

## **CHAPTER 3**

### **METHODOLOGY**

In the previous chapter a detailed review of existing literature was carried out to find a suitable theoretical framework for the research study. Theoretical explanation linking the adoption of Internet banking by customer could be found in social psychology. In this chapter the methodology and research design used for conducting the research work is discussed.

#### **3.1 Research Strategy**

Research study is a systematic investigation to establish facts or principles. Researchers have to select a research paradigm based on the field and topic of study. Research in information systems realm could be divided into two paradigms : positivistic (quantitative) and interpretive (qualitative) (Galliers, 1994). Positivism is based upon reductionist thinking, having its origins in the natural sciences and study of laws of nature. Positivism uses quantitative measurement and replicable testing in its aim for generalisability and prediction. Positivist studies generally attempt

to test theory, in an attempt to increase the predictive understanding of phenomena. Interpretive studies generally attempt to understand phenomena through the meanings that people assign to them. Interpretive research does not predefine dependent and independent variables, but focuses on the full complexity of human sense making as the situation emerges. It uses qualitative methods to seek out explanations and gain an understanding of human and social systems.

Both quantitative and qualitative methods have been used in the current study. Qualitative approach using an open-ended questionnaire was used in the initial phase to understand the outlook of customers to online banking. The research model developed for this study was tested using quantitative method by conducting a survey. Table 3.1 gives an overview of the research design.

Research Level	Detailed Description
Type of research questions	Analyzing factors affecting customer acceptance of internet banking
Strategy	Survey
Paradigm	Positivist

Data collection method	Web based / Paper
Major References	Davis (1989) , Tan & Leo (2000),Pikkarainnes et al (2004), Kim & Prabhakar (2004 ), Gefen et al (2003), Gefen (2002).
Participants	Banking customers
Type of results	Descriptive and Quantitative

Table 3.1: Overview of research design (Adopted from Dhillon (1995))

### 3.2 Research Design

Review of literature gave knowledge of theoretical framework of work done by researchers in the area of study. Most of the previous studies utilized theoretical framework provided by Technology Acceptance Model (TAM) as the base. TAM provided a sound theoretical base for analyzing customer acceptance of information technology. When studying technology acceptance, researchers extended TAM model to include constructs relevant to the research problem area. For example, the construct relevant in the case of internet banking acceptance could be trust, privacy, security etc. In the present study the research model was developed by taking constructs from TAM and constructs from similar studies in the past. Since there were not many studies in internet banking

acceptance with respect to Indian context, the researcher decided to first conduct a qualitative study with a group of banking customers. The qualitative study was conducted using an open ended questionnaire. The open ended questionnaire was prepared to elicit the customer perception about internet banking in India. The questionnaire for the elicitation study is provided in Appendix I. The questions in the qualitative study were framed in accordance with the recommendations given for conducting the study using Theory of Planned Behavior (TPB) model (Francis et al., 2004). The questions could be used to develop the indirect (belief-based) measures for all the predictor constructs in the TPB model (attitude; subjective norm; and perceived behavioral control). The elicitation questionnaire was administered to 30 banking customers comprising of 20 male respondents and 10 female respondents. The results of the qualitative study are given below:

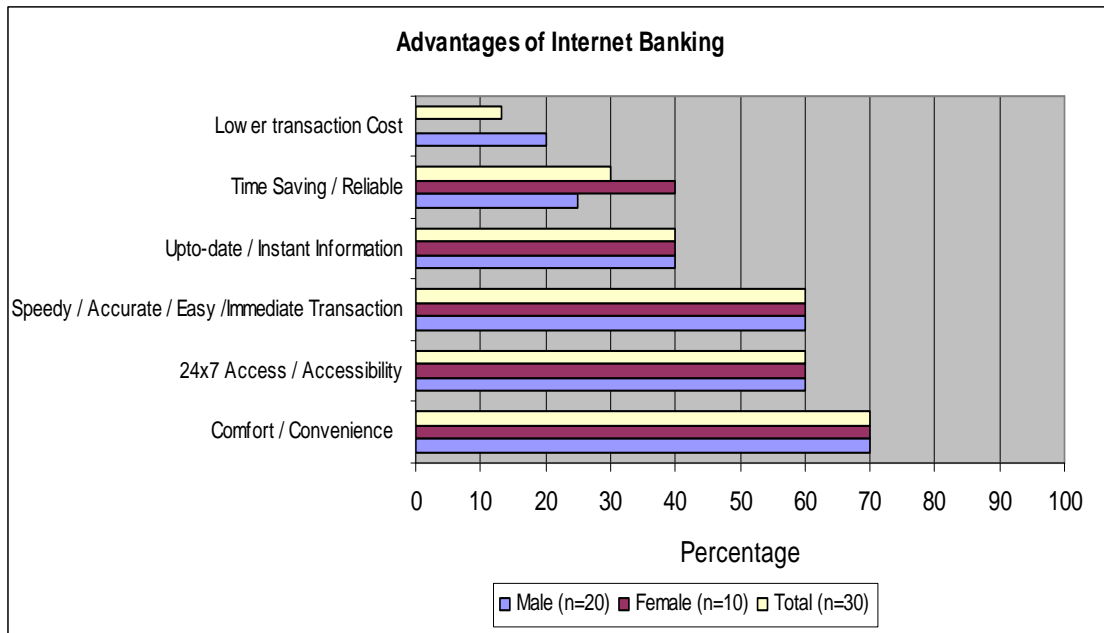


Figure 3.1: Advantages of Internet Banking

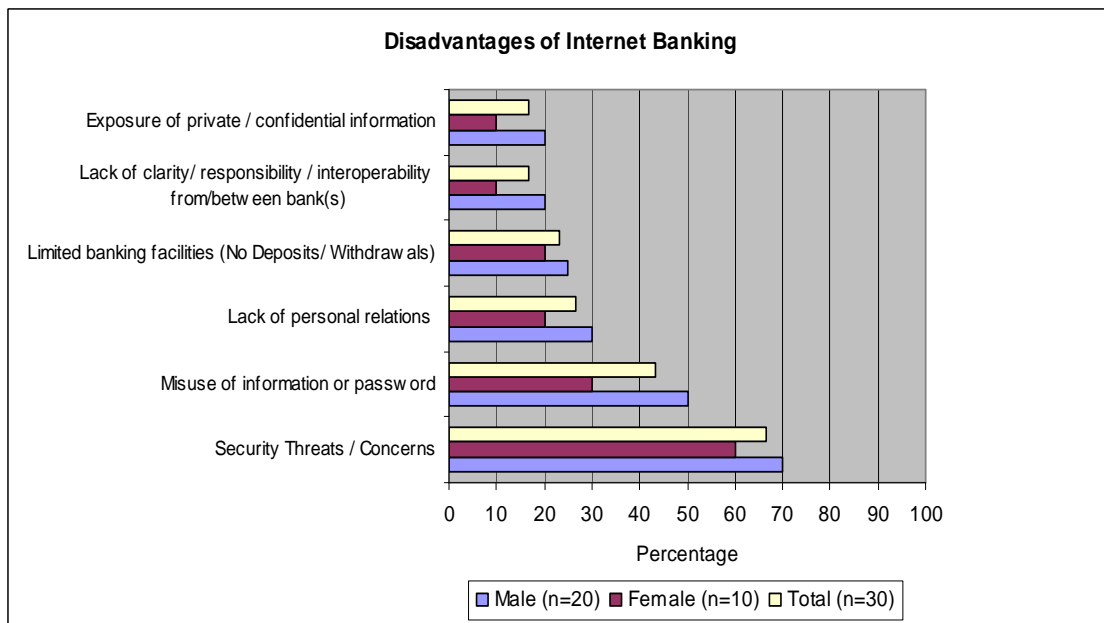


Figure 3.2: Disadvantages of Internet Banking

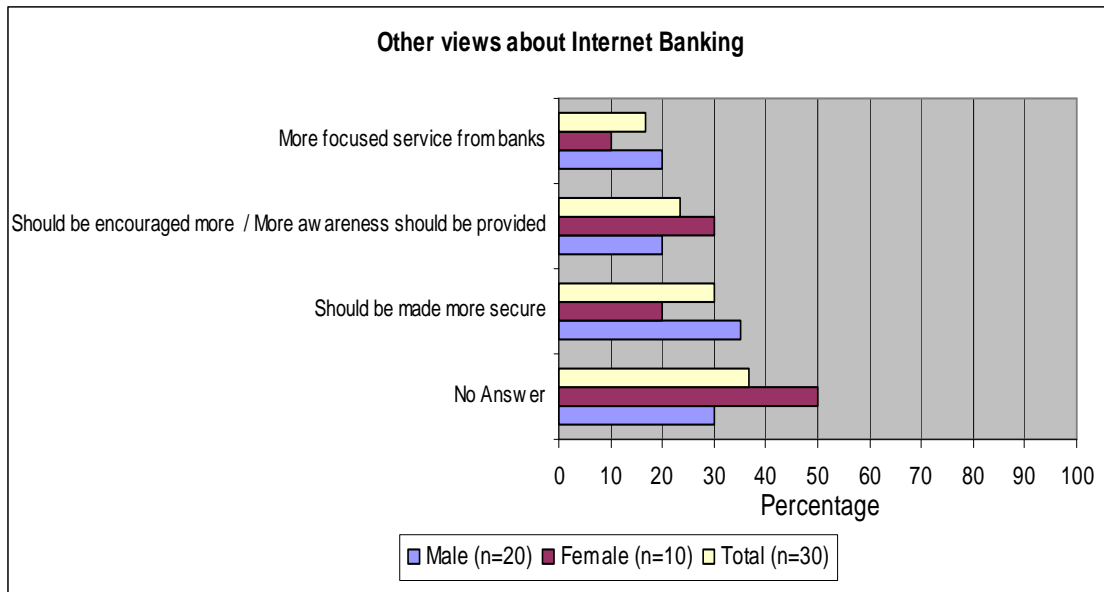


Figure 3.3: Other views about Internet Banking (Attitude)

