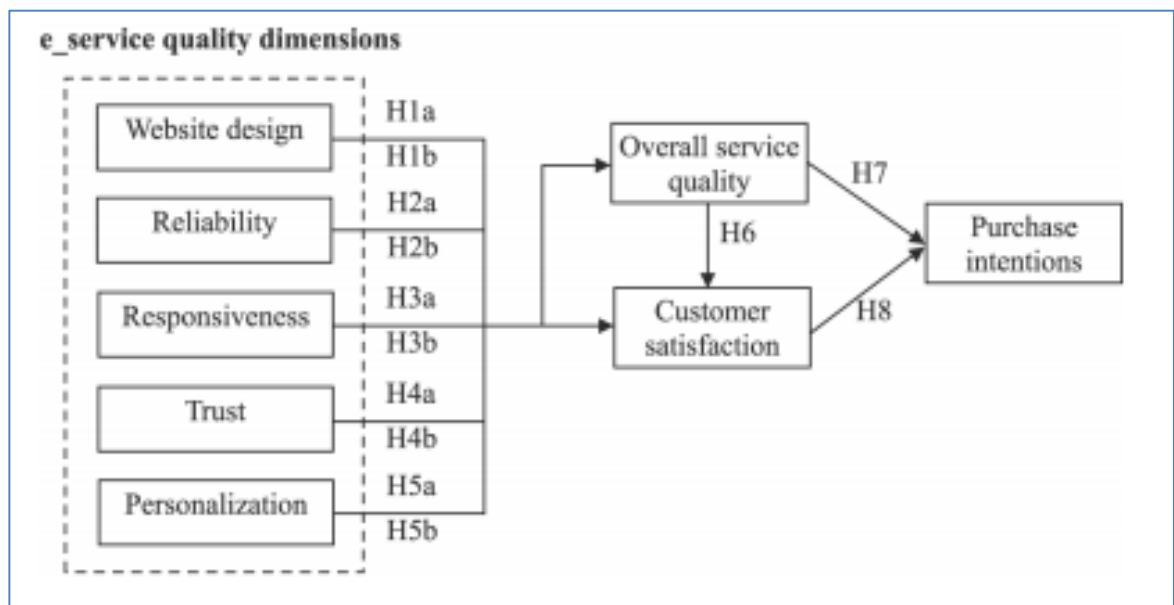
Figure 8: E-service quality dimensions by Lee and Lin (2005)

Firstly, Website design is a significant factor to have the online business as it creates appeal to users (Than and Grandon, 2002). If a company has an excellently designed website then, this website can bring more customer to them. Secondly, Lee and Lin (2005) mentioned about reliability which represents the capability of a site to fulfil the need of the customer. The customer wants to have all the facilities nowadays such as ordering, payment, and giving feedback and so on. The third one is responsiveness; it represents how efficient a website to a customer's query. The customer does not need to wait long for a single service or any inconvenience. So, banks want to solve the problem or service very quickly. The website should have the capacity to react as soon as possible to give the service to their customers. The fourth one is trust. There were several studies where authors emphasized the importance of building trust between company and customers because the customer would not go for the online transaction without having any trust (Gefen, 2000). The final one is personalization where Lee and Lin (2005) mentioned that company needs to provide services according to customer demand because every customer is different and their needs and desires are also different. So, every company has to make sure the personalized service to their customer if they want.

Technology is changing and adding new aspects of a business. It is essential to know the better view of new technology and its prospect. That's why there is a necessity of a smooth and simplified scale to get proper knowledge.

3.6 Research dimensions and hypothesizes

This study would modify and use the e-service quality dimensions of Lee and Lin (2005) considering all the theories mentioned above because Lee and Lin (2005) tried to examine all the primary constructs of e-services quality. Responsiveness, reliability, security, and personalization would be used as an independent variable because these four variables are relevant to measure customer satisfaction on digital banking which leads to loyalty. Website design will not be considered from Lee and Lin's (2005) dimensions because this research would focus on overall quality of digital banking service. This study would adopt two variables from UTAUT of Venkatesh et al. (2003) such as performance expectancy and effort expectancy. According to Oshlyansky, Cairns and Thimbleby (2007), in case of e-business, customer expectancy and effort expectancy influence the overall decision-making process of customer and their satisfaction. So, customer

expectancy and effort expectancy would be added as a new independent variable. Some hypothesize would be developed based on these six dimensions. The research model, variables and hypothesizes are given below:
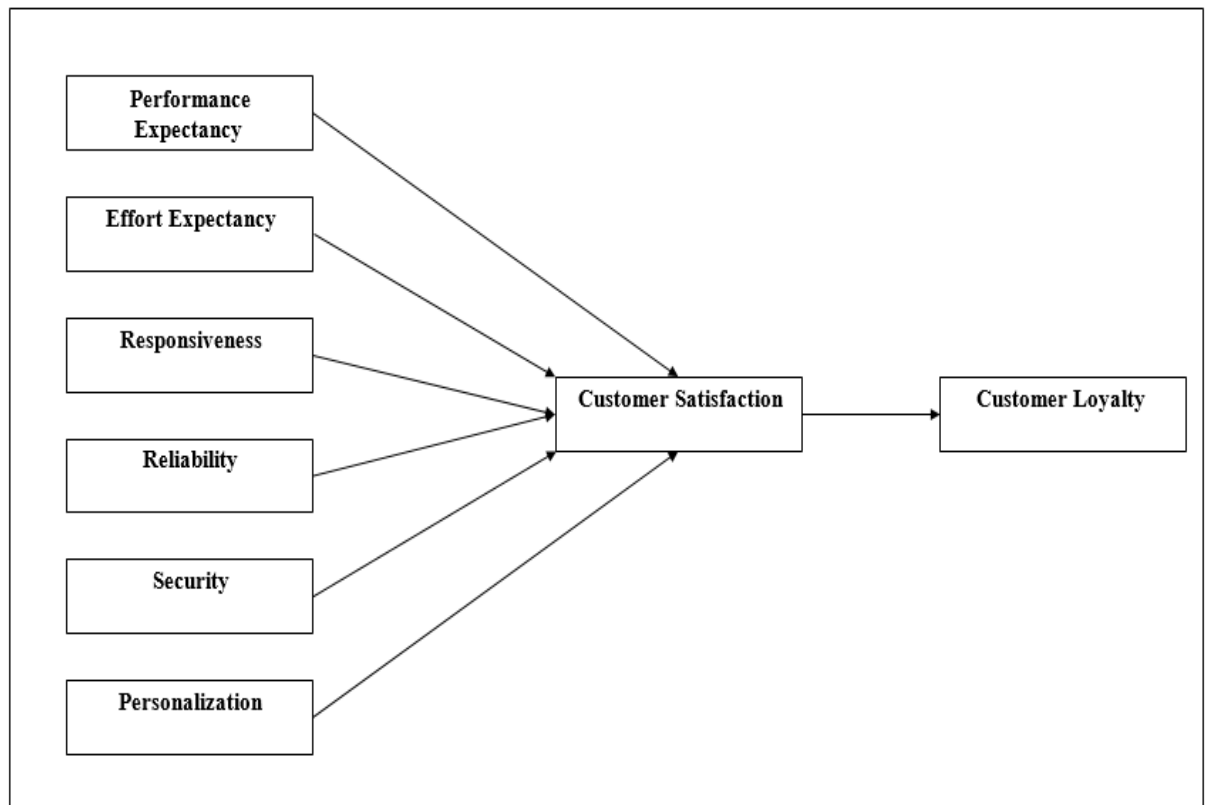
Figure 9: Proposed research model

3.6.1   Performance expectancy

In case of online business, Keeney (1999) mentioned that retailing website, internet, channel, and the process of searching, ordering and receiving product add value to the customer. The customer would always try to find and get the easiest way to find his preferred product or services. The Banker has to understand the necessity of customer in case of online service. Lin and Lee (2005) used website design to follow customer's requirement as the main variable in their research because they were concerned only with website based services. Now, there are different kind mobile apps to fulfil customer requirement. So, marketers need to select an appropriate marketing strategy and channel to reach and deliver services to the customers. Not only that, they have to make sure that they understand customer's need and demand and they have to design their services

according to the customer. According to Parasuraman et al. (2005), digital service should have the capacity to fulfil customer's requirement. Therefore, the following hypotheses would be tested in this study.

H1: Performance expectancy positively influences customer satisfaction in digital banking.

3.6.2   Effort expectancy

Effort expectancy means how much effort a customer needs to give to use the digital service. Customer will not feel comfortable if the system is too complicated to use. So, digital services of the bank should be easy to use. Effort expectancy is one of the critical variables of this research as Venkatesh et al. (2003) found a positive relationship between customer expectancy and behaviour. Tsourela and Roumeliotis (2015) also found that effort expectancy has positive influence on the customer in case of technology-based service. Therefore, the following hypotheses would be proposed in this study.

H2: Effort expectancy positively influences customer satisfaction in digital banking.

3.6.3   Responsiveness

Liao and Cheung (2002) mentioned customers want quick response or solution to any problem. In case of digital banking services, the customer may face different issues or may not understand how it works. So, the bank has to make sure that they are fast enough to react to customer's inquiry because the customer does not like to wait for getting the solution to one problem. The customer will switch to another bank in future if they do not receive the fastest service. There were so many studies where researchers tried to find the importance of responsiveness (Yang and Jun 2002). Another research also mentions the importance of responsiveness in case of online business, such as Parasuraman et al. (1988) cited responsiveness is one of the most critical criteria for satisfying customer in online business. So, in this study, responsiveness would be considered as an essential factor to satisfy customer of digital banking sector. Therefore, the following hypotheses would be tested in this study.

H3. Responsiveness positively influences customer satisfaction in digital banking.

3.6.4   Reliability

Reliability refers to the technical functionality of a site or app. Zeithaml et al. (2002) mentioned that reliability means the site would have all the required information and functions which help the customer to take services properly. Yang and Jun (2002) discussed and investigated the importance of reliability in their studies. Yang and Jun (2002) argued that reliable site gives believe to its customer about its quality of functionality. In this study, the reliability of website or app of bank would be considered as an essential variable to make sure the satisfaction of customers because if customers are not confident about the functionality of a site's, then they would not like to use this site. In this study, reliability means the ability of a website or app to make customer more confident.

