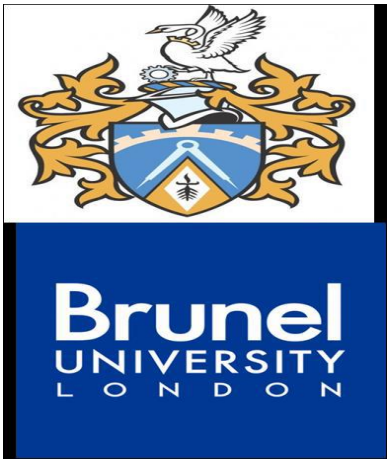

Online Banking Operations Management: Security Concerns on Trust in Mobile Banking System

A Thesis Submitted for the Degree of Doctor of Philosophy

By

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August 2016

Abstract

While trust is considered a central aspect of the success of mobile banking systems, privacy and security concerns are seen as the biggest obstacles to building trust in this system. Due to the high level of perceived risk, it is critical for mobile banking managers to reduce the effect of these concerns and foster users' trust in order to increase the adoption of this service. However, while existing studies have identified the antecedents to trust and their direct effect on it, we still do not know how a persuasive message, which includes privacy and security polices of the mobile banking services, can change trust in this service and how privacy and security concerns play a role in this persuasion process. Determining the variables that are related to developing trust in mobile banking services is crucial in the development of successful tools to improve the consumption of this service. Therefore, this study has set out to investigate and explain the persuasion process used to increase trust in the mobile banking system, with a focus on privacy and security concerns. In particular, it is argued that security and privacy concerns play a positive moderating role in the persuasion process.

In particular, this study has involved developing and testing a framework built on the Elaboration Likelihood Model (ELM), which is one of the most widely used theoretical frameworks for explaining how peoples' attitudes are affected by persuasive messages. Thus, built on the ELM, this thesis tests the effect of both the quality of the argument and the credibility of the source of trust. Source credibility includes two common dimensions, which are source expertise and trustworthiness. Security and privacy concerns are added as moderators to test whether they affect the link between the argument of quality and trust.

The research framework has been implemented with a sample of 358 mobile banking users in the UK. By using Statistical Package for the Social Science (SPSS) version 20, the data analysis shows significant support for the research model. The aim of this thesis is to contribute to this growing area of research by developing a theoretical model based on the Elaboration Likelihood Model for trust in mobile banking, which could significantly extend the reliability and validity of the previous research. The result of the current research is important for mobile banking managers. It will help to increase trust in this service, which will provide benefits to users and banks alike.

Dedications

This doctoral research effort is dedicated to:

The soul of my Mum, Halima Dayoub, and to the soul of my brother, Sindibad, as well as to the souls of all the martyrs of Syria, my beloved country.

It is also dedicated to my dad, my brother, Zoulfakar, and my two sisters, Baraa and Brodans, and to my own small family: my husband, Osama Raheb, and my two daughters, Shams and Hiba.

Declaration

I hereby confirm that, to the best of my knowledge, this study is original and has not been submitted before for any degree award, to any other organisation of learning.

Acknowledgements

My first and big appreciation goes to my first supervisor, Prof Habin Lee, for his marvelous supervision, guidance and encouragement. Sincere gratitude is extended to his generous participation in guiding, constructive feedback, kind support, and advice during my PhD. Thank you very much Pro Habin.

Also, I greatly appreciate my second supervisors, Dr. EmelAktas and Dr. Uthayasankar Sivarajah for their great feedback, excellent encouragement and guidance. Thanks a lot you both.

Many thanks to all of the members of staff in Brunel Business School for their kind support during my PhD study. Also, I extend my thanks to all my colleagues at Brunel university for their continuous encouragement and support, as well as to all of my friends and colleagues from Brunel and outside for their time, advice and moral support.

Last, but not least, my warm and heartfelt thanks go to my family for their tremendous support and hope they had given to me. Without that hope, this thesis would not have been possible. Thank you all for the strength you gave me. I love you all!

Journal Articles

At the moment I am working with my supervisor on a paper to be submitted to journal rank three which is Information Systems Frontiers.

Conference Papers

Jammoul, K and Lee, H (2014). Understanding users' trust and the moderating influence of privacy and security concerns for mobile banking: An elaboration likelihood model perspective. European, Mediterranean & Middle Eastern Conference on Information Systems, 2014 (EMCIS2014) October 27th – 28th 2014, Doha, Qatar.

Jammoul, K and Lee, H (2015) Trust in mobile banking from the perspective of elaboration likelihood model and the moderating role of privacy and security concerns. This paper was presented in BAM workshop, e-Gov-workshop-Bradford, July 2015.

Jammoul, K and Lee, H (2016). Understanding users' trust and the moderating influence of privacy and security concerns for mobile banking: An elaboration likelihood model perspective. This paper presented in BAM workshop, e-Gov-workshop, Queen Mary University, 18, 19 May, 2016.

TABLE OF CONTENTS

ABSTRACT ..... **II**

DEDICATIONS ..... **III**

DECLARATION ..... **IV**

ACKNOWLEDGEMENTS ..... **V**

JOURNAL ARTICLES ..... **VI**

CONFERENCE PAPERS ..... **VI**

TABLE OF CONTENTS ..... **VII**

LIST OF TABLES ..... **XII**

LIST OF FIGURES ..... **XIV**

CHAPTER 1 : INTRODUCTION **1**

1.1 INTRODUCTION **1**

1.2 RESEARCH BACKGROUND AND RESEARCH PROBLEM **2**

1.3 RESEARCH QUESTIONS **5**

1.4 AIMS AND OBJECTIVES **6**

1.5 RESEARCH METHODOLOGY **6**

1.6 CONTEXT OF THE STUDY: UK **7**

1.7 CONTRIBUTION **8**

1.8 THE STRUCTURE OF THE THESIS **9**

CHAPTER 2 : LITERATURE REVIEW 11

2.1 INTRODUCTION AND CHAPTER STRUCTURE 11

2.2 THEORETICAL MODELS USED IN INFORMATION SYSTEMS 12
2.2.1 THEORY OF REASONED ACTION (TRA) 12
2.2.2 THEORY OF PLANNED BEHAVIOUR (TPB) 13
2.2.3 TECHNOLOGY ACCEPTANCE MODEL (TAM) 16
2.2.4 ELABORATION LIKELIHOOD MODEL (ELM) 17

2.3 WHAT IS TRUST? 19

2.4 TRUST AND THE ONLINE ENVIRONMENT 22

2.5 TRUST, ONLINE BANKING AND MOBILE BANKING 28

2.6 ELM IN GENERAL, ELM AND TRUST IN IT IN PARTICULAR 46
2.6.1 ELABORATION LIKELIHOOD MODEL (ELM) 46
2.6.2 ELM AND TRUST IN INFORMATION SYSTEM STUDIES 48
2.6.3 ELM, ONLINE AND MOBILE BANKING 64

2.7 CONCLUSION 71

CHAPTER 3 : CONCEPTUAL FRAMEWORK 73

3.1 INTRODUCTION 73

3.2 DEVELOPMENT OF THE MODEL AND THESIS HYPOTHESES 73

3.3 DEPENDENT VARIABLE – TRUST 75

3.4 FACTORS AFFECTING TRUST IN MOBILE BANKING FROM THE PERSPECTIVE OF ELM 75
3.4.1 ARGUMENT QUALITY 76
3.4.2 SOURCE CREDIBILITY 77

3.5 THE MODERATION HYPOTHESES: PRIVACY AND SECURITY CONCERNS AS MODERATORS 78

CHAPTER 4 : RESEARCH METHODOLOGY 82

4.1 INTRODUCTION 82

4.2 RESEARCH PHILOSOPHICAL PARADIGMS 83

4.3 RESEARCH METHOD ADOPTED IN THIS THESIS 86

4.4 STUDY DESIGN 87

4.5 SAMPLING STRATEGY 89
4.5.1 POPULATION 89
4.5.2 SAMPLING FRAME 89

4.6 SAMPLING 89
4.6.1 PROBABILITY SAMPLING TECHNIQUES 90
4.6.2 NON-PROBABILITY SAMPLING METHODS 91

4.7 SAMPLE SIZE 92

4.8 DATA COLLECTION PROCEDURE 92

4.9 QUESTIONNAIRE SURVEY 94
4.9.1 DEVELOPMENT OF THE SURVEY QUESTIONNAIRE 95
4.9.2 SCALE DEVELOPMENT 96
4.9.3 OPERATIONALISATION OF VARIABLES 97

4.10 PRE-TESTING PROCEDURES AND PILOT STUDY 100
4.10.1 PRE-TESTING THE QUESTIONNAIRE 101
4.10.2 PILOT STUDY 101

4.11 DATA ANALYSIS 103
4.11.1 EXPLORATORY FACTOR ANALYSIS AND RELIABILITY ASSESSMENT 103
4.11.2 RELIABILITY AND VALIDITY TESTING OF THE FINAL SURVEY 104
4.11.3 REGRESSION ANALYSIS 106

4.12 HYPOTHESES TESTING 106

4.13 ETHICAL CONSIDERATIONS 107

4.14 CONCLUSION 108

CHAPTER 5 : MAIN STUDY ANALYSIS AND FINDINGS 109

5.1 INTRODUCTION 109

5.2 DATA MANAGEMENT 109

5.3 DATA SCREENING PRIOR TO ANALYSIS 110

5.4 MISSING DATA 110

5.5 RESPONSE RATE 111

5.6 NON-RESPONSE BIAS 111

5.7 DESCRIPTIVE STATISTICS ANALYSIS 112

5.8 OUTLIERS 115

5.9 NORMALITY AND LINEARITY 116

5.10 DEMOGRAPHIC CHARACTERISTICS AND RELATIONSHIPS 117

5.11 FACTOR LOADING AND DATA ANALYSIS 120

5.12 REGRESSION ANALYSIS 131

5.12.1 REGRESSION ANALYSIS: EXAMINING THE RELATIONSHIP BETWEEN ARGUMENT QUALITY (AQ), SOURCE EXPERTISE (SE), TRUSTWORTHINESS (TW) AND TRUST (TR) 131

5.12.2 MODERATOR ROLE OF PRIVACY CONCERNS PC 135

5.12.3 MODERATOR ROLE OF SECURITY CONCERNS SC 137

5.13 CONCLUSION 140

CHAPTER 6 : DISCUSSION 141

6.1 INTRODUCTION 141

6.2 OVERVIEW OF THIS RESEARCH STUDY 141

6.3 DISCUSSION 142

6.3.1 RESPONSE RATE 142

6.3.2 POPULATION AND DEMOGRAPHIC CHARACTERISTICS 143

6.3.3 DISCUSSION OF THE RESULTS OF HYPOTHESES TESTING 143

6.4 CONCLUSIONS 147

CHAPTER 7 : CONCLUSION 149

7.1 INTRODUCTION 149

7.2 RESEARCH IMPLICATIONS 149

7.2.1 THEORETICAL CONTRIBUTIONS 149

7.2.2 PRACTICAL IMPLICATIONS 150

7.3 LIMITATIONS 151

7.4 FUTURE STUDIES 152

7.5 FINAL REMARKS 153

REFERENCES 154

APPENDIX 181

APPENDIX A: QUESTIONNAIRE 181

APPENDIX B: ETHICS FORM 190

PARTICIPANT INFORMATION SHEET 193

List of Tables

TABLE 2. 1 DEFINITIONS OF THE CORE CONSTRUCTS INCLUDED IN THE TPB 15
TABLE 2. 2 SUMMARY OF THE BROADER DEFINITIONS OF TRUST IN PREVIOUS STUDIES 21
TABLE 2. 3 SUMMARY OF TRUST AND ONLINE ENVIRONMENT STUDIES 25
TABLE 2. 4 REVIEW OF TRUST, ONLINE BANKING AND MOBILE BANKING STUDIES 36
TABLE 2. 5 SUMMARY OF STUDIES ON TRUST AND ITS MAIN ANTECEDENTS 44
TABLE 2. 6 THE DIFFERENCE BETWEEN CENTRAL AND PERIPHERAL ROUTES 47
TABLE 2.7 SUMMARY OF THE MAIN STUDIES FROM THE ELM LITERATURE AND THE KEY FINDINGS. 66
TABLE 3. 1 CONSTRUCTS, CODE NAME, AND THEIR HYPOTHESISED RELATIONSHIPS 75
TABLE 3. 2 RESEARCH CONSTRUCTS DEFINITIONS 80
TABLE 4. 1 ALTERNATIVE TERMS FOR MAIN RESEARCH PARADIGMS 83
TABLE 4. 2 THE DIFFERENT ASSUMPTIONS OF THE TWO MAIN PARADIGMS 84
TABLE 4. 3 THE MAIN DIFFERENCES BETWEEN THESE TWO APPROACHES. 86
TABLE 4. 4 SAMPLING TECHNIQUES. 90
TABLE 4. 5 DEMOGRAPHIC CHARACTERISTICS OF THE MAIN SURVEY RESPONDENTS. 93
TABLE 4. 6 QUESTIONNAIRE ITEMS 100
TABLE 4. 7 DEMOGRAPHIC CHARACTERISTICS OF PILOT STUDY PARTICIPANTS (N=38). 102
TABLE 4. 8 THE RELIABILITY TEST (CRONBACH'S ALPHA COEFFICIENTS) IN PILOT STUDY 102
TABLE 5. 1 RESPONSE BIAS ANALYSIS FOR DEMOGRAPHIC DATA 112
TABLE 5. 2 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF TRUST CONSTRUCT 112
TABLE 5. 3 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF ARGUMENT QUALITY CONSTRUCT (AQ) 113
TABLE 5. 4 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF SOURCE EXPERTISE CONSTRUCT 113
TABLE 5. 5 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF TRUSTWORTHINESS CONSTRUCT 114
TABLE 5. 6 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF SECURITY CONCERNS CONSTRUCT 114
TABLE 5. 7 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF PRIVACY CONCERNS CONSTRUCT. 115