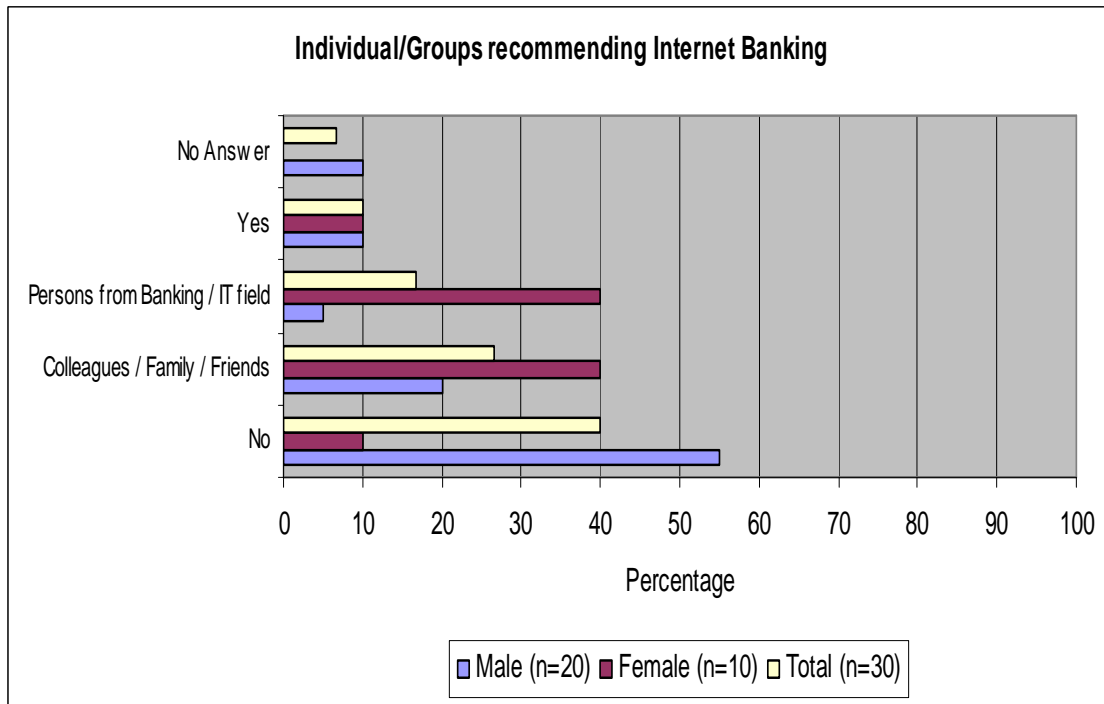


Figure 3.4: Individual/Groups recommending Internet Banking

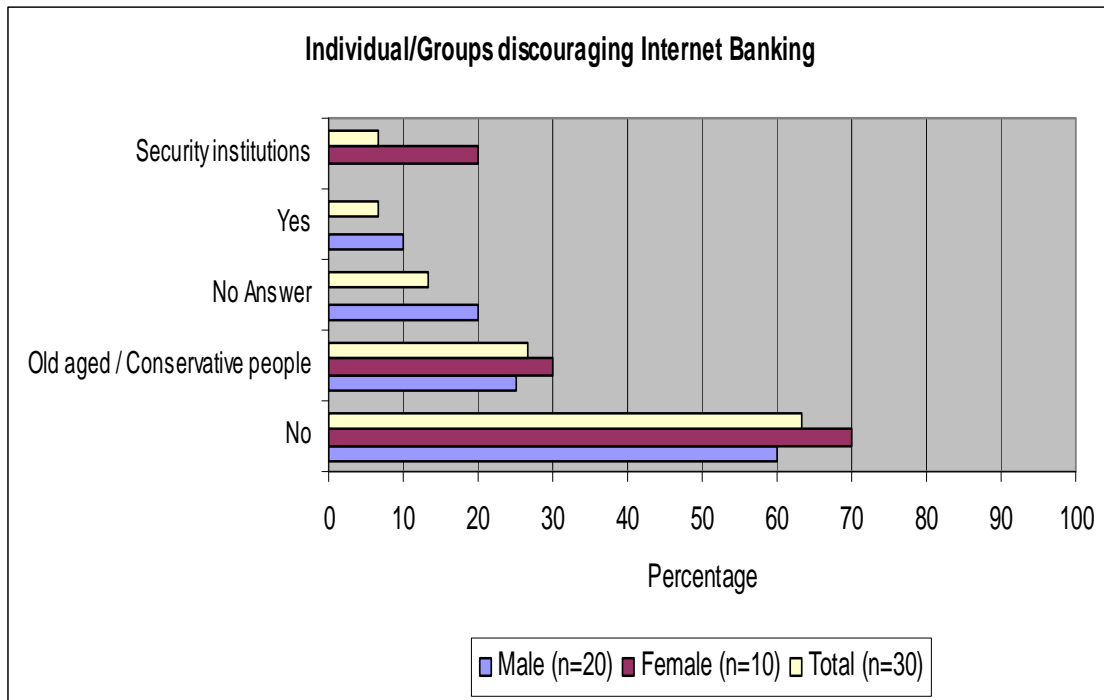


Figure 3.5: Individual/Groups discouraging Internet Banking

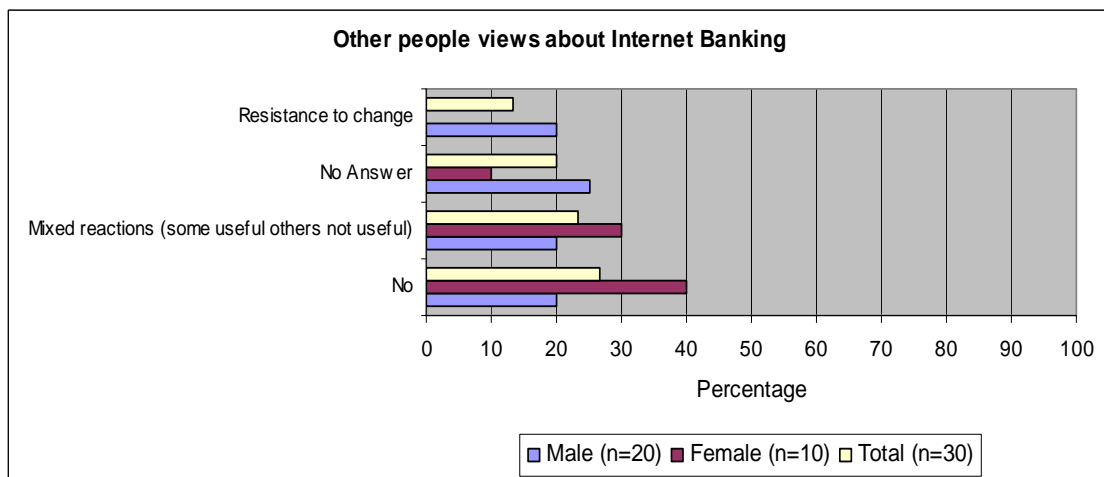


Figure 3.6: Other views about Internet Banking (Subjective Norms)