H4: Reliability positively influences customer satisfaction in digital banking.

3.6.5   Security

Lee and Lin (2005) used trust as a construct in their theory. In this research, security will be used instead of trust as a variable because safety is the top issue in case of digital banking service. According to Chung and Paynter (2002), security is the primary factor for the customer to make the online transaction. Online transaction is one of the significant and popular service. But, the customer would not feel safe to make the online transaction if the website or app is not secured. There are some technological tools to make sure the security for customers, such as encryption. Chung and Paynter (2002) also stated encryption is a way to transfer information only to the authorized party which can be an option to make safe a website. So, every bank has to make sure the security of information and money of customer.

H5: Security positively influences customer satisfaction in digital banking.

3.6.6   Personalization

All customers are not the same. They have different need and demand; for example, all the customer may not like same investment scheme or customer may want more year to pay the loan. Personalization means providing various services according to the customer need and desire (Yang and Jun, 2002). On the other hand, Yang (2001) stated that personalization means giving extra attention to your customer's needs. Every bank should

have the capacity to provide customized service to their customer to make them more satisfied. So, a bank can analyse customer previous order or preference and send them new offer according to their last choice which makes the customer more privileged. In previous studies, the researcher examined the influence of customized services in online retail shopping (Wolfinbarger and Gilly, 2003). So, it can be considered a factor in case of digital banking which may have high impact to make customer satisfaction. The following hypothesis would be proposed and tested in this research.

H6: Personalization positively influences customer satisfaction in digital banking.

3.7 Customer satisfaction and loyalty

Anderson and Srinivasan (2003) stated that in case of online business, customer's satisfaction has a positive effect on customer's loyalty. According to Rowley (2006), there is specific relationship among digital services, customer satisfaction, and loyalty. This research will try to find out the relationship among digital banking service, customer's satisfaction, and loyalty. Satisfaction would be measured with the help of different dimensions, such as security, reliability and so on. In case of the banking sector, customer satisfaction is one of the major antecedents. Therefore, the following hypothesis is proposed:

H7: Customer satisfaction positively influences customer loyalty in digital banking.

3.8 Integration of Hypotheses

Figure 10 illustrates the integrated hypotheses with proposed researched model. First six hypotheses would be used to know critical factor in digital banking service for making the customer satisfied. The last hypothesis would be used to find how customer satisfaction leads to customer loyalty. Quality of digital service has a positive influence on customer satisfaction (Malik, 2012). That's why these six independent constructs would be used to find customer satisfaction on digital banking in Finland. There is enough evidence that customer satisfaction leads to customer loyalty, for example, Townley and Boberg (1997) found that customer satisfaction influences the customer loyalty either directly or indirectly. Fang Xu and Jia Tina Du (2017) also used customer satisfaction as a variable to find customer loyalty and found a positive relationship between customer

satisfaction and customer loyalty in case of the digital library. Therefore, this thesis would also adopt the linkage between customer satisfaction and customer loyalty, which was empirically approved by the previous research in the different sector. Consequently, Customer loyalty is the main dependent variable in this this research and the customer satisfaction would work as a mediator between independent variables and the dependent variable.
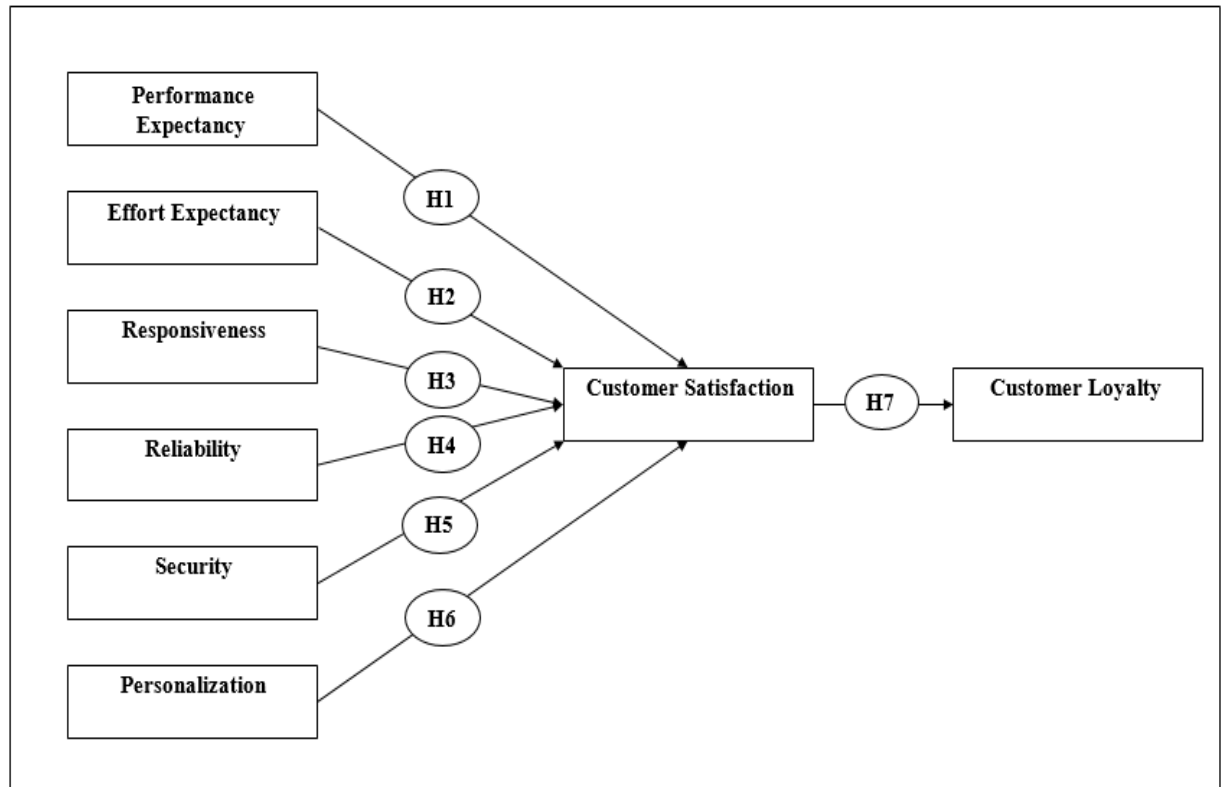
Figure 10: The integration of formulated hypotheses with the proposed research model

4 METHODOLOGY

This chapter will provide details description about research method of this thesis. This part covers different research methods, application of research method and logic behind selecting quantitative research method. Not only that, it also presents the details data collection process and data analysis method.

4.1 Research method

Researchers must choose a plan to conduct or complete their research. Different scholars give the different definition of research methods. For example, according to Chu (2015), research method is nothing just choosing a data collection procedures and techniques. On the other hand, Powell (1999) defined differently, research method is a data analysis technique. So, it is difficult, to sum up about research method as there are different opinions among different scholars. Hildreth and Aytac (2007) argued that research methodology is the way of conducting research which includes the type of research, methods of data collection, and analysis approaches. But, according to Peritz (1977), there are 11 different research methods which include theoretical and analytical, the design of information system, survey and sub-categorization. So, all the methods are not appropriate for every type of research. According to Williams (2007), there are three research methods to research today's world; they are quantitative, qualitative, and mixed methods. Different types of methods are developed for conducting the different type of research. These three methods are presented below:

4.1.1   Quantitative research

According to Leedy and Ormrod (2001), quantitative research involves doing a different kind of survey and experiment based on various current theories. Western researchers have liked to use the quantitative method to quantify gathered data since 1250 A.D. because this method creates different types of new knowledge which can be used for the betterment of next activities. Quantitative research is developed to find uncovered meaning from gathered data based on some assumption which can be right or wrong (Creswell, 2003). According to Leedy and Ormrod (2001), quantitative researchers try to

find explanations and calculation to other people and places which would help them to do their job or task more efficiently.

Creswell (2003) states that quantitative research employs different strategies of investigation, for example, experimental and surveys to collect data from a predetermined methodology that produce statistical data to support its prediction or hypothesis. The primary purpose of quantitative research is to establish and explain relationships among different variables or factors. This research starts with an apparent research gap or problem. According to Totten et al. (1999), after finding the problems, researchers try to develop different hypothesizes based on various factors, gather data through survey or experiment from a proper sample size and analyse the data to get the appropriate explanation of problem statement.

There are three types of research purposes of quantitative research such as exploratory, descriptive, and explanatory. Exploratory studies are used to clarify a problem which makes the issue more comprehensible. Descriptive research is different than other purposes. It tries to interpret a person, event, or situation. Explanatory studies are used to explain causal relationships between different variables. In case of comparative research, the researcher tries to examine how dependent variables influence independent variables. According to Vogt (1999), comparative research focuses on factorial design to get dependent and independent variables. In this case, this study should be considered as descriptive and exploratory because it described the phenomena of customer satisfaction and tried to understand its characteristics better (Saunders et al., 2009).

4.1.2   Qualitative research

Creswell (1994) stated that qualitative research is an unfolding research model where researchers are highly involved to gain new experience and based on that experience. According to Strauss and Corbin (1998), qualitative method refers to studying social reality and gaining the deeper understanding of how the world runs. Qualitative studies are used to explain topics like lived experiences, behaviours, feelings, organizational functioning and cultural phenomena. In case of qualitative research, there are different research design techniques to conduct a proper study. But, Leedy and Ormrod (2001) argued that, qualitative research is not well structured to describe its findings because it develops or formulate a new theory. Qualitative research is a giant thing which can cover

prominent areas such as, case study, phenomenological study, ethnography study, content analysis and grounded theory study (Leedy and Ormrod, 2001). These five areas describe how it meets different needs of the researcher.

According to Strauss and Corbin (1998), qualitative research is more suitable to find out what people are thinking and the nature of experience. This research is highly depended on researcher to find an opinion of people because there are no specific beginning and finishing criteria. In that case, researchers are the final decision maker as researchers have to identify the problem and resolve that issues of that particular project.