TABLE 5. 8 PEARSON'S CORRELATIONS 117
TABLE 5. 9 DESCRIPTIVE STATISTICS OF MEASURED ITEMS OF SOURCE EXPERTISE CONSTRUCT 119
TABLE 5. 10 COMMUNALITIES 121
TABLE 5. 11 TOTAL VARIANCE EXPLAINED 122
TABLE 5. 12 COMPONENT MATRIX 124
TABLE 5. 13 KMO AND BARTLETT'S TEST 126
TABLE 5. 14 FACTOR LOADING AND CRONBACH'S ALPHA OF TRUST (TR) 127
TABLE 5. 15 FACTOR LOADING AND CRONBACH'S ALPHA OF ARGUMENT QUALITY (AQ) 128
TABLE 5. 16 FACTOR LOADING AND CRONBACH'S ALPHA OF TRUSTWORTHINESS (TW) 128
TABLE 5. 17 FACTOR LOADING AND CRONBACH'S ALPHA OF SOURCE EXPERTISE (SE) 129
TABLE 5. 18 FACTOR LOADING AND CRONBACH'S ALPHA OF PRIVACY CONCERN (PC) 130
TABLE 5. 19 FACTOR LOADING AND CRONBACH'S ALPHA OF SECURITY CONCERN (SC) 131
TABLE 5. 20 THE DESCRIPTIVE STATISTICS FOR THE VARIABLES 132
TABLE 5. 21 MODEL SUMMARY 132
TABLE 5. 22 ANOVA 133
TABLE 5. 23 COEFFICIENTS [A] 134
TABLE 5. 24 HYPOTHESES ASSESSMENT 134
TABLE 5. 25 MODEL SUMMARY 135
TABLE 5. 26 ANOVA [A] 136
TABLE 5. 27 COEFFICIENTS[A] 136
TABLE 5. 28 MODEL SUMMARY 137
TABLE 5. 29 ANOVA [A] 138
TABLE 5. 30 COEFFICIENTS[A] 138
TABLE 5. 31 HYPOTHESES ASSESSMENT OF MODERATORS 139
TABLE 6. 1 RESULTS OF RESEARCH HYPOTHESES 143

List of Figures

FIGURE 2. 1 TRA (FISHBEIN AND AJZEN,1975) 12
FIGURE 2. 2 THEORY OF PLANNED BEHAVIOURS (TPB: AJZEN. 1991) 14
FIGURE 2. 3 TECHNOLOGY ACCEPTANCE MODEL (DAVIS, 1989) 16
FIGURE 2.4 ELABORATION LIKELIHOOD MODEL. 19
FIGURE 2. 5 PROPOSED RESEARCH MODEL OF THE STUDY BY AL-SOMALI ET AL., (2009:133) 29
FIGURE 2. 6 DELONE AND MCLEAN (1992).. 29
FIGURE 2. 7 DELONE AND MCLEAN UPDATED MODEL (2003).. 30
FIGURE 2. 8 THE RESEARCH MODEL OF HANAFIZADEH ET AL., (2014: 69) 31
FIGURE 2. 9 THE RESEARCH MODEL OF (GU ET AL., 2009: 11610) 32
FIGURE 2. 10 RESEARCH MODEL OF THE STUDY BY CHANDIO ET AL., (2013: 671) 33
FIGURE 2. 11 RESEARCH MODEL OF THE STUDY BY HARJIT ET AL., (2010: 7). 34
FIGURE 2. 12 RESEARCH MODEL OF THE STUDY BY ALDAS-MANZANO ET AL., (2011: 1176). 35
FIGURE 2. 13 RESEARCH MODEL OF THE STUDY BY ALALWAN ET AL., (2014: 7) 36
FIGURE 2. 14 RESEARCH MODEL OF SUSSMAN AND SIEGEL (2003: 52) 48
FIGURE 2. 15 RESEARCH MODEL OF THE STUDY BY BHATTACHERJEE AND SANFORD (2006:811). 49
FIGURE 2. 16 THE RESEARCH MODEL OF THE STUDY BY CHEUNG ET AL, (2008:233) 50
FIGURE 2. 17 THE RESEARCH MODEL OF THE STUDY BY TSENG ET AL, (2015: 2291) 51
FIGURE 2. 18 THE RESEARCH MODEL FOR THE STUDY BY CHUNG ET AL (2015: 908) 51
FIGURE 2. 19 THE RESEARCH MODEL FOR THE STUDY BY LI AND KU (2011:3) 52
FIGURE 2. 20 THE RESEARCH MODEL FOR THE STUDY BY ALARIFI ET AL., (2015: 7) 53
FIGURE 2. 21 THE RESEARCH MODEL FOR THE STUDY BY CHEUNG ET AL., (2012: 621). 54
FIGURE 2. 22 RESEARCH MODEL OF THE STUDY OF (ANGST AND AGARWAL' STUDY, 2009: 345). 55
FIGURE 2. 23 RESEARCH MODEL FOR THE STUDY BY LEE (2012: 1164) 56
FIGURE 2. 24 RESEARCH MODEL FOR THE STUDY BY ZHA ET AL, (2016: 290) 57
FIGURE 2. 25 RESEARCH MODEL FOR THE STUDY BY YANG ET AL, (2006: 436) 58
FIGURE 2. 26 RESEARCH MODEL FOR THE STUDY BY YANG (2016: 53) 59
FIGURE 2. 27 RESEARCH MODEL FOR THE STUDY BY PEE (2012: 4). 60

FIGURE 2. 28 RESEARCH MODEL FOR THE STUDY BY SHIH ET AL, (2015: 8) 61
FIGURE 2. 29 RESEARCH MODEL FOR PEE AND LEE (2016: 27).....62
FIGURE 2. 30 RESEARCH MODEL FOR BANSAL ET AL, (2015: 628).....63
FIGURE 2. 31 RESERCH MODEL OF ZHOU (2012: 1520).....64
FIGURE 2. 32 REASONS FOR NOT USING MOBILE BANKING SERVICES. 65
FIGURE 3. 1 PROPOSED RESEARCH MODEL. 74
FIGURE 4. 1 RESEARCH DESIGN. 88
FIGURE 5. 1 KAISER–MEYER–OLKIN MEASURE OF SAMPLING ADEQUACY (KMO) TEST 125
FIGURE 5. 2 FINAL FRAMEWORK SUPPORTED BY EMPIRICAL RESULTS OF RESEARCH HYPOTHESES.....139

Chapter 1 : Introduction

1.1 Introduction

Despite the claimed benefits of the mobile banking system, its acceptance is still lower than the expectations of the industry (Febraban, 2015; Luo et al., 2010; Kim et al., 2009; Lee et al., 2007). One possible explanation is the lack of trust in this service (Luo et al., 2010; Kim et al., 2009; Gu et al., 2009). In addition, although mobile banking is a clear and emerging channel in the space of the banking system, the user's lack of confidence in the privacy and security of this service is a key challenge that affects the adoption of it (Bharti, 2016; Islam, 2014; Pegueros, 2012; Zhou, 2012). There is growing evidence that concerns about the security of mobile banking is an important issue for customers, because transactions through the mobile banking application require sensitive information, and money is involved. Obviously, users will not trust this service if they do not consider it safe and secure.

Although existing studies have examined the antecedents of trust in the mobile banking service and revealed the role of trust in customer behaviour in this context (Malaquias and Hwang, 2016; Chemingui and Ben lallouna, 2013; Oliveira et al., 2014; Lee and Chung, 2009; Gu et al., 2009; Kim et al., 2009; Zhou, 2011; Liu et al., 2009; Kim, Shin, & Lee, 2009; Lin, 2011), there is typically limited discussion about the impact of persuasive messages. This includes information about privacy and security policies in the mobile banking system, and how these can affect trust in the system, and how privacy and security concerns play a role in the persuasion process. There is very little analysis of the effect the quality of the argument has on trust in the mobile banking service. Also, very little is known about whether privacy and security concerns can play positive moderating roles in this persuasion process. In particular, this study attempts to build a complete understanding of the mechanisms that can develop trust formation in the mobile banking system, with the consideration of privacy and security concerns as moderators. To achieve this aim, a framework built on the Elaboration Likelihood Model (ELM), which is one of the most widely used theoretical frameworks to explain how peoples 'attitude is affected by persuasive messages, has been extended and tested.

The result of this study is important for mobile banking managers. It may be used to increase trust in this service, which would provide benefits to users and banks alike.

The next sections outline the PhD thesis. Section 1.2 presents the research background and research problem. Section 1.3 explains the main aim and the objectives of the thesis. Section 1.4 provides details about the research methodology. Section 1.5 presents the context of the study. Section 1.6 presents the contribution, and section 1.7 presents the thesis structure.

1.2 Research background and research problem

The Internet revolution has greatly changed banking services with regard to the diversity of these services and how they are delivered to users (Lee and Chung, 2009). In other words, the Internet has significantly affected the processes implemented by banks. It has changed from branch offices to cash dispensers (CDs), ATMs, phone banking, internet banking and mobile banking (Lee and Chung, 2009). Nowadays, with mobile banking services, customers can conduct banking services anywhere and whenever they want. They can connect to banking services easily and quickly (Gu et al., 2009). However, despite the claimed benefits of this service, its acceptance is still less than the expectations of the industry (Kim et al., 2009; Luo et al., 2010, Lee et al., 2007). One reasonable explanation is the lack of trust in this service (Kim et al., 2009; Luo et al., 2010; Gu et al., 2009).

Although some existing studies have examined the antecedents of trust in mobile banking services, and have revealed the role of trust in customer behaviour in this context (Lee and Chung, 2009; Gu et al., 2009; Kim et al., 2009; Zhou, 2011; Liu et al., 2009; Kim, Shin, & Lee, 2009; Lin, 2011), there is typically limited discussion about how persuasive messages, which includes information about privacy and security policies, can affect trust in mobile banking services. Knowing the variables that determine the development of trust in the mobile banking service context is crucial to develop successful tools to improve the consumption of this service.

In particular, this study extends and tests a model based on the Elaboration Likelihood Model (ELM) (Petty and Cacioppo, 1986). This model tests the effect of argument quality, source expertise and trustworthiness on trust. Although the research on online trust formation have tested the impact of an argument's quality and source credibility on trust (Pee, 2012; Kim and Benbasat, 2009), their respective effects have been tested separately. Consequently, the overall impact of the results has been limited to date (Mun et al., 2013). When evaluating information online, these variables cannot exist in isolation from one another. Thus, it is essential to test the

effect of all these factors together in the light of the trust formation process (Mun et al., 2013). There is a growing body of studies that recognise the importance of joining these factors together and explaining how the characteristics of the source, and its credibility, and the quality of the argument in an informational message, contribute together to form a trust structure on the website (Mun et al., 2013) via an effective persuasion strategy.

Additionally, while trust has been considered a central aspect of successful mobile banking systems, privacy and security concerns are considered the top-ranking obstacle to building trust in this system. Considering the high level of perceived risk, it is critical for mobile banking managers to reduce the effect of these concerns and foster users' trust to increase the adoption of this service. Also, there is growing evidence that concern about the security of mobile banking is an important issue to customers; after all, a transaction through a mobile banking application requires sensitive information and the customer's money is involved. Thus, users will not trust this service if they do not consider it to be safe and secure. Accordingly, although the mobile banking system is a clear and emerging new channel in the space of banking systems, the user's lack of confidence in the security of this system is a key challenge in increasing its adoption (Pegueros, 2012; Zhou, 2012).

There is growing confirmation that privacy and security concerns around the mobile banking system are important issues. For example, networks of mobile devices are vulnerable to hacker attacks, along with viruses. These problems increase privacy and security concerns around this service and decrease the level of trust in it (Zhou, 2012). A report by the Financial Advisory Firm KPMG shows that just 27% of consumers in the UK said they have used mobile banking services during the last six months, compared with 52% globally. Moreover, this report shows that 66% of consumers said that they fear their credit card details would be intercepted and stolen, while 62% were concerned that intruders could gain access to their personal information (Knowthenet.org.uk/n.d. 2014). According to a Deloitte report (2014) "Of those respondents who do not regularly use mobile devices for financial services, 61 percent cited security issues as the prime reason''. Therefore, users will not trust the system if they do not consider it safe and secure. Similarly, MEF's fourth Global Consumer Survey found that mobile privacy is one of the biggest concerns for today's mobile banking users and remains the main obstacle to growth (Kenya king of mobile banking, 2014).

While existing studies have identified the antecedents to trust and their direct effect on trust, it is still not clear how persuasive messages can change the trust of users in mobile banking, and how privacy and security concerns play a role in the persuasion process. There is very little analysis of the impact of an argument's quality on trust in mobile banking services. Also, very little is known about whether privacy and security concerns can play positive moderator roles in this persuasion process.

In particular, this study is an attempt to build up a complete understanding of the mechanisms involved in trust formation in the mobile banking system. Knowing the factors that help in improving the trust development process with regard to this system, is crucial in developing active tools to improve the consumption of this system. Therefore, this study aims to explain the persuasion process in order to increase trust in this service with regard to the consideration of privacy and security concerns. This should naturally lead to mobile banking managers sending persuasive messages to their users to mitigate their security and privacy concerns.

Although Bansal et al. (2008) tested the effect of privacy concerns as a moderator between argument quality (privacy policy statement) and trust, this hypothesis has not been supported in the finance sector. They explain that by showing how building trust in a sensitive context requires something more than just the adequacy of the privacy policy statement. Accordingly, to ensure a positive moderating role concerning privacy concerns, researchers should not include only the privacy policy in the informational message to play a sufficient role in building trust. Moreover, the study by Bansal et al. (2008) does not tap directly into how argument quality and source credibility can affect trust, and it does not examine the moderating role of security concerns.