## Internet Banking and Customer Acceptance: The Indian Scenario

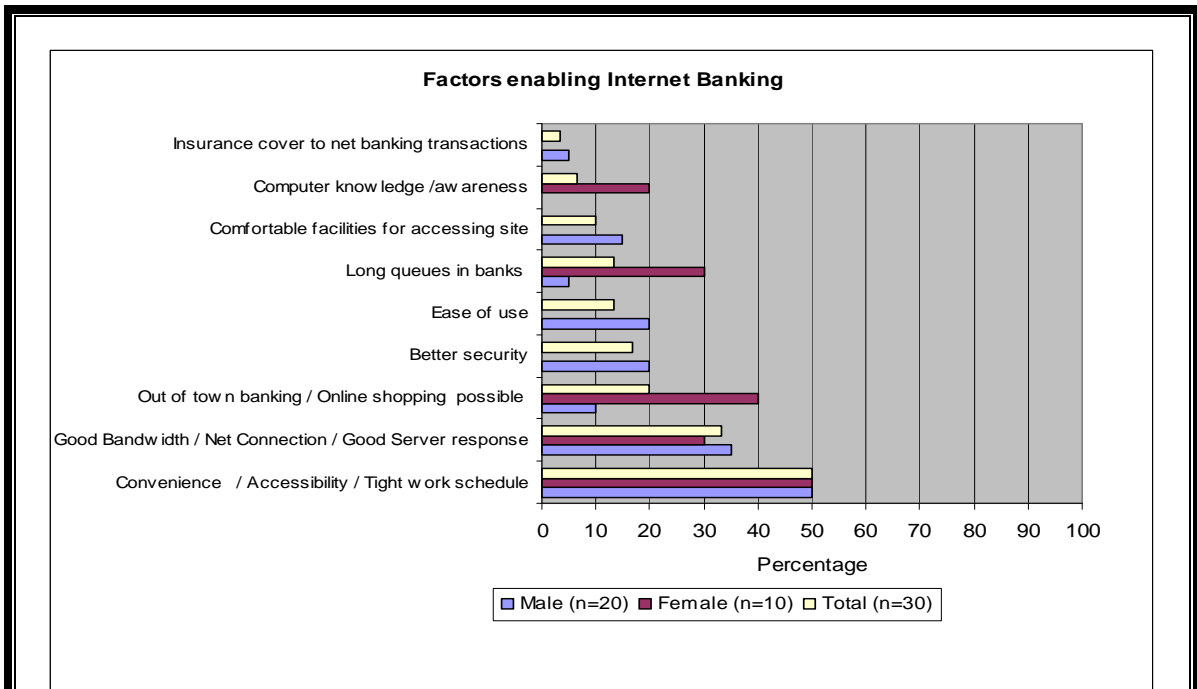


Figure 3.7: Factors enabling Internet Banking

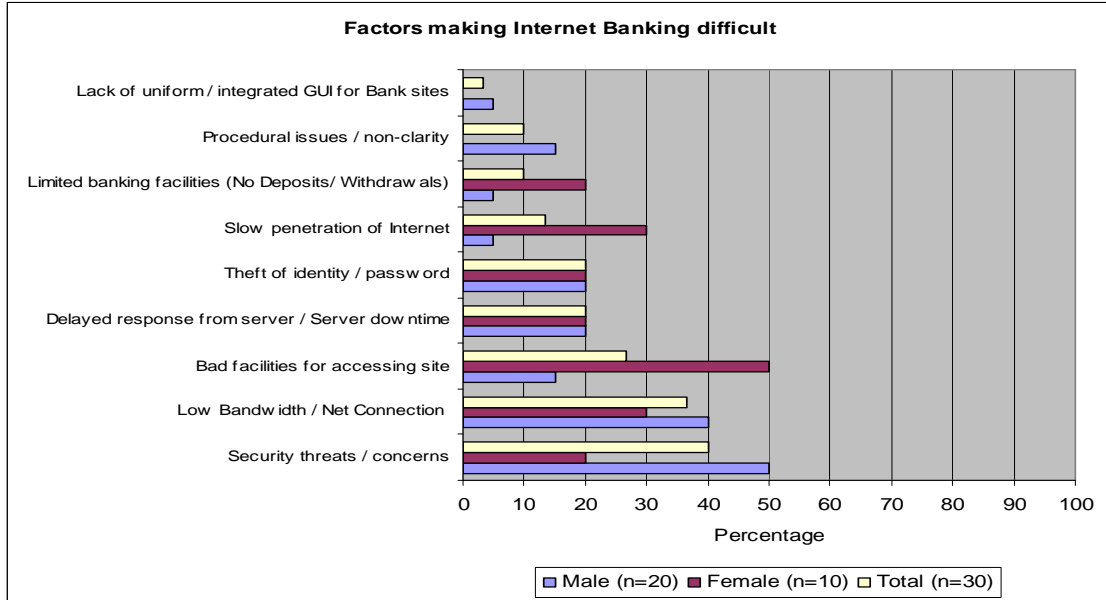


Figure 3.8: Factors making Internet Banking difficult



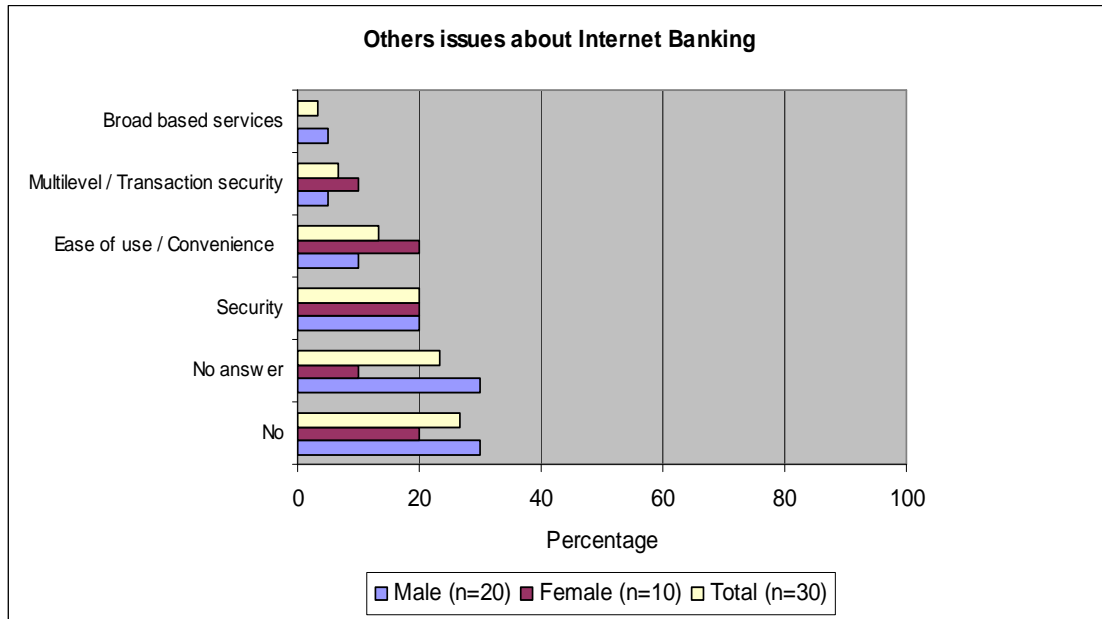


Figure 3.9: Other issues about Internet Banking (Perceived Behavioral Control)

Qualitative study helped in gaining customer’s opinion on internet banking and findings of the study was useful in framing the research model for this study. Table 3.2 summarizes the main findings of the elicitation study. The table also contains the TPB model construct viz. attitude, subjective norms and perceived behavioral control with respect to internet banking acceptance among the respondents of the study.