The main purpose of qualitative research is to understand and interpret different social interactions. According to Creswell (1994), most of the time, qualitative research tries to cover whole scenario not only a few variables. Creswell (1994) also mentioned that before collecting data, researchers attempted to develop a hypothesis and based on that hypothesis, they start receiving data from the smaller studied group through specific selection criteria and does not allow any random selection of study group. In case of qualitative research, the researcher identifies different patterns, themes, and features from collected words, images or objects. Researchers collect data through observations, ethnography, field notes, reflections, interviews and open-ended response. Researcher knows characteristics of the participant before starting data collection. The research presents a narrative report with direct quotation and contextual description from research participants. This empirical research is used to explain further emerging theories of social behaviour.

4.1.3 Mixed approach

Tashakkori and Teddlie (2003) state that mixed methods emerged in the mid-1900s. When researchers use quantitative and qualitative method together to complete a study, then it is called mixed method (Creswell, 2003). So, there is nothing alternative to these two methods but the researcher can use both for getting and explaining better knowledge. Researchers may require collecting numerical and narrative data for single research, in that case, the researcher can use a mixed method such as researcher can utilize closed-ended questionnaire to collect statistical data, and on the other hand, they can take the interview to collect historical data.

4.2 Methodological choices of the research

From the above discussion, research methods can be divided into three approaches such as qualitative, quantitative and mixed methods. According to Thiel (2014), quantitative is more common in that kind of research where the result of research is described in the numerical term. According to Strauss and Corbin (1998), qualitative research is more suitable to find out what people are thinking and the nature of experience. Strauss and Corbin (1998) also stated that it is typical for a qualitative study to generate hypotheses rather than testing outcomes. Quantitative methods are instrumental to generalize the findings with statistics, test hypotheses and show the relationship between variables. It is essential to determine which research method would be used because it would lead the further process of research. Selection of research method depends on the nature of the research problem.

All research takes knowledge from previous knowledge and review of the relevant literature are mandatory. The objective of this study is to develop a framework for banking industry to create customer satisfaction with their digital services. At the same time, to gain knowledge about the topic through relevant literature review. The literature review consists of customer satisfaction on digital services in banking sector which published academic journals from 2000 to 2017. These academic journals cover different disciplines which are relevant to this study such as customer satisfaction, value creation, and performance measurement. The literature review is necessary to design the framework and measures.

The empirical study aims to find out how customer satisfaction is created in banking sector and how the designed framework works. In this study, quantitative research methods will be used to examine how customer satisfaction is created and gain the understanding of existing phenomena.

4.3 Data collection method

There is two form of the Internet-based survey such as email survey and web-based survey. Participants give the honest answer as it takes less time and less interaction with a surveyor. Sometime, respondents may get confused when the interviewer asks the question in a diverse way. Email survey has some disadvantages; for example, the

interviewer may not have enough respondent's email address. As a result, he needs to buy email address from the third party. Another one is most of the people do not like unexpected email. They do not even open the email because of security issues. So, it is hard to depend on email survey. On the other hand, web survey is getting popularity because of several reasons. First of all, it is swift to reach thousands of respondents. Secondly, it is possible to share web survey through different social media such as Facebook and other platforms. So, this empirical study involves web-based customer survey in Finland to reach and collect opinions without creating any disturbance to respondents.

4.4 Data analysis method

According to Leedy (2003), quantitative research is used to measure the relationship among different variables to explain, control and forecast future events. In case of data analysis, the proper statistical method would be used in this study to calculate the t-statistics, p-value, path co-efficiency of gathered data and correlation among all the variables. These values present the characteristics of acquired data. Hypothesises will be tested to find the critical factors in the digital banking sector. Classified and tabulated data will be analysed and presented elaborately with the help of the number of a chart. PLS-SEM (Partial Least Square-Structural Equation Modelling) method would be used for analysing the data. Lowry and Gaskin, (2014) also mentioned that PLS-SEM is a useful method for the small sample. PLS-SEM approach is chosen for this research as the sample size is relatively small. SmartPLS statistical software is going to be used in this study to analyse the data. SmartPLS is one of the best software to use PLS-SEM to analyse gathered data (Hair, Ringle, and Sarstedt, 2011).

4.5 Scale of measurement

There are different scales of measurement such as nominal, ordinal interval, and ratio scales. The researcher has to select an appropriate scale to measure their observation or survey. According to Brown (2001), these four scales have some unique features which are described below:

Nominal scale is used to categorize different things such as male or female, married or unmarried. On the other hand, the ordinal scale can be beneficial to rank, for example, it can be used to rank different activities such as first, second or third activity in a classroom that means it shows the order not the distance between them. Next one is interval scale which presents the order with distance. For example, it shows who is first, second and third in a classroom. Interval scale is very supportive of the Likert item. The last one is ratio scales which explains the difference with the help of zero and points, to make ratio clear. In this research, nominal and interval scales will be used to make things clear as this research is going to use the Likert technique.

4.6 Sampling

4.6.1   Sampling Method

There is a considerable number of people who have been taking services from the bank in Finland through the digital platforms. So, it is challenging to reach every people and get their opinion on this study. Respondents must satisfy two criteria to participate in this study.

1)   Respondents have to live in Finland

2)   Respondents have previously used digital services offered by a bank in Finland at least once.

In this research, only those individuals are allowed to participate who have lived in Finland and experience of (using, purchasing, obtaining?) digital services as the objective of this study is to understand customers' satisfaction level of Finnish on digital services of banks.

4.6.2   Number of Sample

Sample size should depend on population size (Alreck and Settle, 1995). Roscoe (1975) suggested that the number of respondents should be among 30 to 500 in behavioural research. A sampling error table was developed by Weisberg and Bowen (1977) which shows possibilities of sampling error from the sample size. The chart shows that if the researcher wants to keep sampling error 10% or less than 10%, then they have to survey

at least 100 or more than 100 respondents. In other studies, it has been recommended that minimum sample size should be 100 (cf., Bollon, 1989).

Table 1: Sample size and error table by Weisberg and Bowen (1977)

Sample Size	Error
2000	2.2
1500	2.6
1000	3.2
750	3.6
700	3.8
600	4.1
500	4.5
400	5.0
300	5.8
200	7.2
100	10.3

Sample size depends on the aim, time, budget and population of the research (Davies et al., 2004). According to Altunışık et al. (2004), 30 to 500 respondents are enough to get 5% confidence level. So, in this study, data would be collected at least from 150 respondents.

4.7 Questionnaire

According to Reichheld (2003), asking the right questions is essential in case of customer satisfaction surveys. Therefore, in this study, appropriate questions will be asked to appropriate respondents to get the accurate answer. In this study, customer survey method

will be applied to measure the satisfaction level. There will be two parts in the questionnaire. In the first part, demographic data would be collected such as age, gender, marital status, education and so on. In the second part of the questionnaire, the seven-point Likert scale would be used to measure the attitude of people toward digital services of banks in Finland. Rensis Likert developed the Likert scale in 1932 to identify the attitude of people towards a phenomenon of society (Likert, 1932). After that, it has been spreading in every field of research such as business studies, education, medicine, agriculture and so on. According to Smith and Roodt (2003), it is one of the most popular scales to measure the attitude in the world because of its unique and unique characteristics. First of all, it can contain different types of items and it can arrange the response level horizontally. Secondly, in Likert scale, response level is arranged with the verbal label and consecutive integers.

Table 2: Seven-Point Likert scale

Strongly Disagree	Disagree	Slightly Disagree	Neutral	Slightly Agree	Agree	Strongly Agree
1	2	3	4	5	6	7

5 RESULTS AND ANALYSIS

5.1 Descriptive statistics

Respondents of this research were asked to specify if they have experienced the digital banking services in Finland. Only those respondents who have experience could continue the survey. This question helped to eliminate respondents if they do not have any experience. Skip logic is used to fulfil the purpose of the study. If respondents do not know anything about digital banking system of Finland, then they would not be able to answer this survey questions.

190 respondents participated in this survey. Among them, almost everybody answered every question which shows nearly 100 percent response rate. The data screening method was used for deleting unengaged respondents. In this research, unengaged data was deleted through data screening. But, there was not any uncompleted survey. So, 190 respondents were eligible for analysis. Microsoft Excel was used to analyse the data descriptively which helps to understand the sample of this research.

Gender		
	Female	Male
■ Total	73	117
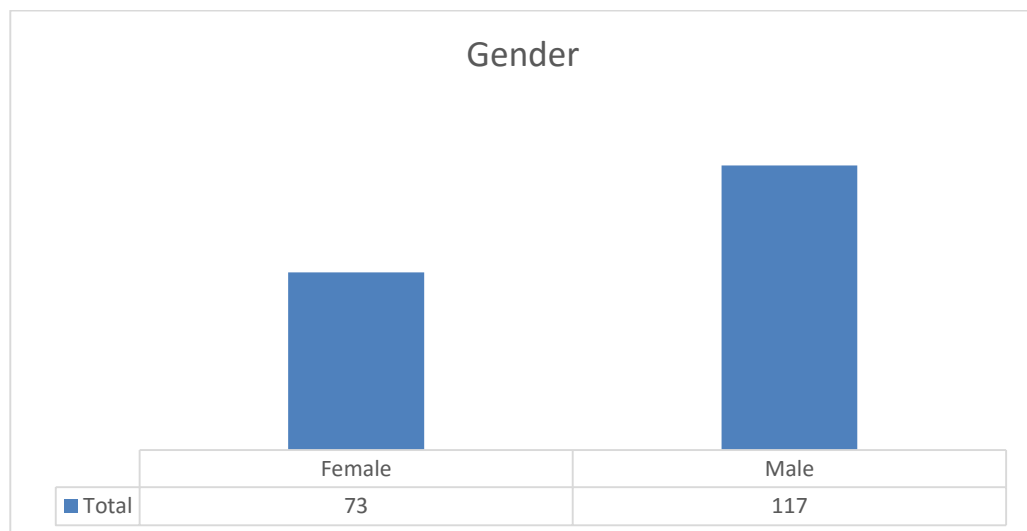
Figure 11: Gender of the Respondents

The figure shows that from the total respondents of 190, the number of the male was 117 and the number of the female was 73. The gender of respondents included 61.58 percent male and 38.42 percent female.