To fill this gap, the researcher has set out to observe and explain the trust formation process for the mobile banking service using Elaboration Likelihood Model (ELM) as a theoretical base, and the role of privacy and security concerns as moderators. This study extends the ELM theory by empirically establishing a link between argument quality, source expertise and trustworthiness as independent variables, and trust in mobile banking as the dependent variable, as well as examining the effect of privacy and security concerns as moderators.

Due to the strong empirical support for the descriptive influence of ELM in many different contexts, ELM has been applied in this study. Accordingly, this study offers an exciting

opportunity to advance our knowledge of the trust formation process and help managers to develop stronger tools in building trust, especially for users who have privacy and security concerns. In particular, built on ELM, this study tests the impact of argument quality, trustworthiness and source expertise on trust. It applies security and privacy concerns as moderators to test if they affect the relationship between argument quality and trust.

ELM is one of the most widely used theoretical frameworks for explaining how attitude is affected by persuasive messages. ELM provides a useful theoretical lens in this study. It is one of the most popular persuasive message models (Petty and Cacioppo, 1986). ELM suggests that there are two different routes which affect attitude change among users. The first one is the central route; users will develop their attitude through this route when they have the ability and the motivation to do so (Petty et al., 1981; Petty and Cacioppo, 1986). The second one is the peripheral route; users will develop their attitude through this route when they have low ability or low motivation (Petty et al., 1981). Petty and Cacioppo (1986) state that users in the high elaboration likelihood state (based on privacy and security concerns, in this case) are more persuaded by the argument quality of an informational message (cited by Bansal et al., 2008). Hence, this study examines the moderation roles of privacy and security concerns, which represent the elaboration. This reveals the trust development process.

1.3 Research Questions

While trust is considered a key element of a successful mobile banking system, privacy and security concerns are undoubtedly considered a significant obstacle to the adoption of this system. Due to the high perceived risk, it is critical for managers of mobile banking systems to reduce the effect of these concerns and foster users' trust in order to increase the adoption of this service. Although existing studies have examined the antecedents of trust in mobile banking service and revealed the role of trust in customer behaviour in this context (Malaquias and Hwang, 2016; Chemingui and Ben lallouna, 2013; Oliveira et al., 2014; Lee and Chung, 2009; Gu et al., 2009; Kim et al., 2009; Zhou, 2011; Liu et al., 2009; Kim, Shin, and Lee, 2009; Lin, 2011), there has been limited discussion about how persuasive messages affect trust in this system, and how privacy and security concerns play a role in this persuasion process. Drawing on the Elaboration Likelihood Model (ELM), this research addresses the following two research questions:

1- How do argument quality, trustworthiness and the source expertise of persuasive messages affect trust in the mobile banking system?

2- How far do privacy and security concerns play a moderating role in this persuasion process?

1.4 Aims and objectives

This study aims to critically advance our knowledge in the field of mobile banking systems by explaining how persuasive messages can change users' trust in mobile banking services, and how privacy and security concerns play a role in the persuasion process. The proposed research framework integrates the main variables from online banking and mobile banking research streams into the theoretical frame of the ELM. The findings of this research study are expected to contribute to the literature on information systems in general, and in the mobile banking context in particular. **The present study aims to achieve the following objectives**:

- To conduct a comprehensive review of the related theoretical models used in the context of information systems in general, and in mobile banking in particular.
- To define and extend the theoretical framework, including explaining the persuasion process, in order to increase trust in mobile banking with the consideration of privacy and security concerns based on ELM as a foundation.
- To empirically evaluate the proposed conceptual framework.
- To clarify the theoretical contribution of the research and the practical implications of the findings.

1.5 Research methodology

Built on the literature review and past studies, this study has developed a theoretical framework. Based on this framework, the hypotheses of the study were developed. The data was collected using a questionnaire survey. Therefore, a quantitative approach has been adopted to empirically examine the hypotheses in the proposed framework, as this method is consistent with the research topic.

Concerning a positivistic approach, Bryman and Bell (2011) state that the normal process is to deduce and test the hypothesis from the theory by reviewing the literature. Therefore, this

study falls within the area of a quantitative methodological approach rather than qualitative, because the hypotheses have been formulated after reviewing the literature, and tested by using data collected from a questionnaire.

Additionally, this study has followed the same process for quantitative research suggested by Bryman and Bell (2011), who state that the process of quantitative research should be as follows: Elaborate theory, devise hypothesis, select research design, devise measure of concepts, collect data, process data, and analyses data, develop findings/conclusion and finally, write up findings/ conclusion.

For this study, a questionnaire using five-point Likert type scale, ranging from (1) strongly disagree to (5) strongly agree, was developed. An initial version of the survey instrument was subsequently refined through extensive pre-testing with 30 PhD students at Brunel University. All of them have used mobile banking at least one time during the past three to six months. Accordingly, the questionnaire was revised based on the recommendations of these respondents. The instrument was further pilot tested with 38 mobile banking users. This test resulted in a significant degree of reforming of the questionnaire tool, as well as establishing the initial face reliability and validity of the measures.

In this research, 950 questionnaires were distributed, and 380 questionnaires were returned, therefore the response rate is 40% of the original sample. However, 22 responses were discarded because eight respondents mentioned that they had never used mobile banking services before; five responsesgave all the same answers in the questionnaire; four participants left the questionnaire completely blank, and five questionnaires answered only some questions. Thus, 358 questionnaires remained. For the main data analysis, the researcher used only the remaining questionnaires.Thus , the final response rate in this research is 37.68%.

In the main data analysis, the statistical package for social sciences (SPSS) V.20 was used to deal with all the different tests.

1.6 Context of the study: UK

The UK was selected as the context for data collection. As this study focuses on trust in mobile banking services, the research model has been tested using information provided on the HSBC bank website (hsbc.co.uk). HSBC has started to provide a mobile banking app for users. Using

the mobile banking app, users can use the bank's services easily and quickly and whenever they want.

1.7 Contribution

Although existing studies have identified the antecedents to trust and their direct effect on it, very little is known about how persuasive messages change users' trust in mobile banking, and the role of privacy and security concerns in this persuasion process. Therefore, more empirical research about how persuasive messages change trust is needed. In addition, this study makes several different contributions.

From a theoretical viewpoint, this research has applied ELM to test users' trust formation with regard to mobile banking services, and the roles of privacy and security concerns as moderators. As noted earlier, the process of trust development has seldom been explored. However, there are a growing number of researchers that recognise the importance of understanding this process. The results of this study indicate that trust is built through argument quality (Central route) and through trust worthiness (peripheral route). This advances our understanding of trust development.

Furthermore, this study has extended the application of the elaboration likelihood method to include both privacy and security concerns. This thesis is the first to examine in more detail the moderating influence of security concerns on the way argument quality promotes trust in mobile banking services. This finding adds to the literature on trust by revealing the influence of level of security concerns. Moreover, previous studies have used only privacy policy as an argument in an informational message, whereas in this study the researcher has included both privacy and security policies as an argument in an informational message.

From a managerial viewpoint, the results of this study imply that mobile banking managers need to pay more attention to both routes, which are the central and the peripheral routes, to foster users' trust in the mobile banking system. On the one hand, they have to establish a trustworthy image for this service (peripheral route). In addition, mobile banking managers should pay attention to the argument's quality (central route). They can use strength strategies to inform customers about significant information.

Managers can also enhance the role of the first route by concentrating on the positive moderating roles of privacy and security concerns. Managers can inform users through

different types of persuasive strategies that a controlling mechanism exists to manage the privacy and security of the system. This will help in the trust development process.

Overall, by understanding these information processing routes, mobile banking managers can use this knowledge to persuade users to trust their service. However, not all information is equally effective in shaping users' attitudes toward the service. For users who have privacy and security concerns, mobile banking managers should update those users with appropriate information with regard to the privacy and security practices of the service to persuade those users. As a result, those users should be prepared to carefully read the information provided, and they will be more willing to trust and use the service.

Consequently, by using a strength argument, managers are able to build trust in mobile banking for customers with privacy and security concerns. Once customers have been informed about the privacy and security policies of mobile banking, they should trust and use the service. Therefore, greater efforts should be made to inform customers about the privacy and security of this service.

1.8 The structure of the thesis

This section describes the thesis structure. It contains seven chapters, and the references and appendices are presented at the end. Chapter One introduces the theoretical background and research problem, the aims and objectives, research methodology, context of the study, the theoretical and practical contributions, and the structure of the study.

Chapter Two discusses the theoretical models used in information systems and mobile banking. It provides different definitions of trust. Moreover, this chapter reviews the studies on trust in online environments (e-commerce, m-commerce, online banking and mobile banking). It reviews previous studies that have been applied in the field of the adoption of information systems and mobile banking systems. This chapter provides a summary of the existing literature and models that are related in general to trust in IS, and to trust in mobile banking in particular. It reviews the academic literature in the areas of trust. In addition, this chapter provides more details about the Elaboration Likelihood Model (ELM), as this model is utilised in this research study. Finally, this chapter contains reviews of previous studies on ELM and trust in information systems.

Chapter Three presents the conceptual framework of trust in mobile banking from the perspective of ELM and privacy and security concerns as moderators. This research framework describes the five hypotheses of this study to be tested and analysed in the following chapters.

Chapter Four presents the methodology used in this study. It describes the procedure of collection and analysis of the data. The data collection section describes the data collection, sample selection, development of the survey questionnaire, measurement scales, pre-test and pilot study. Then, the reliability and the validity of the tests are explained. Finally, it provides more details about the data analysis process.

Chapter Five presents the findings and analysis of the main questionnaire survey using different analysis tools. It explains data management and screening, the characteristics of demographics and relationships, factor loading and regression analysis. Finally, this chapter presents the results of testing the hypotheses.

Chapter Six discusses the findings of this study. Chapter Seven presents the theoretical contribution and practical implications of the study, its limitations, future research and final conclusions.

This chapter has explained the research background and the research problem; the main research aim and objectives; methodology applied in this study, and the context of the study. It has also outlined the structure of this thesis. The next chapter contains a review of the literature which is related to the topic of this study.

Chapter 2 : Literature Review

2.1 Introduction and chapter structure

The Internet revolution has deeply changed banking services in terms of the variety of these services and how they are delivered to users (Lee and Chung, 2009). By using mobile banking, users can access different payment services, such as enquiring about account balances, transferring money, payment of bills, and financial management. Since the introduction of information systems, information system managers have been interested in the factors that lead users to trust and use the service. Understanding these factors is important for system managers as it will provide them with a strategy that could assist in building trust in this system and enhancing the use and acceptance of it. Building and sustaining a good relationship between users and providers of this service will create effective tools to improve the adoption of it. To understand users' trust and acceptance of information systems, researchers have developed and applied different theoretical models, including: the Technology Acceptance Model (TAM), the Theory of Planned Behaviour (TPB), and the Theory of Reasoned Action (TRA). According to these theories, attitude affects the intention to use these systems. TAM focuses on the usage of the information system. Very few studies in this field have applied the Elaboration Likelihood Model (ELM), even though it is one of the most widely used theoretical frameworks for explaining how peoples' attitudes are affected by persuasive messages.

In this chapter, in section 2.2, the theoretical models applied in information technology systems are briefly reviewed. Section 2.3 focuses on the definition of trust. Section 2.4 reviews the studies on trust and the online environment (e-commerce, m-commerce, online banking and mobile banking). It reviews the studies that have been applied in the field of information systems, and the adoption of mobile banking. Moreover, this section provides an overview of the existing literature and models that are related to trust in information system and mobile banking. Section 2.5 reviews the literature on the Elaboration Likelihood Model (ELM) because the theoretical research framework of this study is based on it. In addition, this section reviews the previous studies that have applied ELM and trust in information systems. Finally, section 2.6 forms the conclusion of this chapter.

2.2 Theoretical models used in Information Systems

To understand the factors affecting the acceptance of information systems, researchers have developed and applied different theoretical models, including: The Theory of Reasoned Action (TRA), the Theory of Planned Behavior (TPB), the Technology Acceptance Model (TAM) and the Elaboration Likelihood Model (ELM). The following sections briefly discuss these theoretical models.

2.2.1 Theory of Reasoned Action (TRA)

This theory was developed by Fishbein and Ajzen (1975). It is a well-known social psychological theory. This model explains the determinants of intended behaviours. The key aim of TRA is to explain the behaviour of individuals (Ajzen and Fishbein, 1980). It explains that the behaviour of people is usually rational. People will systematically evaluate the existing data to perform a given behaviour. Figure 2.1 presents the model of this theory (TRA).
This model defines the relationship between beliefs, subjective norms, attitudes, behavioral intention and actual behaviour. Actual behaviour is influenced by intention to use.

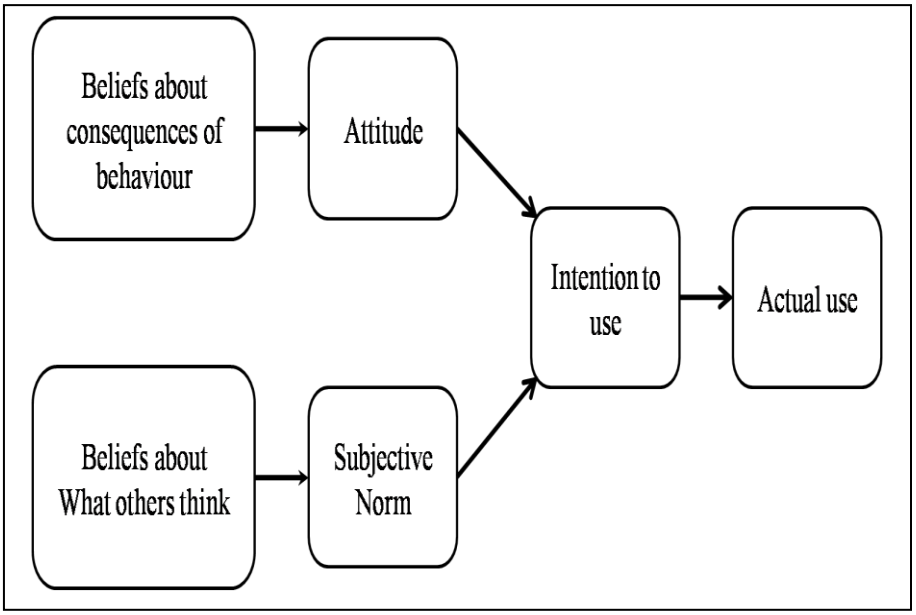


Figure 2. 1 TRA (Fishbein and Ajzen, 1975)
Source: Chandio (2011).