TPB Model Construct	Questions	Major answers
Attitude	Advantages	Comfort / Convenience 24x7 Access / Accessibility Speedy / Accurate / Easy /Immediate Transaction
	Disadvantages	Security Threats / Concerns Misuse of information or password Lack of personal relations Limited banking facilities (No Deposits/ Withdrawals)
Subjective Norm	Approving group	Colleagues / Family / Friends Persons from Banking / IT field
	Disapproving group	Old aged / Conservative people
Perceived Behavioral Control	Enabling factors	Convenience / Accessibility / Tight work schedule Good Bandwidth / Net Connection / Good Server response Out of town banking / Online shopping possible Better security Ease of use
	Disabling factors	Security threats / concerns Low Bandwidth / Net Connection Bad facilities for accessing site Delayed response from server / Server downtime Theft of identity / password

Table 3.2: Summary of findings of Elicitation Study

From the findings of elicitation study it is clear that customer attitude towards internet banking is formed after considering the advantages like comfort & accessibility and disadvantages like security issues & privacy concerns. Customer's subjective norms were formed after taking into opinion of approving group like colleagues & friends and skeptics like old people or people with

conservative views. Customer's perceived behavioral control beliefs were formed taking into consideration enabling factors like convenience, good connectivity with bank site etc and disabling factors like security concerns, lack of facilities, identity theft concerns etc. The study findings did not show too much of gender difference in most of the customer beliefs. However, it could be seen that female respondent's answers to subjective norm questions showed greater influence from others.

### **3.3 Research Model**

Based on the literature review and findings of the qualitative study conducted on a focus group, the researcher developed a research model indicating the acceptance of internet banking among customers. The model contained seven factors that the researcher posits to have an effect on internet banking acceptance (Figure 3.10). The research model developed is primarily based on the Theory of Planned Behaviour (TPB) (Ajzen, 1985) and the Technology Acceptance Model (TAM) (Davis et al., 1989). The constructs for *consumer security concerns*, *customer security awareness* and *trust and privacy* was added to the model to make it

more relevant for internet banking acceptance. Research constructs and hypotheses posited are given below.

### **3.3.1 Perceived Usefulness (PU) and Perceived Ease of Use (PEOU)**

PU and PEOU are constructs used in the Technology Acceptance Model (Davis et al., 1989). Davis defines PU as “the degree to which a person believes that using a particular system would enhance his or her job performance” Davis (1989). In the TAM model the construct PEOU is introduced as a major factor that determines acceptance of technology among users. Davis defines PEOU as “the degree to which a person believes that using a particular system would be free of effort” Davis (1989). PU and PEOU could be considered as important factors that forms user attitude towards use of technology. Therefore, the constructs PU and PEOU used in TAM could be said to be based on the Theory Reasoned Action (Fishbein and Ajzen, 1975). An application which is perceived to be easier to use would be accepted more by users and in the same way users would only accept those applications they think would be more useful for them. Applying these construct in the internet

banking context the researcher has come up with three hypotheses, viz;

H1: *Perceived Usefulness (PU) has a positive effect on the customer acceptance of online banking*

H2a: *Perceived Ease of Use (PEOU) has a positive effect on the customer acceptance of online banking*

H2b: *Perceived Ease of Use (PEOU) has a positive effect on the perceived usefulness of online banking*

### **3.3.2 Consumer Awareness (CA)**

Awareness on issues related to internet banking particularly security precautions could be a major factor affecting acceptance of internet banking. Not many studies have considered this factor while conducting research on this area. Consumer awareness could be determinant for other constructs such as security concerns and trust. Taking into consideration these factors the following hypothesis is formed.

H3: *Perceived consumer awareness (CA) has a positive effect on the customer acceptance of online banking.*

### **3.3.3 Consumer Security Concerns (SC)**

Security concerns among customers is a major factor affecting acceptance of internet banking. Cao and Mokhtarian (2005) list perceived risk and confidence as important factors determining e-shopping behavior of customers. Pikkarainnes et al (2004) used security and privacy as constructs in their study on internet banking acceptance. They concluded that security and privacy had significant impact on internet banking acceptance. Security concerns figured as major deterrent to internet banking in the elicitation study conducted by the researcher also. Tan and Teo (2000) included risk as a construct that formed attitude towards internet banking acceptance, which is similar to security risk. Taking into consideration customer security concerns the following hypothesis is developed:

*H4: Perceived consumer security concerns (SC) has a negative effect on the customer acceptance of online banking.*

### **3.3.4 Quality of Facilities (QF)**

Respondents of the elicitation study mentioned presence of good net connection and bandwidth as factors that enabled adoption of internet banking. The construct quality of facilities was added

seeing the importance that was attached with that factor. Pikkarainnes et al (2004) had included quality of internet connection as factor in their study. Quality of facilities assumes more importance in Indian context due to the comparatively poor infrastructure facilities available. The following hypothesis is developed for this factor:

*H5: Perceived quality of facilities for accessing bank site has a positive effect on the customer acceptance of online banking.*

### **3.3.5 Subjective Norms (SN)**

Subjective norms refer to “the person’s perception that most people who are important to him think he should or should not perform the behavior in question” (Fishbein and Ajzen 1975, p. 302). It was included as construct in the model to check if a user’s attitude had any influence based on his/her peer group recommendation. Tan and Teo (2000) included this construct in their study on internet banking adoption. Cao and Mokhtarian (2005) found many cases of social and psychological characteristics influencing adoption of e-shopping intention and adoption in their qualitative study. To investigate if subjective norms had any influence on internet banking acceptance the following hypothesis is formed:

*H6: The beliefs associated with subjective norms are significantly related to an individual's intention to adopt Internet banking.*

### **3.3.6 Trust and Privacy (TP)**

Trust is an important determinant of banking services; it is also true for internet banking services. Customers should trust the internet banking infrastructure of the banking to adopt it. Trust is a major construct used in any empirical study in the area of e-commerce and internet banking (Cao and Mokhtarian (2005), Tan and Teo (2000), Pikkarainnes et al (2004)). Gefen and Karahanna (2003) in their study added trust into the TAM model and analyzed the impact of trust online shopping acceptance. In the same study the researchers came up with different aspects of trust a customer could have while considering adoption of online shopping. Kim and Prabhakar (2004) concluded that initial trust in electronic channel had significant effect in the adoption of internet banking. Similarly, privacy is also a major concern of internet users. With the increasing incidents of identity theft and misuse of personal information collected, customers are very cautious with their privacy. Pikkarainnes et al (2004) included privacy construct in



their study. The following hypothesis is developed taking into consideration trust and privacy:

*H7: Perceived trust and privacy on the bank has a positive effect on the customer acceptance of online banking.*

Table 3.3 provides all the constructs and hypotheses used in this study.