	18-25	26-35	36-45
■ Total	19.47%	66.32%	14.21%
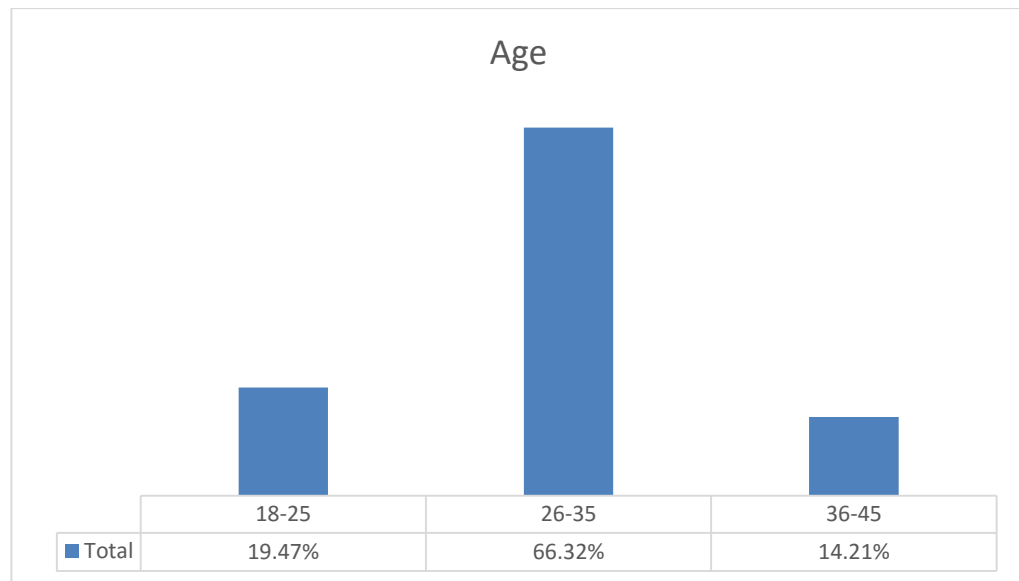
Figure 12: Age of the respondents

The figure shows age of respondents varied in this research, 19.47 percent respondents fall into the young population (18-25). The figure shows the age groups of 26 years to 35 years were 66.32% and age groups of 36 years -45 years were 14.21%.

	Bachelor degree	Higher Secondary	Master degree	Ph.D.
■ Total	57.37%	22.11%	19.47%	1.05%
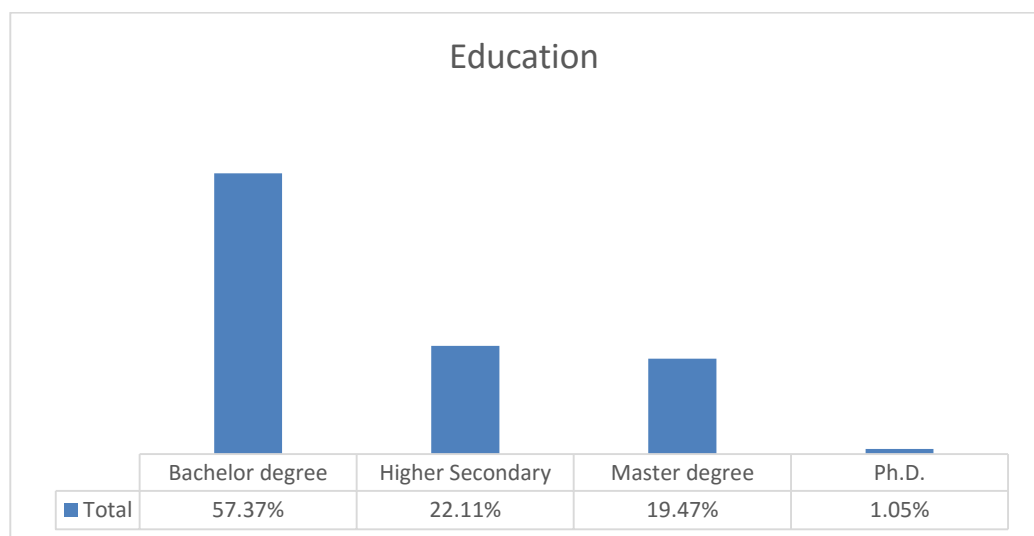
Figure 13: The education level of respondents

The figure shows the education level of this respondents varied, in total, 22.11 percent having the higher secondary school certificate, 57.37 percent having the bachelor degree, and 19.47 percent having a master's degree. There were 2 Ph.D. students who participated in this survey.
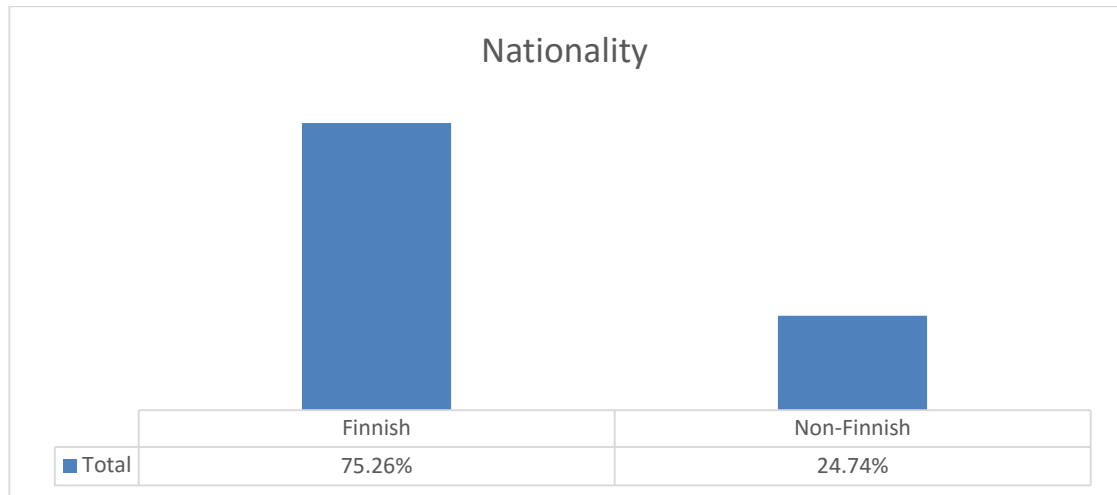
Figure 14: Nationality of respondents

The figure shows that 75.26 percent respondents of this survey were Finnish citizen and rest of response came from different countries who have experience of Finnish digital banking services.
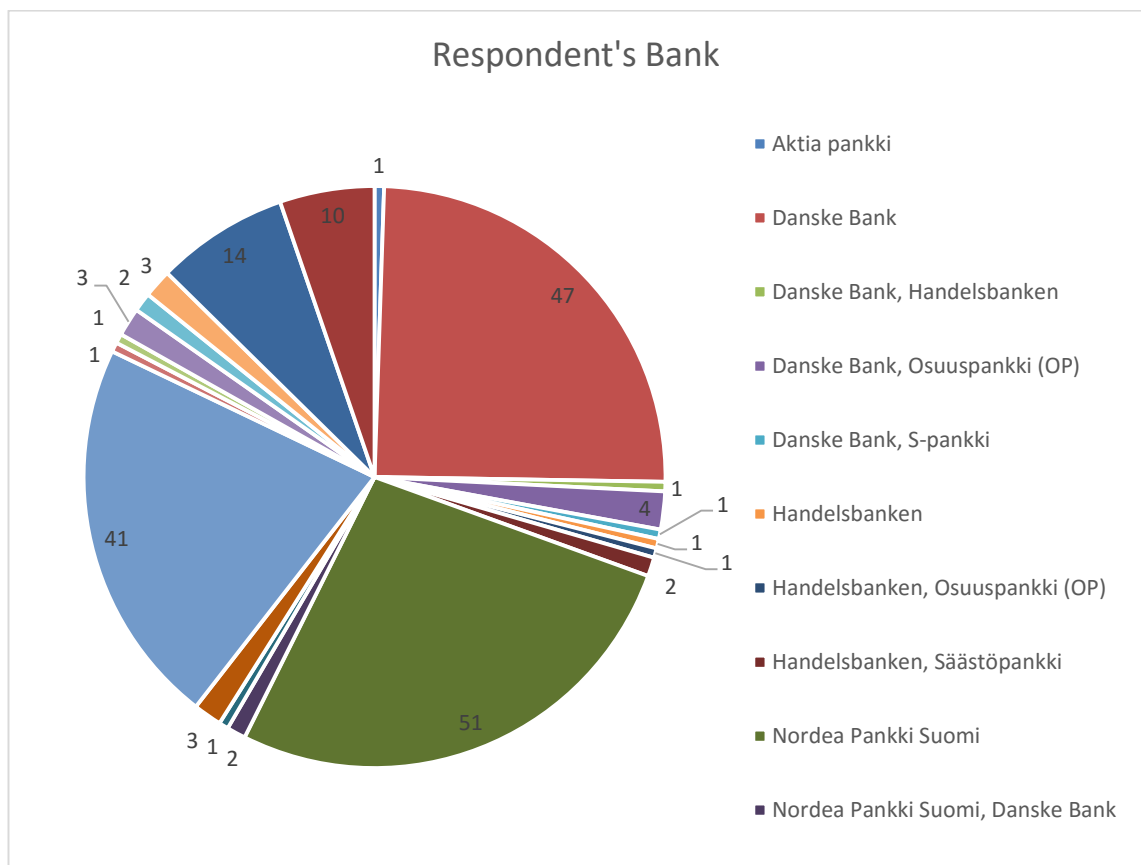
Figure 15: Bank of respondents

The figure shows that the highest number of the respondents were from Nordea bank which was 51. 41 respondents, meaning 27% of total respondents. 47 respondents were from Danske Bank. 41 respondents were the customer of Osuuspankki and 14 respondents were the customer of Säästöpankki. Many respondents used more than one bank.