In other words, subjective norms and attitudes affect behavioural intention, which predicts the actual behaviour. So, TRA contains two main constructs: attitude and subjective norms. The first one “refers to an individual’s specific beliefs related to the object” (Bagozzi and Burnkrant, 1985, Cited by Yang and Yoo, 2004, p. 21). The second one (as Dillon and Morris, 1969, state) refers to "the person's perception that most people who are important to him think he should or should not perform the behavior in question" (cited by Teo and Pok, 2003, p. 484).

Although TRA has been widely applied and used in different academic disciplines to explain intention and actual behaviour (Davis et al., 1989), this theory has many limitations, especially when it is used in specific disciplines (Davis et al., 1989). It is a general behavioural theory. It does not clarify what the effective beliefs, operative for a specific behaviour, are (Davis et al., 1989). Moreover, when an individual has low levels of volitional control, TRA cannot be used to predict this case (Ajzen, 1985). To deal with these limitations of TRA, Ajzen (1991) extended it to a new theory which is named the Theory of Planned Behavior (TPB). The next section discusses this theory.

2.2.2 Theory of Planned Behaviour (TPB)

The Theory of Reasoned Action (Fishbein and Ajzen, 1975) has been extended by Ajzen (1991) to become the Theory of Planned Behaviour (TPB). Both of them assert that behaviour is a direct function of intention (Shih and Fang, 2004). Similar to TRA, the Theory of Planned Behaviour suggests that intention to use is affected by both attitude and subjective norms, as presented in Figure 2.2 However, Ajzen (1991) explains that another construct should be added to this theory, which is Perceived Behavioural Control (PBC). This is to account for situations where users lack complete control over their behaviour (Shih and Fang, 2004). PBC refers to the beliefs of people concerning control weighted by the perceived facility, that is, the efficacy of the control construct in facilitating the behaviour (Shih and Fang, 2004).

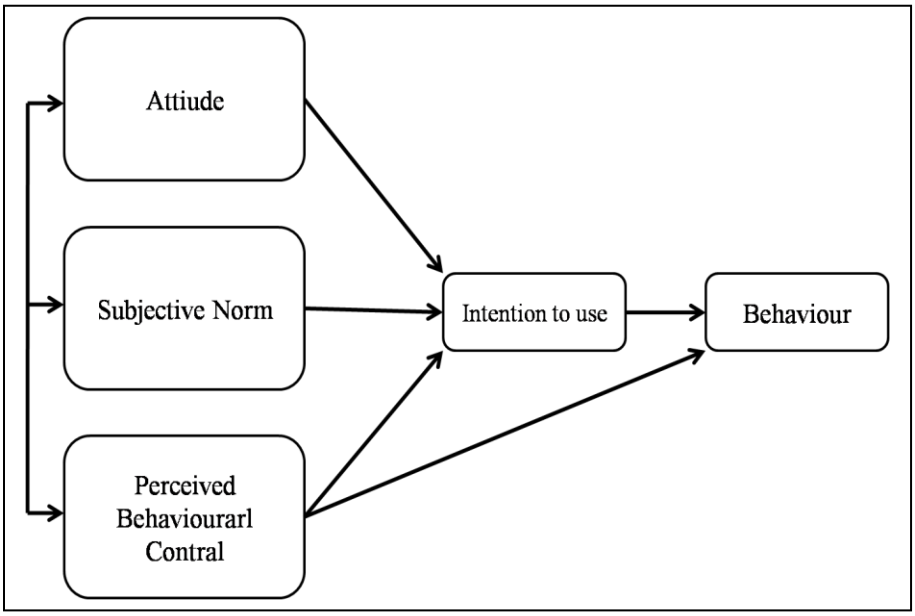


Figure 2. 2 Theory of Planned Behaviours (TPB: Ajzen. 1991)

This theory is a social psychology model, which suggests that subjective norms, attitudes and (PBC) constructs affect intention to use and the actual behaviour. Therefore, attitudes, subjective norms, and PBC highly predict the intention to perform behaviours of different types (Ajzen, 1991). The core constructs of the definition included in the TPB can be found in Table 2.1. Both intention and the perceptions of behavioural control affect actual behaviour. In particular, TPB assumes that the PBC construct has link with both intentions and actual behaviour. It is clear that the main difference between TRA and TPB is the construct PBC, which was added by Ajzen (1991). This construct has a direct effect on actual behaviour and an indirect effect through intention to use, as seen in Figure 2.2. This construct is considered to be a key predictor of intention and actual behaviour (Taylor and Todd, 1995).

Many studies have used the TPB in different ways to analyse the performance of intention to use and actual behaviour. Together, these studies indicate that TPB is empirically supported (Ajzen, 1991; Mathieson, 1991). Moreover, Chang (1998) has demonstrated that the theory of planned behaviour is more powerful in the prediction of actual behaviour than the Theory of Reasoned Action.

Table 2. 1 Definitions of the core constructs included in the TPB

Core Constructs	Definition	Author
Behavioural Intention	Refers to "Intention to engage in a behavior is determined by an individual's attitude toward that behavior".	(Ajzen and Fishbein 1980, Cited byBock et al., 2005, p. 91)
Attitude	"Refers to an individual's specific beliefs related to the object".	(Bagozzi and Burnkrant, 1985. Cited by Yang and Yoo, 2004, p. 21)
Subjective Norm	"Refers to individual's perception of social pressure to perform or not to perform the behavior".	(Dillon and Morris, 1969) (Cited by Teo and Pok, 2003, p. 484).
Perceived Behavioural Control	"The person's belief as to how easy or difficult performance of the behaviour is likely to be"	Ajzen and Madden, 1986, p. 457)

Source: Developed by the researcher

2.2.3 Technology Acceptance Model (TAM)

TAM is an edition of the theory of reasoned action (TRA) (Lee, 2009). TRA proposes that intention directly affects the actual behaviour, and both attitude and subjective norms affect intention to use. TAM suggests that perceived ease of use and perceived usefulness are two important constructs for determining the use of a system in an organisation (Cheng et al., 2006) - see Figure 2.3. These two constructs predict system use better than other constructs. While "perceived usefulness reflecting a person's salient belief in the use of the technology will be helpful in improving performance", "Perceived ease of use is a person's salient belief that using the technology will be free of effort" (Taylor and Todd, 1995, cited by Lee, 2009, p. 131).

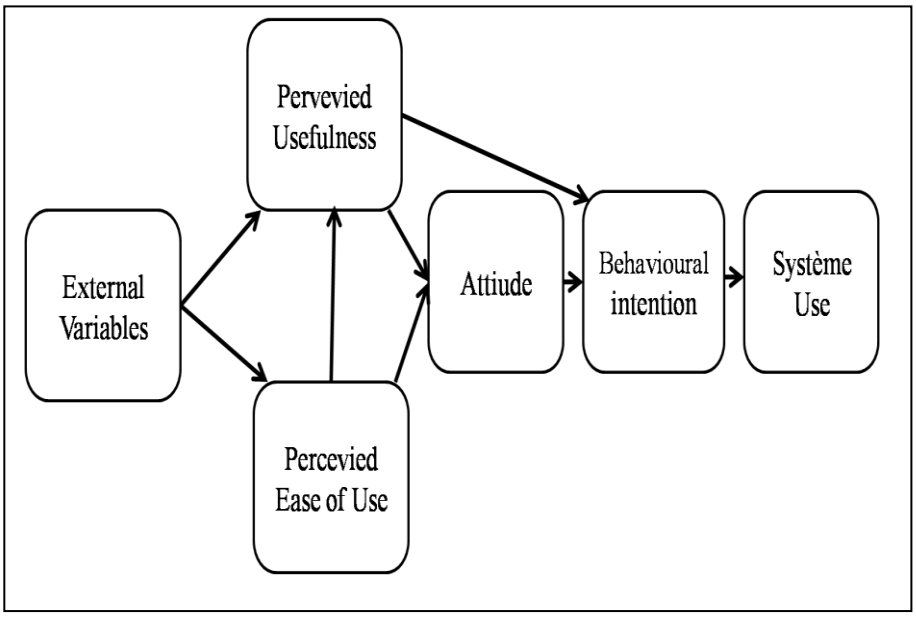


Figure 2. 3 Technology Acceptance Model (Davis, 1989)

Davis (1989) developed the TAM for modelling consumer acceptance of IT. This theory suggests that customers' adoption of an information system depends on their behavioural intention to use it. Attitude, which affects intention to use, involves two beliefs, which are perceived ease of use and perceived usefulness (Cheng et al., 2006). Different studies have applied TAM. It has become a widely used model for predicting the acceptance of internet systems, E-commerce adoption and online banking adoption (Cheng et al., 2009; Lee, 2009; Lederer et al., 2000; and Moon and Kim, 2001). Most of these studies empirically support TAM.

While these models identify the antecedents of attitude, intention and actual behaviour, we still do not know how persuasive messages change the attitude of users in information systems in general, and in mobile banking in particular. Therefore, this study aims at explaining the persuasion process to increase trust in mobile banking by applying the Elaboration Likelihood Model (ELM), which is one of most widely used theoretical frameworks, to explain how peoples' attitudes are affected by persuasive messages. This model is discussed in the next section.

2.2.4 Elaboration Likelihood Model (ELM)

This model offers a suitable theoretical lens for this study. It is one of the most common persuasive models (Petty & Cacioppo, 1986). ELM clarifies why a certain influence process may give different results (Li, 2013). According to ELM, two routes of influence cause attitude change among individuals. These two routes are called the central route and the peripheral route (see Figure 2.4). The chief difference between the two routes is the extent to which cognitive elaboration of, or active thinking about, the argument(s) takes place (Mun et al., 2013). A person who depends on the central route tends to think judgmentally about informational arguments in a persuasive message before developing an informed judgment about the target behaviour (Bhattacherjee and Sanford, 2006). So, attitude change arises from a person's consideration of information, which reflects what that person feels are the true merits of a certain position (Petty and Cacioppo, 1984). If the arguments of the message are found to be compelling, favourable thoughts will be generated that will result in an attitude change in the direction of advocacy (Petty and Cacioppo, 1984).

Additionally, ELM confirms that attitude is directly affected not only by argument quality but also by peripheral cues (Bhattacherjee and Sanford, 2006). The peripheral route relates to information about the message, like the message source (Bhattacherjee and Sanford, 2006). Bhattacherjee and Sanford (2006) argue that peripheral cues include the number of messages, source likeability, and source credibility. However, source credibility is one of the more frequently referenced cues (Bhattacherjee and Sanford, 2006; Lowry et al., 2012).

Argument quality

Argument quality is a strong determinant of persuasion and attitude change (Petty and Cacioppo, 1986). ELM suggests that many different factors, including argument quality, affect

the persuasion process. Moreover, the central route is normally operationalised as argument quality. It refers to the credibility of arguments in a message. By applying ELM, Make et al., (1997) found that users who had high involvement were influenced by argument quality. By reviewing ELM studies, it can be clarified that the central route of attitude change is typically operationalised by using argument quality (Bhattacherjee and Sanford, 2006**).**

Source credibility

Sussman and Siegal (2003), state that source credibility does not refer to the message itself. It relates to the information about the message such as the message source. Research has shown when the source of a message is perceived as credible, individuals are more likely to be persuaded by this message (Wilson and Sherrell, 1993). The current study shows that the credibility of a message source has a direct effect on the persuasiveness of the message (Eisend, 2006). Sussman and Siegal (2003) define source credibility as "the extent to which the recipient of the information perceives an information source as believable, competent, and trustworthy" (Cited by Bhattacherjee and Sanford, 200, p 811). Different studies have used this cue according to the ELM literature (e.g., Petty et al., 1981; Sussman and Siegal 2003; Bhattacherjee and Sanford, 2006).

To conclude, users with high abilities and motivation follow the central route to develop their attitude. On the other hand, users with low ability or motivation follow the peripheral route. ELM states that users in the high elaboration likelihood state (privacy and security concerns, in this case) are more influenced by the argument quality of an information message (Petty and Cacioppo 1986, cited by Bansal et al., 2008).

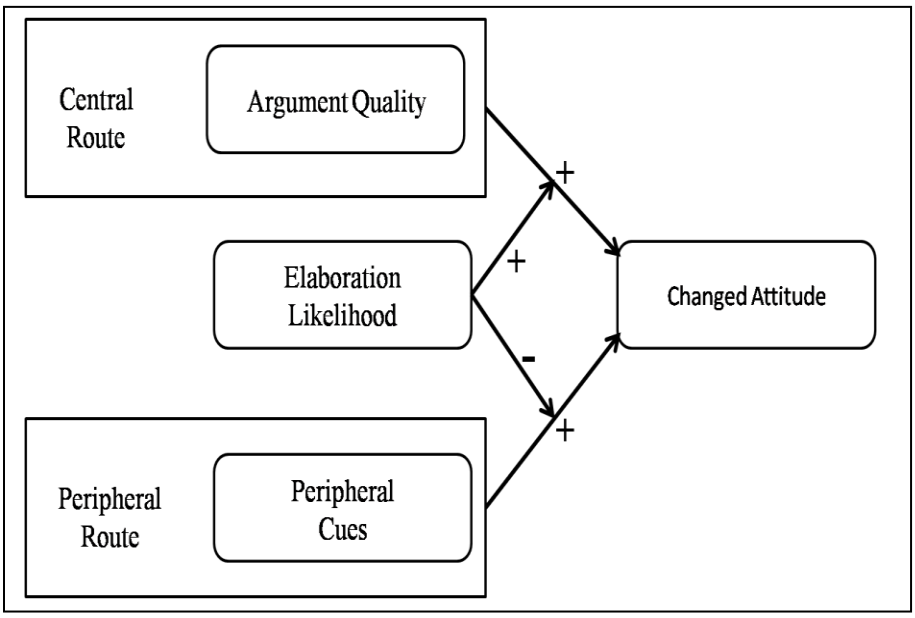


Figure 2. 4 Elaboration Likelihood Model.
Source: Bhattacherjee and Sanford (2006).