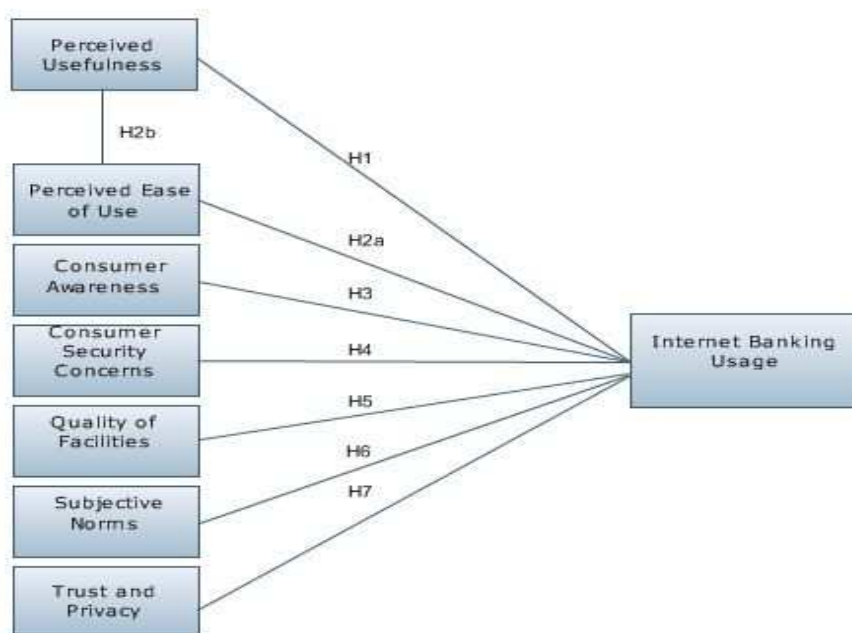


Figure 3.10: Research Model

Research Construct	Hypotheses	Reference
Perceived Usefulness (PU)	H1: <i>Perceived Usefulness (PU) has a positive effect on the customer acceptance of online banking</i>	Pikkarainnes et al (2004), Chan (2001), Davis (1989) , Tan & Leo (2000)
Perceived Ease of Use (PEOU)	H2a: <i>Perceived Ease of Use (PEOU) has a positive effect on the customer acceptance of online banking</i>  H2b: <i>Perceived Ease of Use (PEOU) has a positive effect on the perceived usefulness of online banking</i>	Tan & Leo (2000), Pikkarainnes et al (2004), Chan (2001), Davis (1989)
Consumer Awareness (CA)	H3: <i>Perceived consumer awareness (CA) has a positive effect on the customer acceptance of online banking</i>	
Consumer Security Concerns (SC)	H4: <i>Perceived consumer security concerns (SC) has a negative effect on the customer acceptance of online banking</i>	Pikkarainnes et al (2004), Chan (2001), Tan & Leo (2000)
Quality of Facilities (QF)	H5: <i>Perceived quality of facilities for accessing bank site has a positive effect on the customer acceptance of online banking.</i>	Pikkarainnes et al (2004)
Subjective Norms (SN)	H6: <i>The beliefs associated with subjective norms are significantly related to an individual's intention to adopt Internet banking.</i>	Pikkarainnes et al (2004), Tan & Leo (2000)
Trust and Privacy (TP)	H7: <i>Perceived trust and privacy on the bank has a positive effect on the customer acceptance of online banking</i>	Pikkarainnes et al (2004), Tan & Leo (2000), Kim & Prabhakar (2004), Gefen et al (2003), Gefen (2002).

Table 3.3: Research Constructs and Hypotheses

### 3.4 Survey Questionnaire design

Questionnaire for the survey was designed to gather the respondent's personal information and views about the factors included in the research model. The survey questionnaire contained four sections. Section I contained questions for capturing respondent's demographic details. Section II, questions to collect respondent's computer and internet usage, Section III, questions to collect users banking patronage and usage of e-banking channels and finally Section IV, questions to measure the respondent's views on the research model. While designing the questionnaire questions from previous surveys were also considered and relevant important questions were included in the survey. Table 3.4 contains questions in the first three sections.

Variable	Options	Reference
<b>Section 1: General Demographics</b>		
Gender	Male / Female	[1]
Age	Below 15 years , 16-20, 21-25 , 26-30,31-35,36-40,41-45,46-50, 51- 55,56-60, 61 or above	[9]
Marital status	Rather not say / Divorced / Married/ Separated / Single / Widowed	[9]
Highest education	Primary School/ Secondary School/ Bachelor's Degree (B.Sc, B.A, B.Com, B.Tech , BBA)/ Master's Degree (M.Sc, M.A, M.Com , M.Tech , MBA/ Doctorate Degree (PhD) / Professional Degree	[2] [9]

	(ACA,ICWA,ACS,CISA) /Others	
Current Profession	Student / Professional / Academic / Self-employed / Executive - Junior / Executive – Senior / Manager/ Housewife / Retiree / Others	[2]
Industry	Banking/finance/insurance / Business services /Communications/utility/transport Computer related /Consulting Education / Engineering/R&D Government / Health care/medical / Manufacturing Outsourcing/Services / Retail/wholesale Other	[10]
Organization type	Public sector (e.g. government) / Private sector (e.g. most businesses and individuals) / Not-for-profit sector / Don't know /Other	[9]
Income (Gross monthly)	Under 5000 / 5000-10000 / 10000-15000 / 15000-20000 / 20000-25000 / 25000 and above / Rather not say	[9]
<b>Section II: Computer and Internet Usage/ Competence</b>		
How long have you been using the Internet (including using email, gopher, ftp, etc.)?	Less than 6 months / 6 to 12 months/ 1 to 3 years / 4 to 6 years / 7 years or more	[9]
Places of Net access	Home / Work / School / Cybercafe / Mobile / Others	
Frequency of net usage	Daily / Weekly / Monthly / Less than once a month	[9]
Average weekly net usage	0-5 hrs/ 5-15 hrs / 15-25 hrs / 25-35 hrs / 35 – 45 hrs / 45 hrs and above	[6]
Type of Internet access	28.8 Kbps / 33.6 Kbps / 56 Kbps / 128 Kbps / Broadband / Not aware of the speed	[11]
Operating System used	Windows – XP, 2000, 98, 95 etc / Macintosh / Linux / No idea /	[11]