Banking Frequency

	More than twice	Once	Seldom	Twice
Total	29.47%	21.58%	1.05%	47.89%
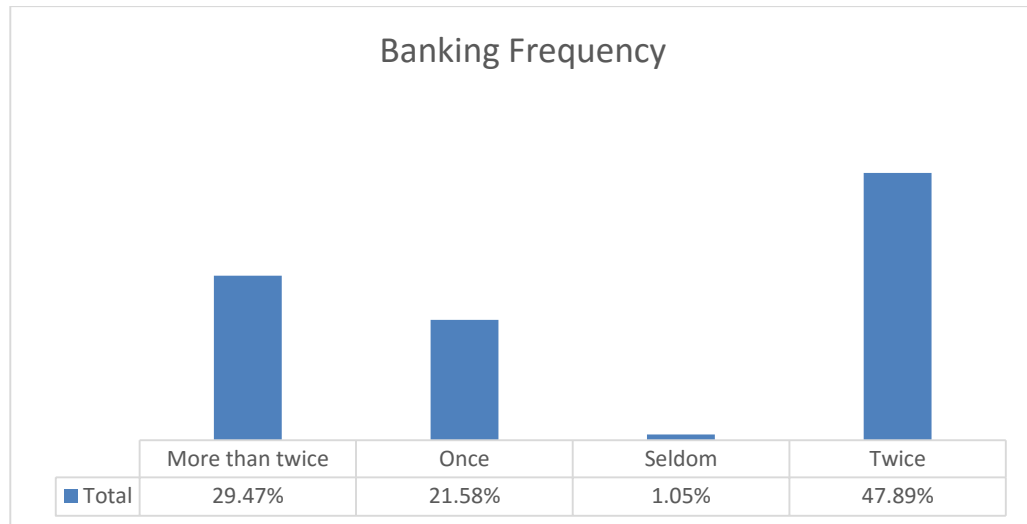
Figure 16: Banking frequency of respondents

Figure 16 illustrates the digital banking frequency of the respondents. There was a question about the respondent's use of digital banking frequency. Most of the respondents used digital services from bank at least twice per week. 29.47 percent of total respondents received digital banking services more than twice per week. Although 21.58 percent respondents used digital banking services once a week.

Platform

- Desktop PC
- Desktop PC, Mobile
- Desktop PC, Tablet
- Mobile
- Mobile, Desktop PC
- Mobile, Desktop PC, Others
- Mobile, Desktop PC, Tablet
- Mobile, Tablet
- Tablet

1.33% 1.05% 4.02% 5.90% 0.63% 28.62% 14.46% 0.64% 1.75% 41.60%
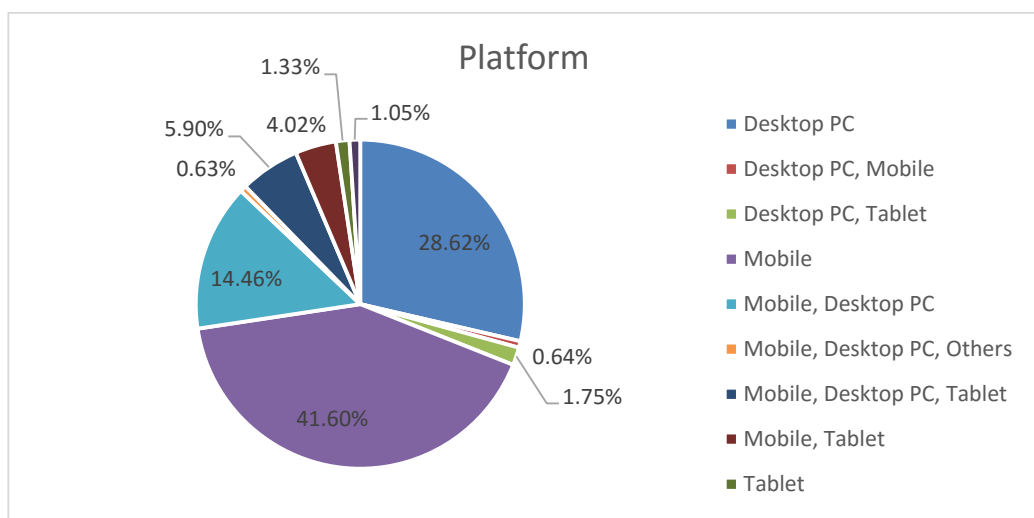
Figure 17: Platform of respondents

Figure 17 presents the devices were used by the respondents to take digital banking services. There was a question where respondents were asked to indicate which device they use for using services from digital banking. 41.60 percent of respondents used mobile, and 28.62 percent of total respondents used the desktop computer. 1.33 percent of the respondent were tablet user. There were some respondents who used several devices to get digital banking services.

5.2 Validity and reliability

Reliability means a consistent way to measure a concept (Bryman and Bell, 2011). Bryman and Bell (2011) also mentioned that validity is used to measure the level of accuracy of a research result. The use of validity and reliability is widespread in quantitative research to measure the accuracy and consistency of research result.

PLS-SEM approach was used to analyse the data with the help of SmartPLS 3.0 Statistical software. The research model and data were analysed by using PLS Algorithm and Bootstrapping with the help of 5000 sample to get proper result and evaluation (Hair et al., 2011). The PLS is very useful and complete system to analyses the convergent validity, discriminant validity, and reliability using composite reliability (CR), average variance extract (AVE), Cronbach's Alpha, cross loading and Heterotrait-Monotrait Ratio (HTMT).

Composite reliability means how internally consistent the reliability of constructs. If the composite reliability value is higher than 0.70, then it is significant or acceptable (Nunnally and Bernstein, 1994). Nunnally and Bernstein (1994) also proved that the considerable level could be varied according to research type. For example, in the case of exploratory research, the significant level of composite reliability would be 0.60-0.70. Table 3 shows that all the constructs are reliable because the value of all the constructs is higher than 0.70. So, the reliability level of this research is significant enough.

According to Bryman and Bell (2011), Cronbach's Alpha is another testing method of the internal reliability of the latent constructs. If the value is higher than 0.70 then it is acceptable (Hair et al., 2011). Table 3 presents that the reliability level of all the latent constructs of this research is acceptable as their value is higher than 0.70, except responsiveness and reliability where they got 0.657 and 0.692 respectively.

In the case of convergent validity, the significant level is higher than 0.50 (Hair et al., 2011). The AVE value of all the latent constructs is higher than 0.50. Factor loading is one of the critical ways to measure and understand them, and the significant level is at least 0.60 or higher than 0.60 (Awang, 2012). It is essential to remove all the items which have the value of less than 0.60. But, in this thesis, all the questions were matched to the significant level.

Table 3: Assessment of convergent validity, internal consistency, and reliability

Latent Construct	Item	Factor Loading	Cronbach's Alpha	Composite Reliability	Average Variance Extracted (AVE)
Customer satisfaction	CS1	0.813	0.777	0.871	0.692
	CS2	0.859			
	CS3	0.822			
Effort expectancy	EE1	0.784	0.808	0.874	0.634
	EE2	0.837			
	EE3	0.805			
	EE4	0.757			
Loyalty	LO1	0.851	0.795	0.876	0.703
	LO2	0.886			
	LO3	0.774			
Performance expectancy	PE1	0.708	0.793	0.865	0.617
	PE2	0.851			
	PE3	0.784			
	PE4	0.791			
Personalization	PR1	0.912	0.938	0.955	0.842
	PR2	0.934			
	PR3	0.911			
	PR4	0.914			
Reliability	RL1	0.786	0.692	0.829	0.618
	RL2	0.800			
	RL3	0.773			
Responsiveness	RS1	0.781	0.657	0.811	0.588
	RS2	0.752			
	RS3	0.768			
Security	SE1	0.744	0.815	0.878	0.644
	SE2	0.830			
	SE3	0.826			
	SE4	0.807			

5.3 Discriminant validity

According to Hair et al. (2010), discriminant validity is a method to build a block for evaluating the model. Many researchers use discriminant validity in SEM research because of its importance. The most important reasons for using discriminant validity is to measure the uniqueness of constructs. There are many types of methods for discriminant validity, such as Fornell-Larcher criterion, cross-loadings and many more. But Fornell-Larcher criterion and cross-loadings are very popular among researchers (Henseler et al., 2015). Both the methods can be used together to measure discriminant validity more precisely.

In this research, Fornell-Larcker criterion method would be used to verify the discriminant validity. According to Fornell-Larcker (1981), "the AVE of each latent construct should be higher than the construct's highest squared correlation with any other latent construct." Table 4 shows that all the constructs of this research model are appropriately discriminated. Table 4 illustrates that the AVE value of each Latent construct was higher than the construct's highest squared correlation with any other latent construct. So, it is possible to state that all the constructs are properly discriminated.

Table 4: Fornell-Larcker Criterion

	CS	EE	LO	PE	PR	RL	RS	SE
Customer satisfaction	**0.832**							
Effort expectancy	0.562	**0.796**						
Loyalty	0.441	0.325	**0.838**					
Performance expectancy	0.504	0.660	0.330	**0.785**				
Personalization	0.334	0.199	0.707	0.154	**0.918**			
Reliability	0.547	0.603	0.251	0.362	0.237	**0.786**		
Responsiveness	0.473	0.651	0.222	0.453	0.205	0.722	**0.767**	
Security	0.440	0.389	0.120	0.214	0.186	0.640	0.596	**0.802**

Cross loading approach is known as item-level discriminant validity. Researchers use cross-loadings when Fornell-larcker criterion fails to prove discriminant validity (Hair et al., 2012). According to Gefen and Straub (2005), the cross-loadings is a way to find the strong correlation of one indicator with other constructs. So, Cross loadings would be

well suited for this model. In this research, there is no item having low loading value on their respective construct. That means all the items have higher value on their respective construct. So, according to Fornell-Larcker criterion and cross-loadings, discriminant validity has been established.