2.3 What is trust?

This section reviews and links some of the broader definitions of trust. Some of these definitions are deemed to have particular relevance to the context of e-commerce, m-commerce, online banking and mobile banking. This leads to a conceptual definition of trust for this study.

Definition of trust

Trust has been a topic in many different domains, such as psychology, management, marketing, political science, communication and information systems. However, the definition of trust, offline or online, has many different understandings by researchers, as trust has been examined from different perspectives.

Mayer et al. (1995) define trust as "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or, irrespective of the ability to monitor or control that other party" (p.712).

Morgan and Hunt (1994), mention that "trust exists when one party has confidence in an exchange partner's reliability and integrity" (Cited by Kwon and Suh, 2005, p.27). Similarly,

Rousseau et al. (1998), define trust as "a psychological state comprising the intention to accept vulnerability based upon positive expectation of the intentions or behavior of another" (p. 395). In the context of e-Commerce, Gefen (2000) defines trust as a single dimension construct. He describes it as the willingness to make an online transaction where there is a risk situation. Ba and Pavlou (2002) define trust as the subjective assessment of one party that another party will do the transaction according to his or her confident expectations, in an environment dominated by uncertainty (p. 245). According to Kim et al. (2008), consumer trust in online vendors can be defined as follows: "as a consumer's subjective belief that the selling party or entity will fulfill its transactional obligations as the consumer understands them" (p.2). Consumer trust in online vendors includes trust in the website, the website brand, and the firm as a whole.

Similar to these studies, Yousafzai et al. (2003) define trust in online banking as "a psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer's ability to monitor or control bank's actions" (p.849). These definitions of trust are summarised in Table 2.2.

Since the transaction through mobile banking applications (App) requires sensitive information, and money is involved, customers will not trust and use this service if they are not willing to be vulnerable to the actions of the mobile banking App, and do not expect that the mobile banking App will fulfil its obligations. For that reason, this study will follow Yousafzai et al. (2003) regarding the definition of trust in online banking to be the same for mobile banking. This definition highlights some important points common to online banking and mobile banking: a) It is a psychological state; b) This state leads to the willingness of the customer to take risks by performing banking transactions online; c) This willingness depends on a certain expectation that the bank will fulfill its obligations.

Table 2. 2 Summary of the broader definitions of trust in previous studies

Study	Definition of trust
Mayer et al. (1995, p. 712)	Trust is "the willingness of a party to be vulnerable to the actions of another party based on the expectation that the other will perform a particular action important to the trust or, irrespective of the ability to monitor or control that other party".
Morgan and Hunt (1994)	"When one party has confidence in an exchange partner's reliability and integrity''. (Cited by Kwon and Suh, 2005, p.27).
Rousseau et al. (1998)	Trust is a "psychological state comprising the intention to accept vulnerability based upon positive expectation of the intentions or behavior of another" (395).
Gefen (2000)	He defined trust as a single dimension construct. He described it as the willingness to make an online transaction where there is a risk situation
Ba and Pavlou (2002)	Defined trust as the subjective assessment of one party that another party will do the transaction according to his or her confident expectations, in an environment

	considered by uncertainty.
Yousafzai et al. (2003)	"Defined trust in online banking as "a psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer's ability to monitor or control bank's actions" (p. 849)
Kim et al. (2008, P.2)	"An online consumer's trust is defined as consumer's subjective belief that the selling party or entity will fulfil its transactional obligations as the consumer understands them".

2.4 Trust and the online environment

"There is increasing research evidence that trust is a salient factor in determining many relationships effectiveness" (Zand, 1972: P. 229). Many different disciplinary studies have addressed trust, including economic, managerial/organisational and technological (Kim et al., 2013). Different studies have considered trust to be the main catalyst in many different transactions, especially in online transactions. Kim et al. (2008) state that trust is even more important in online businesses than it is in traditional businesses. This is because of some of the features of online businesses, for example, they are blind and borderless. While trust used to be concentrated on face to face personal relationships, in an online business, Kim et al. (2013) explain that trust is focused much more on transaction processes. Therefore, the key success in online commerce is the building of a trusted environment.

The difference between online business and face to face business is the distant and impersonal nature of online business, which increases worries about opportunism arising from items and identity ambiguity. This makes trust an important issue in online business (Yousafzai et al.,

2003; Kim et al., 2008). Users will not be willing to purchase online if they do not trust that the online companies are able to deliver products of good quality.

Many different studies have used the construct of trust in various contexts. Recently (from the late 1990s), trust has been applied in the online environment to explain the relationship between the seller and the buyer in this context.

Lin and Wang (2006) found that trust affects customer loyalty in the mobile commerce context, and customer satisfaction plays an important role in the relationship between perceived value, and trust and loyalty. They discovered this having developed a questionnaire and collected data from 255 users of m-commerce systems in Taiwan. They analysed the data by applying Structural Modelling Techniques.

Schierz et al. (2010) performed an empirical analysis to understand the acceptance of mobile payment services by using a survey that was conducted in Germany. Their results show that compatibility, individual mobility, and subjective norms are crucial factors in the use of mobile payment services.

Drawing on the literature on marketing and information systems (IS), Hajli (2015) has proposed a new model to develop an understanding of social commerce, using a PLS-SEM methodology to test the model. The findings show that consumers use social commerce constructs for these activities, which in turn increases trust levels in this service and intention to buy.

In the E-commerce context, Gefen (2000) examined the relationship between familiarity and trust during purchasing books from an online vendor. The results show that both familiarity and trust in the online vendor influenced the intention to inquire and to buy books.

In the m-payment system context, Gao and Waechter (2015) suggested and examined a theoretical model on initial trust in this m-payment system. They empirically validated the model by collecting 851 questionnaires from potential m-payment users in Australia. To assess the hypotheses relationship, Gao and Waechter (2015) applied partial least squares structural equation modelling. The findings show that the trust formation process is positively affected by perceived system quality, perceived information quality, and perceived service quality. Perceived uncertainty negatively affects the initial trust formation process. However, perceived asset specificity has an insignificant effect.

In an m-commerce context, and in order to test how users' trust changes over time, Lin et al. (2014) developed a theoretical model rooted in three different theories, which are the extended valence theory, the self-perception theory, and the information systems expectation confirmation theory. By analysing longitudinal data collected from 332 users, they found that mobile banking usage behaviour is affected by pre-use trust; also, satisfaction enhances post-use trust.

By applying an information success model, flow theory and trust, Gao et al. (2015) empirically integrated and examined a model to understand the factors that affect intention to purchase through mobile devices. They collected the data from 462 mobile purchase users and used structural equation modelling (SEM) for the final data analysis. They confirmed that the main factors affecting trust are information quality, and privacy and security concerns. Flow is affected by trust. However, flow affects satisfaction. Intention to use mobile devices to complete online transactions is affected by these three factors together.

To find the constructs that affect the adoption of the online banking system in Saudi Arabia, Al-Somali et al. (2009) integrated trust and other factors with the technology acceptance model (TAM). They empirically examined the research model. The hypotheses were supported and they show that trust had a significant influence on the attitude to adopt online banking system.

Li and Yeh (2010) have focused on design aesthetics. They viewed the website characteristics component as important to trust development in the mobile Internet. By using structural equation modelling techniques and involving 200 subjects, they empirically tested the model. The results confirm that design aesthetics significantly affect the website characteristics component, especially customisation, perceived usefulness and ease of use. All these constructs have an important explanatory power comcerning trust in mobile internet systems.

Al-Gahtani (2011) applied TAM and found a positive link between trust and perceived usefulness, as well as between trust and perceived ease of use for internet websites. Table 2.3 reviews the trust and online environment studies.

Table 2. 3 Summary of trust and online environment studies

Year	Author (s)	Technology examined	Respondents	Findings
2015	Montazemi and Qahri-Saremi	Online banking	25,265 cases from primary empirical studies of online banking adoption	Trust affects consumers' adoption of online banking.
2015	Gao et al.	Mobile shopping	462 questionnaires	The main factors affecting trust in mobile shopping services are information quality and privacy and security concerns. Flow is affected by service quality and trust. Satisfaction is affected by system quality and privacy and security concerns. Flow affects satisfaction.
2015	Gao and Waechter	Mobile payment systems	851 questionnaires	Different factors, such as perceived information quality and perceived system quality, are positively related to the formation of initial trust. Similarly, perceived service

				quality positively affects initial trust. Perceived uncertainty negatively affects initial trust. Perceived asset specificity has an insignificant effect.
2014	Oh	Mobile phone		Positive linkage between satisfaction and brand trust.
2014	Lin et al.	Mobile banking	332 individuals through two rounds of surveys (mobile banking)	Pre-use trust has both direct and indirect influences on mobile banking usage behaviour. Satisfaction enhances post-use trust.
2014	Mortazavi et al.	Online purchase	167 questionnaires	VSN attributes influence trust and flow experience; trust in a VSN environment influences users' flow experience. The results also confirm that the education level of a user affects how much he trusts the VSN environment.
2012	Zhou	Mobile banking	200 surveys	The findings show that trust is affected by structural assurance. There is a significant relationship between trust and flow experience. To expand the adoption of this

				service, mobile banking managers need to focus on both trust and flow experience.
2011	Al-Gahtani	Electronic transaction	128 questionnaires from electronic transactions users	The relationship between trust and perceived usefulness is positive. Also, the relationship between trust and perceived ease of use in the internet website is positive.
2010	Li and Yeh	M- commerce	200 questionnaires from users of m commerce	The relationship between design aesthetics and website characteristic components is significant. Perceived usefulness and ease of use significantly affect users' trust.
2008	Nor and Pearson	Internet banking	326 Surveys	Findings confirm the multidimensionality of trust and its role in the adoption of Internet banking.
2006	Lin and Wang	Mobile commerce	255 questionnaires from mobile commerce users	Perceived value, trust, habit, and customer satisfaction have a significant effect on customer loyalty.
2004	Koufaris and Hampton-Sosa	Online Company	212 participants	Perceived company reputation significantly affected trust. Willingness to customise products and services also affected trust. Also, other significant antecedents

				of initial trust are ease of use, perceived website usefulness, and security control.
2002	McKnight et al.	Electronic commerce	1403 cases	Structural assurance, perceived web vendor reputation, and perceived trust significantly influenced consumer trust in the web vendor
2000	Gefen	E- commerce	217 potential users of e-commerce	Familiarity and trust in the vendor affect both intentions to inquire and buy books.

2.5 Trust, online banking and mobile banking

Different studies have considered trust to be the main catalyst in many different transactions, especially in online banking systems.

Al-Somali et al. (2009) used a survey to assess the various factors that enhance using the online banking system in Saudi Arabia. They state that a user's trust in the online banking system affects their attitude towards using this system. The authors applied the technique of partial least-squares (PLS) in their analysis. They conclude that the appreciation of the role of online banking, the social influence, and computer self-efficacy significantly affect online banking. Thus, trust has a significant impact on attitude. The proposed research model is illustrated in Figure 2.5.

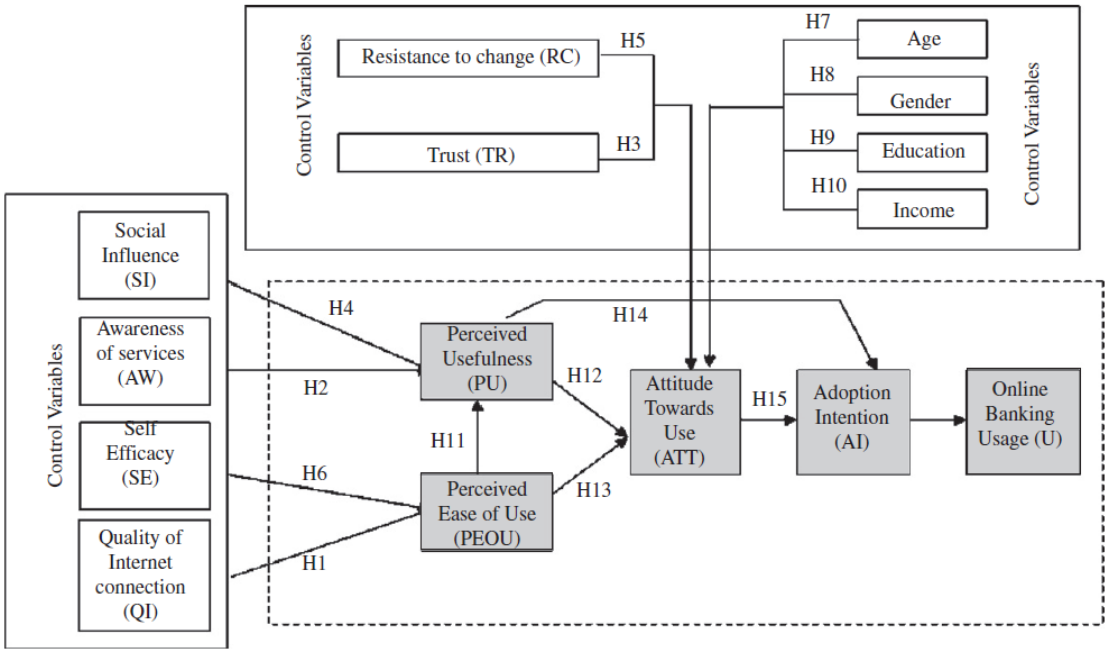


Figure 2. 5 Proposed research model of the study by Al-Somali et al. (2009: P. 133)

DeLone and McLean (1992) developed a model to explain the main factors affecting the success of information systems. These factors are: system quality, information quality, use of information system, satisfaction, individual impact and organisational impact (see Figure 2.6).