	Others	
Browser	Internet Explorer / Netscape Navigator / FireFox / Opera / Others	
Type of services used	WWW, E-mail / FTP / IRC / Instant Messenger /Voice Chat / Video Conferencing / Telnet / P2P Network	
Activities carried using Net	<p>ordered a product/service from a business, government or educational entity by filling out a form on the web</p> <p>made a purchase online for more than Rs 1000</p> <p>created a web page</p> <p>customized a web page for yourself (e.g. MyYahoo, CNN Custom News)</p> <p>changed your browser's "startup" or "home" page</p> <p>changed your "cookie" preferences</p> <p>participated in an online chat or discussion (not including email)</p> <p>listened to a radio broadcast online</p> <p>made a telephone call online</p> <p>used a nationwide online directory to find an address or telephone number</p> <p>taken a seminar or class about the Web or Internet</p> <p>bought a book to learn more about the Web or Internet</p>	[9]
Products/services bought online	<p>Books</p> <p>Electronic Gadgets</p> <p>Railway Tickets</p> <p>Apparel Accessories</p> <p>Apparel</p> <p>Gifts</p> <p>Computers &amp; Peripherals</p> <p>Airline Tickets</p> <p>Music</p> <p>Movies</p> <p>Hotel Booking</p> <p>Magazines</p>	[12]

	Home Tools & Products Home Appliances Toys Jewelry Movie Tickets Beauty Products Sporting Goods Others	
Comfort level of Computer use	Very comfortable / Somewhat comfortable / Neither comfortable nor uncomfortable / Somewhat uncomfortable / Very uncomfortable	[9]
Comfort level of Net use	Very comfortable / Somewhat comfortable / Neither comfortable nor uncomfortable / Somewhat uncomfortable / Very uncomfortable	[9]
Satisfaction of current skills	Very satisfied - I can do everything that I want to do / Somewhat satisfied - I can do most things I want to do / Neither satisfied nor unsatisfied / Somewhat unsatisfied - I can't do many things I would like to do / Very unsatisfied - I can't do most things I would like to do	
<b>Section III : General Banking Patronage</b>		
No of bank accounts	1 / 2 / 3 / 4/ 5/6 /7 /-----	[6]
Primary Bank	SBI/ SBT / Federal Bank / ICICI / HDFC/ ING Vysa / IDBI / Vijaya / CSB / SIB / PNB / Centurion / OBC/ Citibank / Others	[2]
Rank of frequently used Banking services	Branch Counter / ATM / Internet Banking /Phone (Tele) Banking / Mobile Banking	[6]

Table 3.4: Survey questionnaire for collecting personal details.

References : [1] Pikkarainnes et al (2004), [2] Tan & Leo (2000), [3] Kim & Prabhakar (2004), [4] Gefen et al (2003), [5] Gefen (2002), [6] Chan (2001)

[7] Bits Consumer Confidence Toolkit (2005) [8] ICICI Bank [9] GUVU 10<sup>th</sup> Survey [10] AC Nielson [11] ICICI Web Survey [12] IOAI (2005)

### **3.4.1 Survey Items Design**

While developing the items for measuring constructs of the research model, items in the previous studies were examined. Wherever possible, items used in the study were adopted from items used previously to ensure content validity and readability which would minimize chances of misleading and inaccurate recording of responses. Usage of items which has been tested thoroughly in the past studies would result in good measure of respondent's views on the variables. Findings of the elicitation study helped in framing the most appropriate questions. Table 3.5 contains the items used in this study along with mention of previous studies from which the questions were adapted. There were no previous items found for the measurement of construct consumer security awareness. Therefore the items for that construct were developed afresh. Each question used for measuring respondent view about a construct was developed as a statement like "*Online banking makes it easier for me to conduct my banking transactions*". Response to an item is captured using a seven-point Likert scale containing response level from "Strongly Disagree to

Strongly Agree". In total, fifty four items were added in the survey questionnaire for measuring the seven constructs used in the research model (Table 3.5). Pre-testing of the survey questionnaire was carried out among 30 students from Cochin University in order to identify if there were any ambiguous questions, problems in understanding the questions, check if the questions were properly worded and to get feedback on questionnaire in general. Respondents in the pre-test mentioned that questions were straight forward and they did not face any problems in responding. Most of the respondents complained that the length of the questionnaire was little long and there were similar sounding questions in section four. Since this was one of the first study in India in this area, the researcher decided to leave the sections on collecting personal information unchanged so as to gather maximum information about a respondent. Regarding the questions in section four the researcher decided to keep the similar sounding questions so that survey results become more reliable. Statistical analysis of pre-test survey data showed some items getting much varying responses from the respondents. Removing such items would have improved the construct validity, but the researcher decided to keep those



types of questions also in the final survey. Questionnaire used in this survey is provided in Appendix II.

Construct	Item	Description	Reference
Perceived Usefulness (PU)	PU1	Online banking makes it easier for me to conduct my banking transactions	[2]: RELADV1
	PU2	Online Banking gives me greater control over my finances.	[2]: RELADV2
	PU3	Online banking allows me to manage my finances more efficiently.	[2]: RELADV3
	PU4	Online banking is a convenient way to manage my finances	[2]: RELADV4
	PU5	Online Banking is more user-friendly than other existing channels, including Bank Branches, ATMs, and Phone Banking.	[6]
	PU6	Online Banking gives me access to banking services at any time (24x7)	[6]
	PU7	Online banking is reliable	
	PU8	Using online banking facilities allows me to save time	
	PU9	Online banking gives me upto-date information of my account	
	PU10	Using an online banking allows me to conduct banking transactions quickly	[1]
Perceived Ease of Use (PEOU)	PEOU1	Online banking is easy-to-use.	[6]
	PEOU2	Online banking is an easy way to conduct banking transactions.	[6]

	PEOU3	Learning to operate online banking would be easy for me.	[6]
	PEOU4	It is easy for me to remember how to perform tasks with online banking.	[6]
	PEOU5	I believe it would be easy to get online banking to do what I want it to do.	[6]
	PEOU6	Using online banking does not require a lot of mental effort.	[6]
	PEOU7	Lack of clarity in procedures related to online banking worries me	
	PEOU8	Lack of personal relations while using online banking worries me	
Consumer Awareness (CA)	CA1	Monitoring my accounts and statements frequently and thoroughly, ensures that all activity is accurate.	[7]
	CA2	I should always thoroughly tear or shred documents with personal information.	[7]
	CA3	I should protect my account information like personal identification number (PIN, Username , Password etc	[7]
	CA4	I should ensure that my computer(s) are equipped with a security toolkit (software) to help keep trespassers out..	[7]
	CA5	I should change my passwords periodically, using strong passwords that could not be easily guessed.	[7]
	CA6	I should always log off from my bank site after an online banking session.	[7]
	CA7	I should shut off/disconnect my computer from the Internet when not in use.	[7]