Table 5: Cross Loadings

	CS	EE	LO	PE	PR	RL	RS	SE
CS1	**0.813**	0.504	0.384	0.409	0.313	0.490	0.427	0.362
CS2	**0.859**	0.468	0.328	0.402	0.256	0.450	0.355	0.346
CS3	**0.822**	0.429	0.386	0.444	0.261	0.421	0.395	0.389
EE1	0.499	**0.784**	0.223	0.580	0.152	0.441	0.486	0.328
EE2	0.457	**0.837**	0.277	0.496	0.170	0.500	0.541	0.260
EE3	0.409	**0.805**	0.290	0.571	0.150	0.490	0.499	0.318
EE4	0.415	**0.757**	0.251	0.449	0.164	0.496	0.550	0.334
LO1	0.458	0.414	**0.851**	0.388	0.499	0.268	0.280	0.127
LO2	0.317	0.185	**0.886**	0.245	0.749	0.148	0.106	0.071
LO3	0.292	0.146	**0.774**	0.140	0.576	0.189	0.128	0.093
PE1	0.353	0.530	0.271	**0.708**	0.101	0.316	0.376	0.144
PE2	0.470	0.566	0.287	**0.851**	0.223	0.317	0.425	0.203
PE3	0.338	0.465	0.229	**0.784**	0.046	0.243	0.280	0.145
PE4	0.401	0.506	0.247	**0.791**	0.085	0.257	0.327	0.172
PR1	0.364	0.273	0.665	0.239	**0.912**	0.278	0.249	0.220
PR2	0.281	0.162	0.649	0.126	**0.934**	0.183	0.174	0.181
PR3	0.300	0.133	0.630	0.082	**0.911**	0.207	0.160	0.158
PR4	0.262	0.137	0.646	0.090	**0.914**	0.183	0.153	0.106
RL1	0.452	0.487	0.312	0.356	0.224	**0.786**	0.605	0.468
RL2	0.449	0.541	0.126	0.325	0.162	**0.800**	0.522	0.505
RL3	0.382	0.382	0.146	0.152	0.170	**0.773**	0.579	0.546
RS1	0.428	0.632	0.255	0.494	0.167	0.558	**0.781**	0.493
RS2	0.312	0.428	0.092	0.246	0.161	0.532	**0.752**	0.459
RS3	0.330	0.397	0.136	0.256	0.144	0.571	**0.768**	0.410
SE1	0.355	0.305	0.106	0.096	0.176	0.538	0.529	**0.744**
SE2	0.353	0.363	0.085	0.266	0.127	0.509	0.492	**0.830**
SE3	0.391	0.333	0.102	0.215	0.120	0.497	0.447	**0.826**
SE4	0.302	0.233	0.091	0.095	0.182	0.513	0.441	**0.807**

5.4 Hypothesis testing

One of the principal objectives of this research is to identify the core factors which affect users' satisfaction of digital banking services in Finland. The hypothesis should be tested

to find the effectiveness of the proposed model. Figure 18 shows the path co-efficiency and the coefficient of determination (R^2).
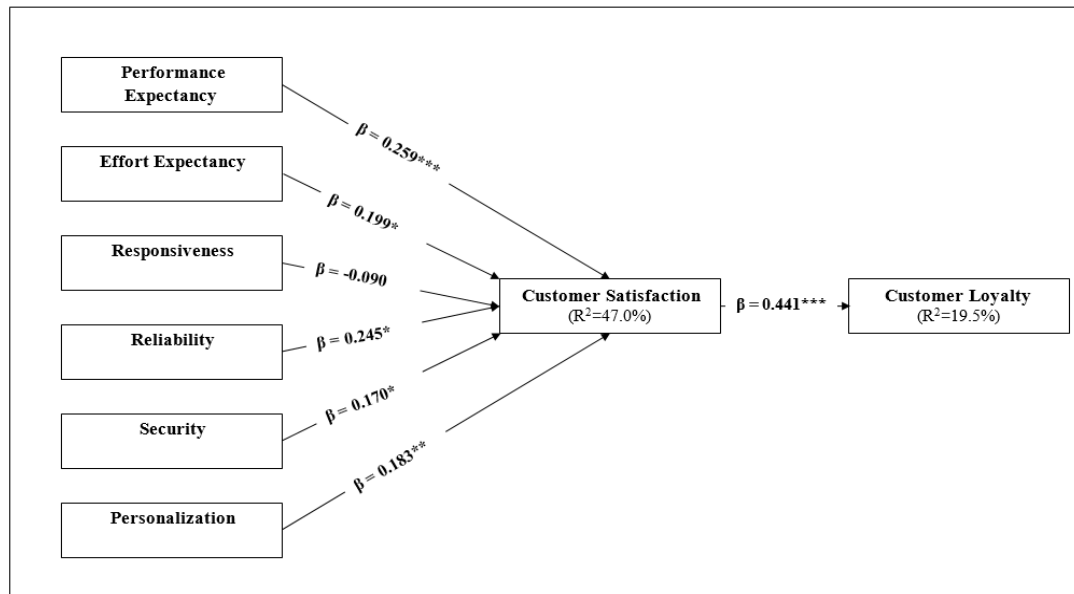
Figure 18: Results of PLS analysis

According to Urbach and Ahlemann (2010), significant level of path coefficient is at least 0.5. Table 6 shows that customer satisfaction has positive impact on customer loyalty because ($\beta = 0.441$; t = 7.196; p < 0.000) which is higher than satisfactory level and support H7. Effort expectancy has positive impact on customer satisfaction because ($\beta = 0.119$; t = 2.239; p < 0.025) which is higher than satisfactory level and support H2. Performance expectancy has positive impact on customer satisfaction because ($\beta = 0.259$; t = 3.482; p < 0.001) which is higher than satisfactory level and support H1. Personalization has positive impact on customer satisfaction because ($\beta = 0.183$; t = 3.139; p < 0.002) which is higher than satisfactory level and support H6. Reliability has positive impact on customer satisfaction because ($\beta = 0.245$; t = 2.408; p < 0.016) which is higher than satisfactory level and support H4. Responsiveness has no impact on customer satisfaction because ($\beta = -0.090$; t = 0.947; p < 0.344) which is lower than satisfactory level and thus H3 is not supported by the model. Security has positive impact on customer satisfaction because ($\beta = 0.170$; t = 2.192; p < 0.028) which is higher than satisfactory level and support H5. The detail results of hypothesis testing are presented in table 6.

Table 6: Hypothesis tests

Hypothesis	β (path coefficient)	t-statistics	p-value
Customer satisfaction → Loyalty	0.441	7.196	0.000***
Effort expectancy →Customer satisfaction	0.199	2.239	0.025*
Performance expectancy→ customer satisfaction	0.259	3.482	0.001***
Personalization→ customer satisfaction	0.183	3.139	0.002**
Reliability→ customer satisfaction	0.245	2.408	0.016*
Responsiveness→ customer satisfaction	-0.090	0.947	0.344
Security→ customer satisfaction	0.170	2.192	0.028*

Note: P<0.05= * P<0.01= ** P<0.001= ***

According to Urbach and Ahlemann (2010), the coefficient of determination is known as R^2 which is used to analyse the explained variance of a variable which is related to overall variance. In another word, R^2 is used to identify how solid the predicting powerful a latent construct based on its independent variable.

Chin (1998) described the significant levels of R^2 which are given below.

If R^2 is higher than 0.67 which means, the predicting power is substantial.

If R^2 is higher than 0.33 which means, the predicting power is moderate.

If R^2 is higher than 0.19 which means, the predicting power is weak.

Figure 18 shows that the R^2 value of customer satisfaction is 47.0% which is higher than the moderate level. On the other hand, the R^2 value of customer loyalty is 19.5 % which is just higher than the weak level.

5.5 Multi-group analysis

According to Henseler et al. (2009), multi-group analysis is a test to compare two or more groups to determine the significant difference. A particular group can differ with other group and overall results. Multi-group analysis is a way to identify the probability whether a population would differ across sub-populations (Sarstedt et al., 2011). In the questionnaire used in this thesis respondents were asked to provide some information about their background. According to the information obtained, respondents can be divided into three different groups, namely, age, nationality, and gender. Firstly, a group is created according to their gender, male and female. Secondly, Respondents were divided according to their nationality; there were Finnish and non-Finnish respondents. Finally, Respondents' age was divided into three different age groups, 18-25, 26-35, and 36-45. Therefore, three demographic information are used as control variables to account for any potential differences within the groups and we performed a multi-group analysis.

Table 7: Multi-group analysis for Gender

Hypothesis	Gender	β (path coefficient)	t-statistics	p-value
CS→ LO	Male	0.446	7.975	0.000
	Female	0.477	4.432	0.000
EE →CS	Male	0.316	2.683	0.007
	Female	0.032	0.231	0.817
PE→ CS	Male	0.195	2.141	0.032
	Female	0.355	2.760	0.006
PR→ CS	Male	0.206	2.818	0.005
	Female	0.136	1.287	0.198
RL→ CS	Male	0.073	0.676	0.499
	Female	0.462	2.253	0.024
RS→ CS	Male	-0.080	0.716	0.474
	Female	-0.142	0.801	0.423
SE→ CS	Male	0.238	2.538	0.011
	Female	0.109	0.758	0.449

Table 7 shows the t-statistics, path coefficient and p-value results which indicate significant differences between men and women on specific paths. For male ($\beta = 0.316$; t = 2.683; p < 0.007), the path between effort expectancy to customer satisfaction was significant but not for female ($\beta = 0.032$; t = 0.231; p < 0.817). Moreover, male ($\beta = 0.206$; t = 2.818; p < 0.005) differs with female ($\beta = 0.136$; t = 1.287; p < 0.198) on the path relations between personalisation and customer satisfaction. Male ($\beta = 0.073$; t = 0.676; p < 0.499) differs with female ($\beta = 0.462$; t = 2.253; p < 0.024) on the path relationship between reliability to customer satisfaction. For male ($\beta = 0.238$; t = 2.538; p < 0.011), security to customer satisfaction path was significant, but, not for female ($\beta = 0.109$; t = 0.758; p < 0.449). Male did not differ with female on any other path relationships, see Table 7 for more information.