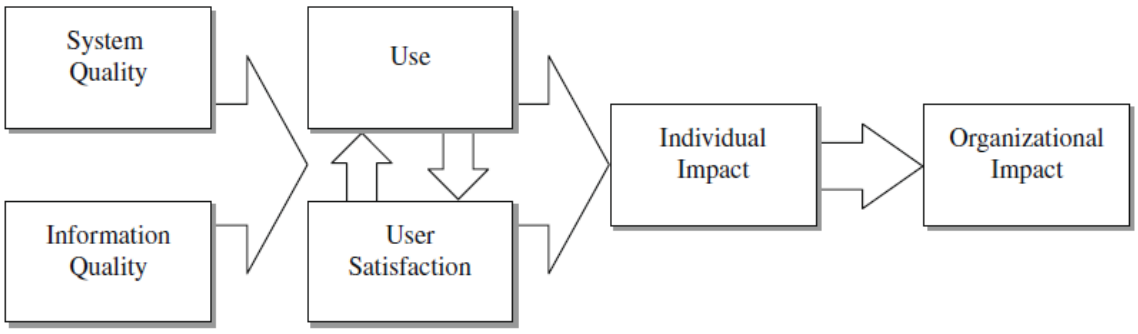


Figure 2. 6 DeLone and McLean (1992). Source: Lee and Chung (2009: P. 386).

In 2003, they updated the model by adding service quality factor (see Fig 2.7).

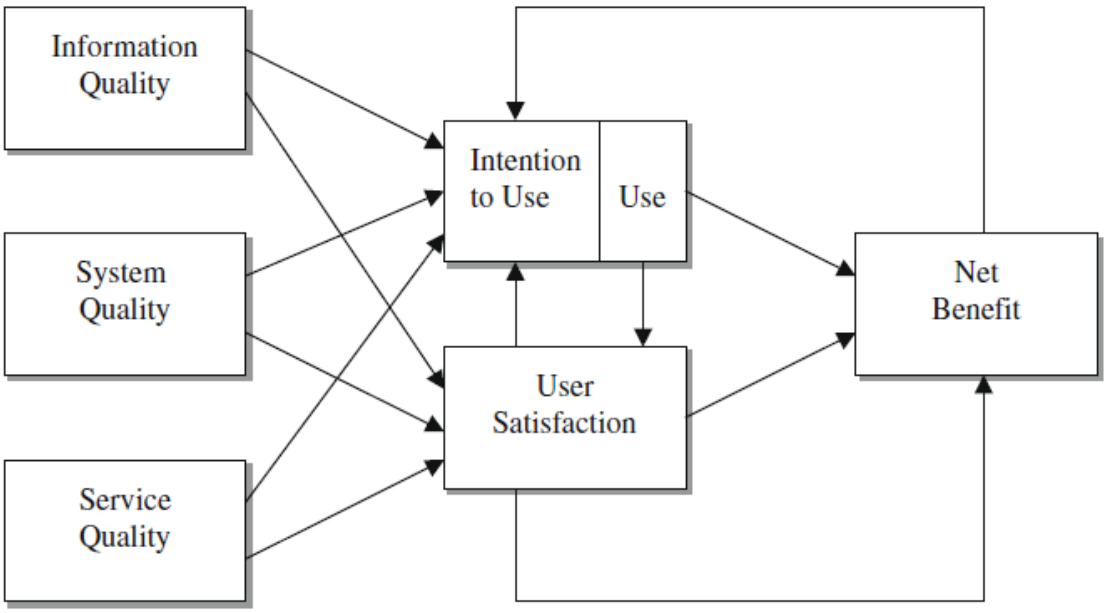


Figure 2. 7 DeLone and McLean updated model (2003).

Source: Lee and Chung (2009: 387).

DeLone and Mclean (2003) state that information quality or system quality are the crucial factors to test the achievement of a single system. However, service quality is more important than both system quality and information quality to test the achievement of the whole department.

Based on DeLone and McLean's model, Lee and Chung (2009) developed a model to assess whether trust and satisfaction can be affected by information quality, system quality and interface design quality. For data analysis, 276 valid surveys from users of mobile banking services have been collected. By applying structural equation modelling, the findings show that both system quality and information quality significantly affect users' trust in mobile banking systems. However, the interface design quality does not influence trust and satisfaction. Moreover, the results support the positive relationship between trust and satisfaction. Table 2.4 reviews trust, online banking and mobile banking studies.

Hanafizadeh et al. (2014) examined the factors affecting the acceptance of mobile banking systems in Iran. The findings confirm that the most significant factor affecting the adoption of mobile banking was trust. The conceptual framework of their study is shown in Figure 2.8. Malaquias and Hwang (2016) tested the factors that affect trust in mobile banking systems in

Brazil. They collected 1077 questionnaires and applied Confirmatory Factor Analysis and Structural Equation Modeling for the data analysis. They determined that there are many different factors that affect trust in this system. Sun et al. (2017) tested the factors that have a significant effect on trust mechanisms for mobile banking. They found that the most important factor that affects trust is structure assurance.

Wang et al. (2015) investigated the link between disposition to trust and trust antecedents to trust to form trust in mobile banking system in Taiwan. Also, they tested the effect of trust on intention to use mobile banking. The findings revealed an important link between disposition to trust, trust antecedents, and trust. Trust had an important effect on intention to use this service. Benamati et al. (2006) have provided a further explanation of the effect of trust and distrust on intention to use online banking services. They collected 500 questionnaires from students. The findings confirm that there was a significant effect from trust on intention to use internet banking, and distrust negatively affected intention to use.

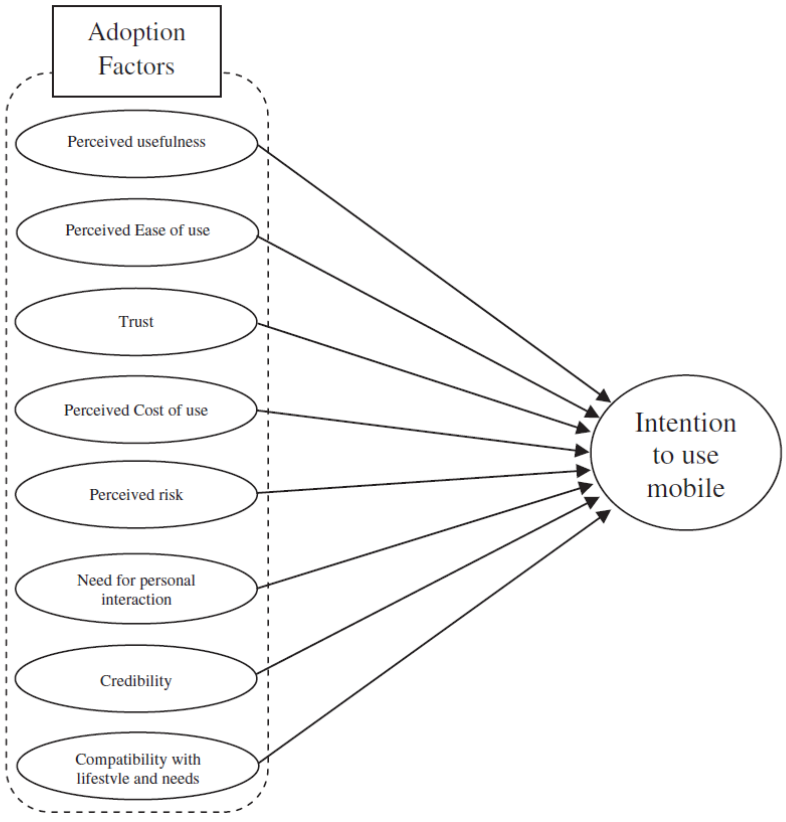


Figure 2. 8 the research model of Hanafizadeh et al., (2014: 69)

Similar to Lee and Chung (2009), Gu et al. (2009) applied structural equation modelling (SEM) to examine and validate the factors affecting users' intention to use mobile banking systems. The results support the validity of the study framework model, with 72.2% variance in the intention to use the services. Their study found that structural assurance was the strongest factor to affected trust. They conclude by saying that trust has a strong effect on behavioural intention. They confirm that perceived usefulness, trust, and perceived ease-of-use affect behavioural intention in this service. The research model of their study is presented in Figure 2.9.

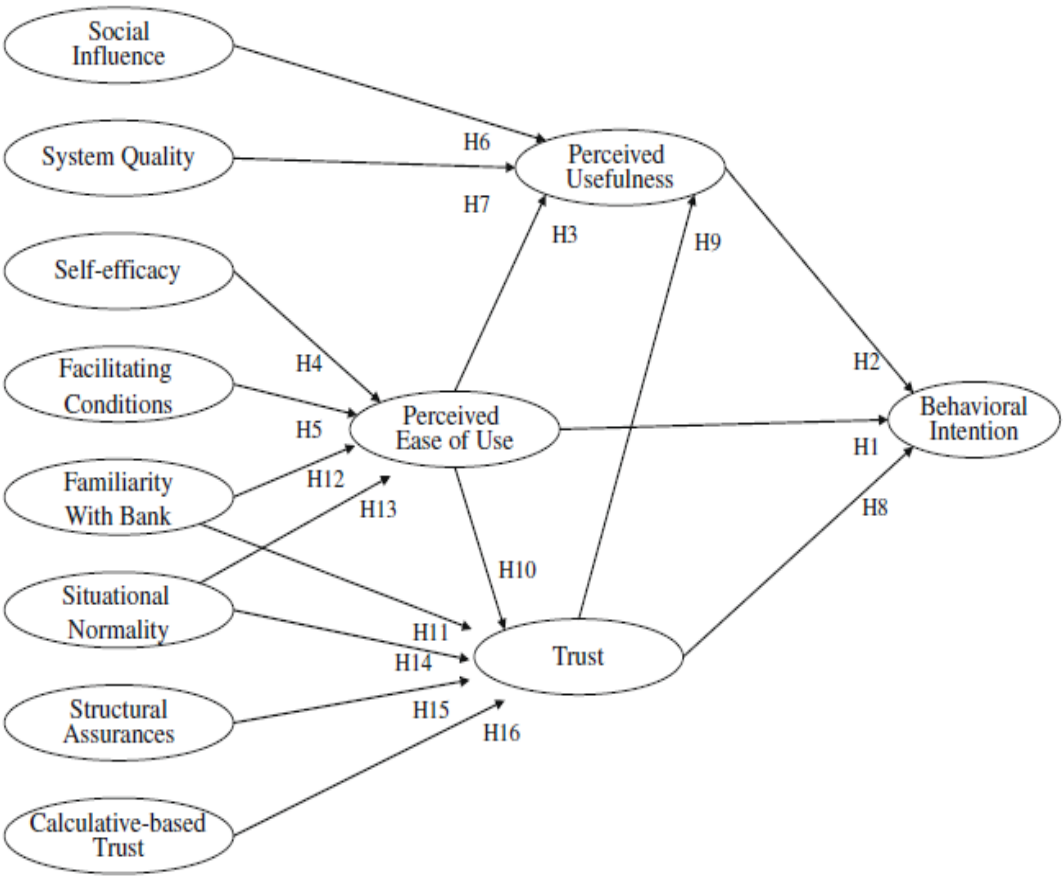


Figure 2. 9 The research model of (Gu et al., 2009: P. 11610)

To understand potential users' acceptance of online banking services, Chandio et al. (2013) proposed an extended model of technology acceptance. They empirically tested the model by collecting data from 353 online banking users in Pakistan, and they applied structural equation

modelling with Analysis of Moment Structures software. The findings support the extended hypothesised model. They found that, in order of importance: perceived usefulness (PU), perceived ease of use (PEOU) and trust explained 45.7% of the variance in intended acceptance behaviour. Technological self-efficacy (TSE) and trust explained 28.1% of the variance in PU. The research model of their study is presented in Figure 2.10.