	CA8	I should be suspicious of requests for personal information from unknown sources.	[7]
	CA9	During phishing attack, a fraudster sends an e-mail to consumers, falsely claiming to be from a legitimate company, in hopes of luring consumers to a "spoofed" website.	[7]
	CA10	Any software that covertly gathers user information through the user's Internet connection without his or her knowledge is called as a Spyware.	[7]
Consumer Security Concerns (SC)	SC1	I am not confident over the security aspects of online banking in India.	[2] [6]
	SC2	Others will know information concerning my online banking transactions.	[6] [2]
	SC3	Others can tamper with information concerning my online banking transactions.	[6] [2]
	SC4	Advances in internet security technology provide for safer Internet Banking.	[6]
	SC5	It is very easy for my money to be stolen if using online banking.	[6]
	SC6	If I sign up for online banking, a hacker will be more likely to access my account.	[7]
	SC7	Most identity theft is caused by fraudsters who steal information from an online bank account.	[7]
	SC8	When it comes to money, you're always safer using traditional paper statements and mail.	[7]
	SC9	If a thief wants to access my accounts (online bank) there is not much I can do about it.	[7]
	SC10	If fraudsters get access to my online bank	[7]

Internet Banking and Customer Acceptance: The Indian Scenario

		accounts, I could lose all my money.	
Quality of Facilities (QF)	QF1	I am happy with the quality of facilities available for accessing online banking services.	
	QF2	I am satisfied with the speed of internet connection available for accessing online banking facilities	
	QF3	I feel slow penetration of internet in India is hampering online banking usage.	
	QF4	I am happy with the server response from my online bank while accessing it.	
Subjective Norms (SN)	SN1	There are individual/groups recommending online banking adoption	
	SN2	My bank encourages me to use online banking	
	SN3	Officials working in my bank encourage me to use online banking.	
	SN4	My friends or colleagues encourage me to use online banking.	
	SN5	There are individual/groups discouraging online banking adoption.	
Trust and Privacy (TP)	TP1	I trust online bank as a bank	[1]
	TP2	I trust in the technology used by my bank /	[1]
		I trust in the technology an online bank is using	
	TP3	I have confidence in the security of the computer used for accessing online bank	
	TP4	I trust my internet service provider	
TP5	I trust in the ability of my bank to protect my	[1]	

		privacy	
	TP6	I believe bank may use confidential information about me to its advantage	[3]
	TP7	I believe bank may take advantage of my weakness/problems	[3]

Table 3.5: List items used in the Survey

References : [1] Pikkarainnes et al (2004), [2] Tan & Leo (2000), [3] Kim & Prabhakar (2004), [4] Gefen et al (2003), [5] Gefen (2002), [6] Chan (2001), [7] Bits Consumer Confidence Toolkit (2005)

### 3.5 Sampling Method

Conducting a survey by choosing the respondents using a random sampling technique is the best way to get a good representative sample of the population. However, such technique could not be applied in this study due the following reasons:

- non-availability of population size or data
- difficulty in getting customer details from banking offering internet banking services
- demographic profile of a respondent of this survey is highly specific – ideal profile of a respondent would be computer literate user who has access to internet and is a customer of

internet banking facility, finding such type of respondent is difficult.

Therefore, the researcher resorted to a choice-based or convenient sampling approach for selecting the respondents for this survey. Respondents to this survey were chosen from the alumni list of Cochin University, membership list of professional associations like ICAI, IET, ISACA etc and employees of service industry companies.

### **3.6 Data collection**

In this study two different data collection method were employed viz. web based (online) survey and paper based survey. Web based survey was chosen as Internet is the most suitable medium for communicating the target group of the survey i.e. internet banking customers. Web based survey is one of the cheapest mechanism for conducting a study like this. Moreover, it would allow respondents in different geographic location to take the survey at their own convenience (Gunn, 2002). Web survey would also allow better quality responses as the survey responses could be checked for any error or omission during the time of taking the survey itself and it could be rectified at that instance itself. The researcher could put

strict control over information to be gathered and respondent would be required to meet those criteria.

Web based survey for the research study was setup using an open source software named PHP Surveyor (now Lime Survey [www.limesurvey.org](http://www.limesurvey.org)). The researcher setup the survey in a web server and invitation to participate in the survey were send to the respondents. To eliminate duplication of responses, an invitation with a valid key was send to each respondent. Respondent with a valid key could only respond to the survey and the survey could be taken only once by a respondent. Users could also register themselves by providing an e-mail address to participate in the survey. Invitations to newly registered users were sent automatically by the survey software. For the research study 500 invitation e-mails were sent and 169 responses were received. To increase response rate three reminders were sent to the respondents. The survey was made online during May 2006 and data were collected for a period of 3 months. The response rate of 33.8% falls in the typical response rate of web surveys.

Paper based survey was conducted to gather data for the study. Survey questionnaire were printed and distributed among participants of “General Management and Communication Skills (GMCS)” course conducted by Institute of Chartered Accounts of India, Kochi Chapter, students of Cochin University and members of Kochi chapter of Information Systems Audit and Control Association (ISACA). Participants of 10 batches of GMCS course during 2006-2007 were chosen for the survey. 300 survey questionnaires were distributed among the participants, 250 questionnaires were filled and returned, and 97 fully filled questionnaires were taken for the final analysis. Thus the effective response rate of paper based survey is 32.3%.

### **3.7 Statistical Analysis**

Data collected from the survey were analyzed and interpreted using various statistical techniques usually employed in positivistic study. Statistical analysis was carried out using SPSS (Statistical Package for Social Sciences) version 14.0. Descriptive analysis techniques like average, percentage, frequencies etc were performed on the data for getting an overall structure of the sample. Survey figures were converted into charts and tables to analyze the



demographic characteristics of the respondents. Descriptive analyses helped in representing snapshot of a sample at a particular time and in turn gave more clarity to the observed behavior. The reliability and construct validity of the research instrument were assessed before final analysis of the data. The Cronbach alpha coefficient for each research variable was computed to test for reliability. To analyze for convergent and discriminant validity of the constructs, factor analysis was used. Hypotheses were tested using linear regression analysis and multi-linear regression analysis was used to test model's prediction capabilities.

### **3.8 Summary**

In this chapter research method, survey mode, survey instrument, sample selection and survey process were described and discussed. Research model used for this study was presented along with the hypotheses developed. Statistical techniques used for analyzing the data collected were also discussed. In the next chapter, results of the data analyses are reported.