Table 8: Multi-group analysis for nationality

Hypothesis	Nationality	β (path coefficient)	t-statistics	p-value
CS→ LO	Finnish	0.405	6.803	0.000
	Non-Finnish	0.623	4.850	0.000
EE →CS	Finnish	-0.039	0.403	0.687
	Non-Finnish	0.494	3.251	0.001
PE→ CS	Finnish	0.245	2.784	0.005
	Non-Finnish	0.274	1.601	0.109
PR→ CS	Finnish	0.211	2.891	0.004
	Non-Finnish	0.132	1.124	0.261
RL→ CS	Finnish	0.217	1.809	0.071
	Non-Finnish	0.136	0.870	0.384
RS→ CS	Finnish	0.005	0.048	0.962
	Non-Finnish	-0.195	0.934	0.351
SE→ CS	Finnish	0.174	2.239	0.025
	Non-Finnish	0.202	1.218	0.223

Table 8 shows the t-statistics, path coefficient and p-value results which indicate significant differences between Finnish and Non-Finnish people on some paths. For Finnish people ($\beta = -0.039$; t = 0.403; p < 0.687), the path between effort expectancy to customer satisfaction was not significant but significant for Non-Finnish people ($\beta = 0.494$; t = 3.251; p < 0.001). Finnish ($\beta = 0.245$; t = 2.784; p < 0.005) differs with Non-Finnish ($\beta = 0.274$; t = 1.601; p < 0.109) on the path between performance expectancy and customer satisfaction. For Finnish people ($\beta = 0.211$; t = 2.891; p < 0.004), the path

between personalization to customer satisfaction was not significant but for Non-Finnish (β = 0.132; t = 1.124; p < 0.261), it was significant. For Finnish people (β = 0.174; t = 2.239; p < 0.025), security to customer satisfaction path was significant, but, for the Non-Finnish (β = 0.202; t = 1.218; p < 0.223). Finnish people did not differ with Non-Finnish on any other paths, see Table 8 for more information.

Table 9: Multi-group analysis for age groups

Hypothesis	Age	β (path coefficient)	t-statistics	p-value
CS→ LO	18-25	0.607	3.414	0.001
	26-35	0.423	6.952	0.000
	36-45	0.405	2.650	0.008
EE →CS	18-25	0.288	1.277	0.202
	26-35	0.067	0.693	0.489
	36-45	0.168	0.609	0.542
PE→ CS	18-25	0.386	1.973	0.049
	26-35	0.255	3.233	0.001
	36-45	0.323	1.085	0.278
PR→ CS	18-25	0.060	0.410	0.682
	26-35	0.229	3.230	0.001
	36-45	0.244	1.141	0.254
RL→ CS	18-25	0.213	1.002	0.316
	26-35	0.206	1.567	0.117
	36-45	0.236	0.826	0.409
RS→ CS	18-25	-0.033	0.154	0.878
	26-35	-0.060	0.517	0.605
	36-45	-0.150	0.449	0.654
SE→ CS	18-25	0.065	0.462	0.644
	26-35	0.265	2.652	0.008
	36-45	0.250	0.831	0.406

Table 9 shows the t-statistics, path coefficient and p-value results which indicate significant differences among age group of 18-25, 26-35 and 36-45 on certain paths. Age group 36-45 (β = 0.323; t = 1.085; p < 0.278) differs from age group 18-25 (β = 0.386; t = 1.973; p < 0.049) and 26-35 (β = 0.255; t = 3.233; p < 0.001) on the path between performance expectancy and customer satisfaction. For age group 26-35 (β = 0.229; t = 3.230; p < 0.001), the path between personalization to customer satisfaction was significant but not for the age group 18-25 (β = 0.060; t = 0.410; p < 0.682) and 36-45 (β = 0.244; t = 1.141; p < 0.254). For age group 26-35 (β = 0.265; t = 2.652; p < 0.008), the

path between security to customer satisfaction was significant, but, for age group 18-25 ($\beta = 0.065$; t = 0.462; p < 0.644) and 36-45 ($\beta = 0.250$; t = 0.831; p < 0.406), it is not significant.

This multi-group analysis shows the impact of different groups on different paths. A group can differ with another group. The findings show male differs with female on four paths, namely, effort expectancy to customer satisfaction, personalisation to customer satisfaction, reliability to customer satisfaction and security to customer satisfaction. The views of male and female on different paths can be changed (Duran and Tezer, 2009). Multi-group analysis also shows that different age group can give different rating on different path which was shown by McMullin and Cairney (2004). Nationality of respondent can influence the overall result of a research (Hiram, 2015). In this thesis, Finnish differs with Non-Finnish on four different paths, namely, effort expectancy to customer satisfaction, performance expectancy to customer satisfaction, personalisation to customer satisfaction and security to customer satisfaction.

5.6 Discussion of results

There were seven hypotheses in the proposed research model. Six hypotheses were accepted, and one was rejected after all the analysis. Table 10 shows the result of the hypothesis.

Table 10: Conclusion from the hypothesis tests

	Hypotheses	Results
H1	Performance expectancy positively influences customer satisfaction in digital banking.	Supported
H2	Effort expectancy positively influences customer satisfaction in digital banking.	Supported
H3	Responsiveness positively influences customer satisfaction in digital banking.	**Not Supported**
H4	Reliability positively influences customer satisfaction in digital banking.	Supported
H5	Security positively influences customer satisfaction in digital banking.	Supported
H6	Personalization positively influences customer satisfaction in digital banking.	Supported
H7	Customer satisfaction positively influences customer loyalty in digital banking.	Supported

There were six hypotheses related to customer satisfaction in digital banking services, such as performance expectancy, effort expectancy, responsiveness, reliability, security, and personalization. Only responsiveness was not able to meet the requirement for being acceptable. Except for responsiveness, all the five constructs have positive influence on customer satisfaction of digital banking services.

Customer loyalty is an essential dependent variable in this research. There were some studies such as Gefen (2002), and Zhou, Li, and Liu (2010), they found that customer satisfaction has positive influence on customer loyalty which was proved in this study also. In this study, there was a clear connection between customer satisfaction and customer loyalty in digital banking service. Customer loyalty was measured by customer's specific and overall experience of digital banking services and how loyal customer would be because of their experiences. The better experience would confirm more satisfaction. Level of customer satisfaction would increase the possibility of customer loyalty.

Performance expectancy was another vital factor in this thesis. Performance expectancy indicates the overall benefit from digital banking services, for example, how useful digital banking is, is it beneficial to increase customer's productivity, and does customer achieve and accomplish things more quickly because of the digital banking system. Customer evaluated their experience of digital banking, and they indicated that they have the good experience. Venkatesh et al. (2012), found that performance expectancy has positive influence on customer behaviour. In this research, performance expectancy was added to evaluate customer satisfaction in digital banking service. The result was positive which support the previous study by Venkatesh et al. (2012).

Effort expectancy was another critical factor in this thesis. The customer had the opportunity to evaluate how easy would be to use digital banking system in daily life. Effort expectancy was adopted from the research of Venkatesh et al. (2012). Authors used effort expectancy to measure a customer's behavioural intention. They showed that effort expectancy has positive influence on the behaviour. This research also supports the previous study of Venkatesh et al. (2012) which means digital banking system is easy for the customer and they are satisfied with the required effort.

There was a hypothesis based on responsiveness. Responsiveness indicates how quick customer can get a solution from digital banking services. The result shows that responsiveness does not have influence on customer satisfaction. Although previous research presented that responsiveness has positive impact to satisfy customer such as Zhu et al. (2002). The customer usually wants to get quick services, such as they preferred more quick transaction and information. But, responsiveness would be rejected as the customer of the Finnish bank thinks differently.

Reliability is an independent variable in this research where it indicates promises, timing, and delivery system of digital banking services. According to the result, reliability has positive influence on customer satisfaction which was proven in the previous study of Janda et al. (2002). Security is another critical independent variable. Security is one of the primary concerns in today's world. Security was proven as an essential factor by Liao and Cheung (2002). In Finland, people believe in their banking security system, and they feel satisfied when they get full security. Security has positive influence on customer satisfaction. According to the empirical result, personalization has positive impact on customer satisfaction. Personalization indicates customized service to the individual customer. In Finland, the customer expects individualized or tailored service to feel satisfied. There was a study by Wolfinbarger and Gilly (2003) where they found that personalization has enough influence on customer satisfaction. In this empirical study also support their previous research.

6 CONCLUSION

6.1 Summary of findings

This thesis, more specifically the literature review and the data investigation part tried to find out the solution of research questions. Throughout the research, it emphasizes two things with the full explanation. Firstly, it discussed some influential factors that can influence on customer satisfaction of digital banking services in Finland. And secondly, it showed how the customers react with the defined variables, and how the customer satisfaction became the reason of customer loyalty.

This study shows that the use of digital banking services highly depends on customer satisfaction level. That means, the more the customer is satisfied, the higher the possibility to become loyal customer. There is positive correlation between customer loyalty and customer satisfaction. It is generally assumed that if a customer is satisfied with the digital banking services, that customer will definitely come again and again to use the same bank and its digital services. A similar type of studies conducted by Bhattacherjee (2001), Chen (2012) and Liao et al. (2016) where the authors have found the same result which is consistent with findings of this thesis. However, the coefficient of determination of customer satisfaction and loyalty, 47% and 19.5% respectively shows the study has the moderate to weak ability to predict.

It is fundamental to identify factors to avoid customer churn and to turn clients into the regular loyal customer, a viable conversion system is necessary. The study analysis shows that the success is impacted by the fulfilment of performance, required effort, reliability, personalization, and security. These factors will help the banks in the development of their strategies to have better customer satisfaction and loyalty. From the outcomes, we can express that customer wants secure, tailored, reliable performance from banks. Customers are using experience to make the expectation. And by meeting the expectation, user's repetition can be made. To do all these things, a conversion strategy should be applied based on the identified factors.

Responsiveness does not have any positive influence on customer satisfaction of digital banking services in Finland. Responsiveness was one of the essential factors in e-service quality (Ribbink et al., 2004). So, it is possible to state that Finnish banks do not need to

give extra attention for responsiveness right now, but in future, they may need to add responsiveness as an essential factor when the customer will be aware of this.

6.2 The implication of the study

This thesis can be used from the business perspective and academic perspective. The people who are devising their plan to improve their digital banking services can use these ideas. From the business perspective, it focuses on the user's experience of digital banking services. Right user's experiences led them to reuse the services. Factors affecting customer satisfaction will make them loyal by meeting their expectation. When a customer comes to use a specific service, they try to find out if their expectations met by the services. Customers would be satisfied if their expectations meet. In that case, they will continue their online banking services in the future. On the contrary, if their expectations do not fit with the services, they will be very unwilling to use same services. Besides, satisfaction works as a mediator between factors and loyalty. Online banking payment system is most popular in Finland. Quality of service will encourage the customers to reuse the same services if there are enough benefits from digital banking services. This implication can also be applied in the Nordic region. It is needed to take into consideration that digital banking services differ from region to region.