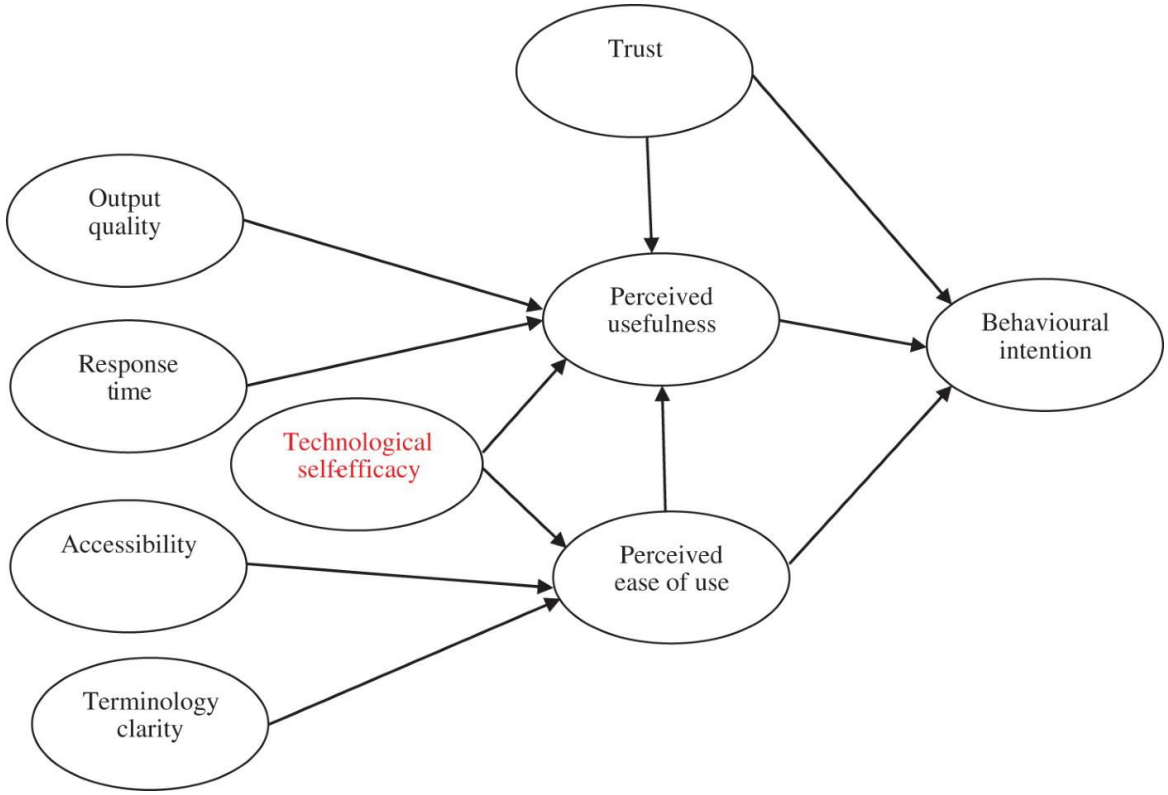


Figure 2. 10 Research model of the study by Chandio et al., (2013: 671)

To better understand the factors that can enhance mobile banking adoption, Liu et al. (2009) proposed a theoretical model rooted on Technology Acceptance Model (TAM) and included trust in this model. They tested the role of trust from many different perspectives. Their results indicate that trust indirectly affects intention to adopt this service through its effect on perceived usefulness. Moreover, users' trust in this service is mainly affected by three factors, which are as follows: structural assurance, trust in technologies and trust in vendors. Nor and Pearson (2007) empirically tested the effect of trust on online banking acceptance in Malaysia. They collected 1164 questionnaires and employed the structural equation modelling for data analysis. The results confirm that there was a significant relationship between trust and attitude toward using Internet banking.

Kim et al. (2009) tested the factors that affect the initial formation of user's trust and intention to use mobile banking services. They explain the impact of relative benefits, personal propensity to trust, structural assurances and firm reputation on initial trust in mobile banking systems and on usage intention. By applying structural equation modelling, the findings confirm that the relative benefits, structural assurances and propensity to trust significantly affect initial trust in this system. Also, the perception of initial trust has an important effect on intention to use mobile banking services. Table 2.3 reviews the trust and information systems studies. Harjit et al. (2010) investigated the roles of trust and perceived risk on intention to use online banking in China. The results show that there was an important link between trust and perceived risk, and that both had a crucial impact on intention to use online banking. The research model of their study is presented in Figure 2.11.

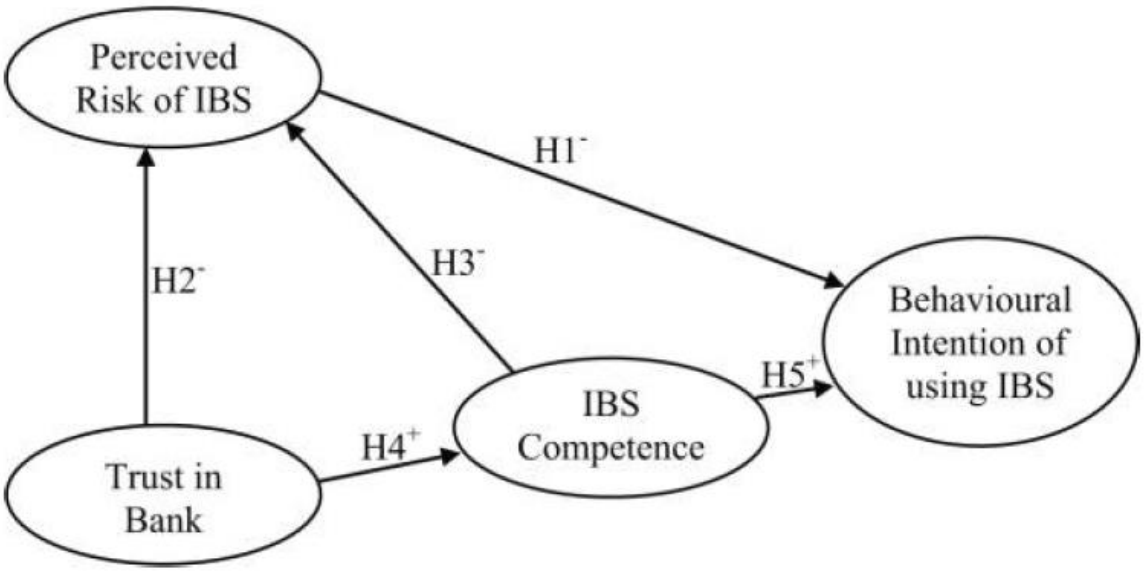


Figure 2. 11 Research model of the study by Harjit et al., (2010: 7).

Based on ELM, Zhou (2012) tested the initial trust of users of mobile banking. The findings indicate that information quality, service quality, system quality, structural assurance and reputation affect initial trust in mobile banking systems. Aldas-Manzano et al. (2011) investigated the effect of satisfaction, trust, frequency of use and perceived risk on user loyalty

to online banking in Spanish. They tested the hypothesis by using a sample of 254 Spanish users of this service. The results indicate that both satisfaction and trust have a positive impact on loyalty. The research model of their study is presented in Figure 2.12.

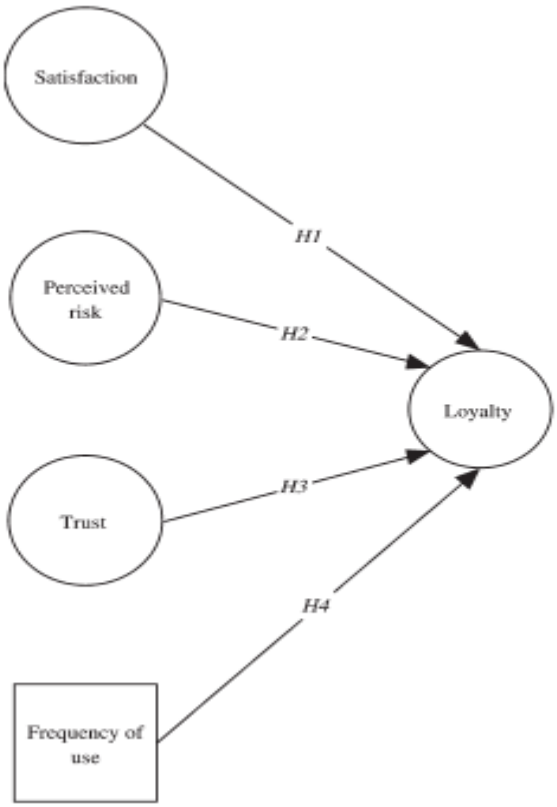


Figure 2. 12 Research model of the study by Aldas-Manzano et al., (2011: 1176).

Vatanasombut et al. (2008) developed a model by extending Commitment–Trust theory, an expectation–confirmation model, and technology acceptance to find the factors affecting intention to use online banking. Trust and relationship commitment were the main factors affecting intention to use. The findings explain the crucial role of trust in intention. Yousafzai et al. (2005) tested the role of trust in e-banking. The study suggests that banks should use a portfolio of strategies to build trust in this system. AlAlwan et al. (2014) proposed a framework to demonstrate the main factors affecting intention to use online banking in Jordan. The most important factor predicting intention to use online banking was trust. The research model of their study is presented in Figure 2.13.

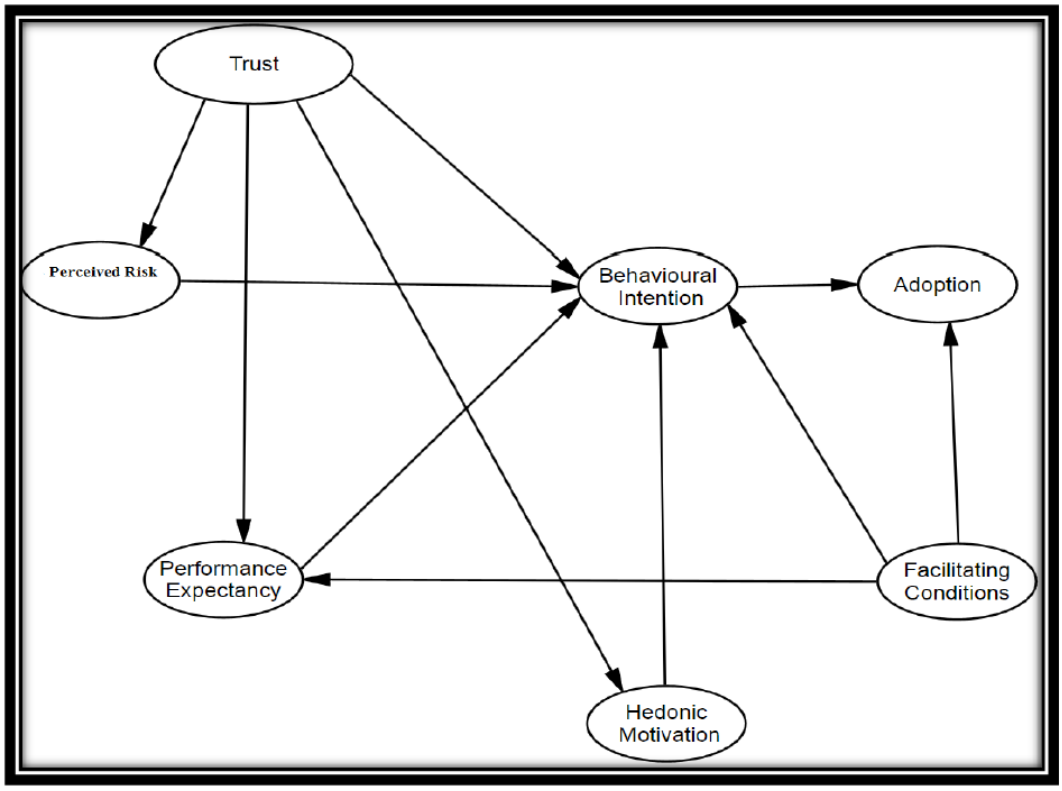


Figure 2. 13 Research model of the study by AlAlwan et al., (2014: 7)

Table 2. 4 Review of trust, online banking and mobile banking studies

Year	Author (s)	**Technology examined**	**Respondents**	**Findings**
2017	Sun et al.	Mobile banking	379 questionnaires.	They found that the most important factor that affects trust is structure assurance.
2016	Malaquias and Hwang.	Mobile banking	1077 questionnaires	They determined that there are many different factors that affect trust in this system.

2015	Wang et al.	Mobile banking	The sample size was 830.	The findings reveal an important link between disposition to trust, trust antecedents, and trust. Trust had an important effect on intention to use this service.
2014	AlAlwan et al.	Online banking.	348 questionnaires.	The most important factor predicting intention to use online banking was trust.
2014	Hanafizadeh et al.	Mobile banking.	361 bank clients in Iran.	The findings confirm that the most significant factor affecting the adoption of mobile banking is trust.
2013	Chandio et al.	Internet banking	353 surveys from internet banking users	They confirmed that perceived usefulness, perceived ease of use and trust explained 45.7% of the variance in behaviour. Trust and technological self-efficacy

				explained 28.1% of the variance in perceived usefulness.
2012	Zhou	Mobile banking.	240 valid responses.	The findings indicate that information quality, service quality, system quality, structural assurance and reputation affect initial trust in mobile banking system.
2011	Aldas-Manzano et al.	Online banking	254 Spanish users	The results indicate that both satisfaction and trust have a positive impact on loyalty
2010	Harjit et al.	Online banking.	432 Chinese consumers.	The results show that there is an important link between trust and perceived risk, and that both have a crucial impact on intention to use online banking.
2009	Al Somali	Online banking.	400 questionnaires from Online banking users.	Trust has a significant impact on attitude.
2009	Lee and Chung	Mobile banking	276 questionnaires	The system's quality and

			from mobile banking customers	trust are significantly correlated. Also, information quality significantly influences users' trust in mobile banking services. There is a positive relationship between trust and satisfaction
2009	Gu et al.	Mobile banking	910 questionnaires from mobile banking users.	The strongest antecedent of trust is structural assurances which affect behavioural intention for this service. They confirm that trust, perceived ease-of-use and perceived usefulness have a significant effect on intention behaviour in mobile banking services.
2008	Vatanasombut et al.	Online banking		Trust and relationship commitment are the main factors

				affecting intention to use. The findings explain the crucial role of trust in intention.
2007	Nor and Pearson	Internet banking	1164 questionnaires	The results confirm that there is a significant relationship between trust and attitude toward using Internet banking.
2006	Benamati et al.	Internet banking	500 questionnaires	The findings confirm that there is a significant effect from trust on intention to use internet banking, and distrust negatively affects intention to use.
2005	Yousafzai et al.	Online banking		The study suggests that banks should use a portfolio of strategies to build trust in this system.

Trust and risk factors have been widely studied in an online context, including the antecedents of them. For example, Kim et al. (2008) developed a theoretical model to explain the trust development process a consumer follows when purchasing online. By using a Structural Equation Modelling technique, they showed that perceived risk and trust have a strong impact

on purchasing decisions, and trust negatively affects the risk. Privacy and security concerns, consumer disposition to trust, the company's reputation and the information quality of the website have strong effects on trust in online purchases.