On the other hand, from the academic perspective, this thesis will help to understand the digital banking services which will also help in implication. It shows the decisive factor is customer satisfaction to understand the loyalty level of the customer. The more the customers are satisfied, the more they are intended to loyal. This information reflects some previous studies (Alba and Hutchinson, 2007; Taylor and Baker, 2004). Furthermore, the theory has recognized the determinants of consumer loyalty within the context of a particular nation and item classification. This thesis also indicates customer satisfaction should not be taken into consideration based on responsiveness because responsiveness is not the predictor in this case. The concept of responsiveness can be different from others research setting. Researchers should alter or mix different models when it is utilized to concentrate on digital banking services conduct.

6.3 Practical Implications

Advanced technology of Finnish banks encourages the customer to use their website and apps. This thesis illustrated that the customers are aware of the digital services of the banking industry. Customers in Finland identified some variables namely, performance expectancy, effort expectancy, reliability, personalization, and security which were vital to them. These variables should be considered as important factors when a bank develops or improves digital banking services. Banks have to ensure that their apps or any digital banking services should have these attributes to survive in this competitive banking industry. The customers also rejected one variable, namely, responsiveness. Responsiveness can be an essential variable in the near future. If banks can give better digital services, it would help them to retain their customers for the long run. So, this research gives a guideline to Finnish banks regarding what customers want from them. So, it is possible to state that Finnish banks will get the benefits from this research if they implement the customer's opinion. This thesis can be helpful for any organizations in Finland who want to provide digital services to their customers such as online shopping business, online ticketing agency and so on. They can develop their digital services considering the result of this research.

6.4 Limitations

There were some limitations in this thesis which can be the obstacle in interpretation. Firstly, the small sample size was used in comparison with the total population of Finland. Secondly, it is important to have enough time to conduct large survey to reach large population. But, this survey was conducted on small population because of time limitation. Another reason is that 27.3 percent of Non-Finnish nationals participated in this research which was almost one-third of total population. According to Peng An and Vecchi (2017), it is a simple assumption that different group of sample size will give different result in an order that their cultural factor influences on customer satisfaction. Multi-group analysis illustrated how Finnish and non-Finnish respondents differed from each other. So, research only on Finnish people would have given much better overview of satisfaction level of Finnish people.

6.5 Suggestion for more research work

For future experiment of digital banking services, this research can be an excellent resource for understanding the scenario. As discussed earlier in the limitation section, the researcher should take into consideration the different respondent groups. The result may profoundly differ from using different sample groups. In this thesis, Unified Theory of Acceptance and Use of Technology 2 by Venkatesh et al. (2012) and E-service quality dimensions by Lee and Lin (2005) measurement methods were used which are very much capable of describing the customer satisfaction on E-service. This model was used to measure the customer point of view, using a mix of the UTAUT 2 and E-service quality dimensions with a different models which can quantify altogether the functionalities of digital banking services. New technology will bring new challenges for banks. Banks may need to add more attributes to ensure the quality of their digital services and to adopt new technology. So, researchers will have to conduct new research continuously to know the customer opinion toward new technology. This research would give them detail knowledge about Finnish customer's requirement and behaviour. In future research, researchers may need to add or remove some variables with these five variables. Thus, analysts would have the capacity to discover which factors from the model, in the mix with mental variables, can influence the customer's satisfaction.

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APPENDICES

1. Constructs and coded variables used in the research model

Construct	Code	Rating questions	Adopted from
Performance expectancy	PE1	I find digital banking services useful in my daily life.	Venkatesh et al. (2012)
	PE2	Using digital banking services increases my chances of achieving things that are important to me.	
	PE3	Using digital banking services helps me accomplish things more quickly.	
	PE4	Using digital banking services increases my productivity.	
Effort expectancy	EE1	Learning how to use digital banking services is easy for me.	Venkatesh et al. (2012)
	EE2	My interaction with digital banking services is clear and understandable.	
	EE3	I find digital banking services easy to use.	
	EE4	It is easy for me to become skilful at using digital banking services.	
Responsiveness	RS1	Digital banking services give me prompt service.	Gi-Du Kang and Jeffrey James (2004)
	RS2	When there is a problem; digital banking services is helpful to solve it.	
	RS3	Digital banking services respond quickly to my questions and requests.	
Reliability	RL1	Digital banking services keep its promises to deliver a service at a specific time.	Gi-Du Kang and Jeffrey James (2004)
	RL2	Digital Banking services perform the service right first time.	
	RL3	Digital banking services deliver its services without any error.	
Security	SE1	Using digital banking services is secure.	Tero Pikkarainen (2004)
	SE2	I trust that digital banking services protect my privacy.	

	SE3	I trust in the technology of digital banking services.	
	SE4	I am not worried about the security of digital banking services.	
Personalization	PR1	Digital banking services provide me information and products according to my preferences.	Carmel Herington and Scott Weaven (2009)
	PR2	I can customize my required products and services through digital banking services.	
	PR3	Digital banking services give me investment tips according to my requirement.	
	PR4	Digital banking services offer individually tailored services.	
Customer satisfaction	CS1	I am satisfied with my present experience of digital banking services.	G. J. Udo et al. (2010)
	CS2	Digital banking is a pleasant experience.	
	CS3	Overall, I am satisfied with my digital banking services experience.	
Loyalty	LO1	I intend to use digital banking services in the future.	Gefen (2002) and Zhou, Li, and Liu (2010)
	LO2	I will invite other people to use digital banking services.	
	LO3	I will continue using my current digital banking services rather than any alternative tools in the future.	

2. The questionnaire

Questionnaire design

Dear Participant!

Thank you for your cooperation. Your contribution is vital for the quality of this research on users' satisfaction of digital banking services in Finland. It would take approximately 10 minutes to answer the questions. We would like to remind that your information will be handled confidentially. The data and results will be processed very carefully in general terms, following the Åbo Akademi University ethical rules and conditions. If you have any inquiries about this research, please contact:

Md Masum Miah: mmiah@abo.fi

Dr. Shahrokh Nikou: snikou@abo.fi

Sincerely Yours,

1) Have you ever used digital banking services in Finland? (Any services from the website or mobile app of any bank while you are living in Finland)

YES, I have. ☐ Continue to Question number 2 of the survey

NO, I have not. ☐ End of the survey: Thank you for your willingness to fill out the survey.

Part I: Basic Information

2) Gender:

    a)   Male

    b)   Female

    c)   Others

3) Age:

    a)   18-25

    b)   26-35

    c)   36-45

    d)   46-55

    e)   56-above

4) Level of Education:

    a)   Higher Secondary

    b)   Bachelor

c) Master

d) Ph.D.

e) Others

5) Nationality:

a) Finnish

b) Non-Finnish

6) Your bank:

a) Nordea Pankki Suomi

b) Danske Bank

c) Handelsbanken

d) Osuuspankki (OP)

e) Säästöpankki

f) Aktia pankki

g) S-pankki

h) POP pankki

i) Ålandsbanken

j) Others

k) I do not want to indicate my bank name

7) How many times do you use digital banking services per week?

a) Once

b) Twice

c) More than twice

8) Which digital device do you prefer when using digital banking services?

a) Mobile

b) Desktop PC

c) Tablet

d) Others

Part II:

9) Please Tick one box for each statement below to show how much you agree or disagree with it. (You can think about the digital banking services that you regularly use.)

Statement	Strongly Disagree	Dis-agree	Slightly Disagree	Neutral	Slightly agree	Agree	Strongly Agree
Performance expectancy							
I find digital banking services useful in my daily life.	1	2	3	4	5	6	7
Using digital banking services increases my chances of achieving things that are important to me.	1	2	3	4	5	6	7
Using digital banking services helps me accomplish things more quickly.	1	2	3	4	5	6	7
Using digital banking services increases my productivity.	1	2	3	4	5	6	7
Effort expectancy							
Learning how to use digital banking services is easy for me.	1	2	3	4	5	6	7
My interaction with digital banking services is clear and understandable.	1	2	3	4	5	6	7
I find digital banking services easy to use.	1	2	3	4	5	6	7

It is easy for me to become skilful at using digital banking services.	1	2	3	4	5	6	7
Responsiveness							
Digital banking services give me prompt service.	1	2	3	4	5	6	7
When there is a problem; digital banking services is helpful to solve it.	1	2	3	4	5	6	7
Digital banking services respond quickly to my questions and requests.	1	2	3	4	5	6	7
Reliability							
Digital banking services keep its promises to deliver a service at a specific time.	1	2	3	4	5	6	7
Digital Banking services perform the service right first time.	1	2	3	4	5	6	7
Digital banking services deliver its services without any error.	1	2	3	4	5	6	7
Security							
Using digital banking services is secure.	1	2	3	4	5	6	7
I trust that digital banking services protect my privacy.	1	2	3	4	5	6	7
I trust in the technology of digital banking services.	1	2	3	4	5	6	7
I am not worried about the security of digital banking services.	1	2	3	4	5	6	7

Personalization							
Digital banking services provide me information and products according to my preferences.	1	2	3	4	5	6	7
I can customize my required products and services through digital banking services.	1	2	3	4	5	6	7
Digital banking services give me investment tips according to my requirement.	1	2	3	4	5	6	7
Digital banking services offer individually tailored services.	1	2	3	4	5	6	7
Customer satisfaction							
I am satisfied with my present experience of digital banking services.	1	2	3	4	5	6	7
Digital banking is a pleasant experience.	1	2	3	4	5	6	7
Overall, I am satisfied with my digital banking services experience.	1	2	3	4	5	6	7
Loyalty							
I intend to use digital banking services in the future.	1	2	3	4	5	6	7
I will invite other people to use digital banking services.	1	2	3	4	5	6	7
I will continue using my current digital banking services rather than any alternative tools in the future.	1	2	3	4	5	6	7

If you are interested in getting an extensive report of this survey, please leave your email address below.