Similar to Kim, Al-Gahtani (2011) supports the negative relationship between trust and risk in online transactions over the Internet. Also, Kim and Hwang (2005) support the idea that trust is a crucial factor for decreasing consumers' risk perception in adopting a new technology. Yousafzai et al. (2003) found that no trust would be needed if risk did not exist and activities could be taken with whole certainty.

As opposed to traditional commerce, risk is particularly pronounced in electronic commerce.

Pavlou (2003) integrated trust and perceived risk with the Technology Acceptance Model (TAM) to test consumer acceptance of e-commerce. The results confirm that there is a negative correlation between trust and risk. In other words, trust is a significant antecedent of perceived risk. So, when risk is existent, trust is compulsory (Mayer et al., 1995; Corritore et al., 2003).

In the context of internet banking adoption in India, Roy et al. (2012) expanded the Technology Acceptance Model (TAM) under security and privacy threats. The results of their study reveal that trust has a negative impact on perceived risk. Moreover, the relationship between perceived risk and behavioural intention for online banking systems was negative.

Contrary to these studies, Cho (2006), who integrated trust and risk with TAM, found that perceived usefulness is the most important belief that persuades users to use online services. Perceived risk and trust were less important. One explanation of this result is that it is because online services are still somewhat immature and mainly focus on less risky areas, such as marketing and information dissemination (Cho, 2006).

There is always a level of risk that users will experience due to the inherent nature of online shopping. They may be unsure about the free actions of others and the uncertainty of the future (e.g. hackers, and unknown new technologies) (Kim et al., 2008). In these uncertain situations, trust becomes the essential policy for dealing with an unclear exchange. As a result, when trust is present, perceived risk decreases (Grazioli and Jarvenpaa, 2000; Jarvenpaa et al., 2000; Featherman and Pavlou, 2003).

Moreover, privacy and security are considered to be the main factors affecting trust in the online environment. Many studies have examined the importance of the role of security and

privacy correlated to the online environment, such as online purchasing, mobile shopping, and online and mobile banking (Molla and Licker, 2001; Cheng et al., 2006; Wang et al., 2003).

Several studies have confirmed that the main challenge for online banking managers will be achieving a level of trust for online users through the presence of privacy and security (Gibbs et al., 2003; Bestavros, 2000). The concept of privacy has been defined as the ability of a person to control the terms by which his identity is used (Westin, 1967). Privacy concerns have been considered as the important factors in the success of e-commerce and online banking (Gibbs et al., 2003). Molla and Licker (2001), mention that privacy is the main concern of users when shopping online because they are not completely educated about their information usage.

The growth and the complexity of e-commerce have made privacy an increasingly important concern for customers (Kelly and Erickson, 2005). Consequently, users' trust is decreasing with regard to how their private information is being collected and treated (Flavian and Guinaliu, 2006). MEF's fourth Global Consumer Survey found that mobile privacy is one of the biggest concerns for today's mobile banking users and remains the main obstacle to growth (Kenya king of mobile banking, 2014).

Wang et al. (2003) point out that users avoid providing their private information to perform online financial transactions because of online threats. Accordingly, the protection of privacy is a major factor influencing the purchase decisions of customers (Udo, 2001; Caudill and Murphy 2000).

Security is the other factor related to trust in an online context. Security concerns keep customers away from electronic banking, and it is considered to be the top ranking problem for customers adopting online banking systems in Latin America (Booz et al., 1997; ABF study, 1997). Table 2.5 reviews of studies on trust and its main antecedents.

In the social networking websites context, Shin (2010) examined trust, security and privacy concerns among users. For data analysis, they used reliable scales and measures. The results reveal that perceived security plays an important role as a moderator between perceived privacy and trust.

Bansal and Zahedi (2014) examined the role individuals' frugality plays as moderators between privacy and security concerns and trust-discount trade-off. They examined the hypotheses in three different contexts as follows: health, e-commerce and finance. The results

suggest that while privacy concerns positively affect trust for users with a low level of frugality, security concerns positively affect trust for users with a high level of frugality.

Nilashi et al. (2015) state that security influences customers' trust in mobile commerce websites. Kim et al. (2011) examined which factors influence trust, satisfaction, and loyalty in electronic commerce. By employing a structural equation modelling approach, they investigated the relationship between perceived security and transaction cost, with loyalty as a dependent variable. Trust and satisfaction were used as mediator variables. They collected 340 questionnaires from online panel respondents by using an internet research firm. They conclude that trust is significantly affected by perceived security.

In an e-commerce context, Suh and Han (2003) examined the effect of trust on customers' perceptions of security control on the acceptance of this system by using a web survey of internet banking users and a modelling structure as a general technique. They found that data and privacy protection is a very important factor for trust in e-commerce. In addition, trust is an important determinant of e-commerce acceptance.

Using signalling theory, Mpinganjira (2015) proposed and tested a model on the influence of a stores' website on customers' ongoing trust in online retail stores and repurchase intention. He collected the data from a sample of 201 online shoppers from Gauteng, South Africa. The findings show that website security is an important factor that helps influence customers' trust in online stores.

Jones et al. (2000) found that users may not use online banking because they are scared that other people might be able to access their financial information via the Internet, and they might use this information for other purposes. Therefore, users need to be satisfied about their security concerns around e-business (Jones et al., 2000). Roca et al. (2008) suggest that the security of the online system should be improved by financial dealers and stockbrokers. In this case, e-investors form perceptions about online systems' perceived security. When these perceptions are confirmed, e-investors will trust this system and, consequently, they are more likely to use it.

In other words, there is growing evidence that concerns about the security of information systems, especially mobile banking, is an important issue to customers because the transactions that take place through mobile banking applications require sensitive information, and money is involved. Apparently, users will not trust mobile banking if they do not consider it safe and

secure. Lee and Lin (2005), point out that customers will use online shopping services through a secured website. So, if online stores offer a safe online environment they will have a better brand image (Lee and Lin, 2005). Similarly, Lee (2005) considers trust to be an essential factor affecting users' security perceptions of mobile commerce. Consequently, trust could effectively reduce security risk concerns. Therefore, Shen et al. (2010) suggest that trust is predicted to affect the security perceptions of consumers in adopting mobile banking systems.

Table 2. 5 Summary of studies on trust and its main antecedents

Year	Author (s)	Technology Examined	Respondents	Findings
2015	Mpinganjira	Online shopping.	201 questionnaires were collected from online shoppers.	The findings show that website security is an important factor that helps influence customers' trust in online stores.
2015	Nilashi et al.	Mobile commerce		Security influences customers' trust in mobile commerce websites.
2015	Gao et al.	Mobile shopping.	462 questionnaires	The main factors affecting trust are privacy and security concerns.
2012	Roy et al.	Online banking	Sample was divided into two sub-samples of size 322 and 291 respectively	They found that the link between perceived risk and behavioural intention of online banking adoption is negative. The relationship between trust and perceived risk is negative.

2011	Kim et al.	Electronic commerce	340 questionnaires/ online panel respondents	The results indicate that the relationship between perceived security and trust is significantly positive.
2011	Al-Gahtani	Electronic transactions	128 questionnaires from electronic transactions users	Supports the negative relationship between trust and risk in transacting online over Internet websites
2008	Kim et al.	Electronic commerce	468 questionnaires were collected from users of electronic commerce	Both trust and perceived risk positively affect purchasing decisions. The relationship between trust and risk is negative. Trust in online commerce is affected by consumers' disposition to trust. Privacy and security concerns negatively affect trust. Information quality of the website affects trust in electronic commerce. The company's reputation strongly affects trust.
2005	Lee	Online shopping	297 surveys	Considers trust as an essential factor affecting users' security perceptions regarding mobile commerce
2003	Pavlou		Two studies with 103 and 155 on-line consumers	The findings confirm that the correlation between trust and risk is negative.

Collectively, these studies have identified the antecedents of trust and their direct effect on it, but it is still not clear how persuasive messages change the trust of users in mobile banking, and how privacy and security concerns play a role in the persuasion process. There is a lack of analysis of these issues.

Online system managers have to know the information processing routes to use this information to persuade users to trust the service and to know how they can deal with users who have privacy and security concerns. Understanding the role of persuasive messages that determine trust formation in online systems is essential to develop operative tools to improve the wide adoption of this system.

Therefore, this study aims to explain the persuasion process to increase trust in mobile banking in the consideration of privacy and security concerns. In particular, based on ELM, this study tests the effect of argument quality, trustworthiness and source expertise on trust. It argues that privacy and security concerns play a positive moderating role in this persuasion process. In the next section, this study reviews and discusses the literature on ELM and trust.

2.6 ELM in general, ELM and trust in IT in particular

2.6.1 Elaboration Likelihood Model (ELM)

ELM is a persuasion model used to explain how different types of messages effect customers' attitudes and purchasing decisions (Cheng and Loi, 2014). ELM suggests that central and peripheral routes are the two persuasion routes. Attitude is affected by these two routes of influence. These two routes differ in respect of their nature and the amount of cognitive effort needed in the processing (Greiner and Wang, 2010). According to the central route, customers are involved in thoughtful consideration of the arguments of the message. But according to the peripheral route, the customer decides whether or not he or she agrees with the message based on other factors rather than on the quality of the arguments of the message. Table 2.6 summarises the main differences between these two routes.

Different factors are found to have different effects on these two routes of persuasion, such as argument quality and source credibility. Argument quality can be considered as a central cue used to influence attitude change for topics with more involvement (Petty and Cacioppo,

1984). Conversely, source credibility is more likely to act as a peripheral cue to influence attitude change on topics with less involvement (Bhattacherjee and Sanford, 2006).

ELM suggests that customers who have the ability and motivation to go through the content of the message follow the central route. Motivation is the desire to process a persuasive message. It is affected by an individual's need for cognition (Bhattacherjee and Sanford, 2006). Users who are highly motivated will engage in high elaboration, following the central route of persuasion (Sussman and Siegal, 2003). Thus, to follow the central route, customers must care about the subject of the message of persuasion (Cheng and Loi, 2014). On the other hand, when customers are not interested, or do not have the ability to analyse the message carefully, a peripheral process is often used (Cheng and Loi, 2014).

Table 2. 6 The difference between central and peripheral routes

Central route	**Peripheral route**
• The central route changes attitudes through diligent contemplation of issue-relevant arguments.	• The peripheral route changes attitudes by associating the attitude object with heuristic cues, such as a credible, attractive, powerful source, or identification with the source.
• The central route requires much more cognitive effort, or elaboration, than the peripheral route.	• The peripheral route shapes attitudes with little or no issue-relevant thinking.
• Attitude changes induced via the central route tend to be more stable and more predictive of behaviour.	
• The central route is more likely to be taken when the motivation and ability to think are high.	• The peripheral route is more likely to be taken when the motivation and ability to think are low.

Source: Greiner and Wang (2010, p. 109)

2.6.2 ELM and Trust in Information System Studies

ELM has been applied in the marketing (e.g., Lord et al., 1995) and in social psychology (Petty et al., 1995) literature. However, applying ELM in information systems research is still incomplete. Among the early application of ELM in information system was Mak et al. (1997). They carried out an experiment to test the effect of the participation of users in the design process on their acceptance of system recommendations and the revision of their original decisions. Consistent with ELM predictions, their results showed two alternative routes of influence. In the first one, people who had a high level of participation in updating the information on the Expert System (ES) were affected by argument quality (central route). For the second route, people who had a low perceived level of participation in updating the information on the expert system were influenced by the acceptance of the system's perceived credibility according to the experts developing the system (the peripheral route).

To explain why users sometimes agree with the incorrect advice of an expert system, Dijkstra (1999) applied ELM in an experimental study. He found that subjects did not study the advice. They just agreed with an expert system because they trusted this system. This is inconsistent with ELM predications.

Sussman and Siegel (2003) integrated the Technology Acceptance model with ELM to investigate how knowledge workers can accept the information that they obtain in some contexts. The results show that the perceived usefulness of e-mail information is affected by both argument quality and source credibility. Instead of using attitude as the dependent variable, like most ELM studies, Sussman and Siegal employed perceived usefulness as a mediator between influence processes and information adoption, and they found that ELM's hypotheses still applied. The research model for this study is presented in Figure 2.14.

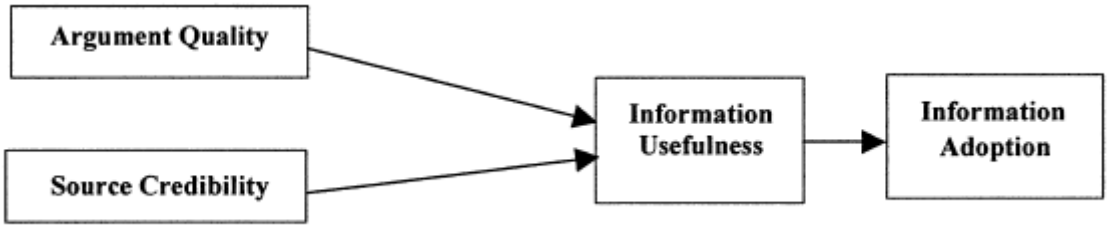


Figure 2. 14 Research model of Sussman and Siegel (2003: 52)

Like Sussman and Siegal (2003), Bhattacherjee and Sanford (2006) also tested the effects of central and peripheral routes on usefulness and attitude. Bhattacherjee and Sanford (2006) compared two different influence routes, argument quality (the central route) and source credibility (the peripheral routes), to motivate users to accept the Information Technology (IT). Consistent with predictions from ELM, their empirical findings demonstrate that both source credibility and argument quality had a positive effect on motivating users to accept new information technology. These two factors were moderated by motivation and the ability of users to process informational arguments. They used job relevance and user expertise as moderators. These two studies applied ELM and explored the relationship between the two routes of persuasion and the usefulness. The research model for this study is presented in Figure 2.15.

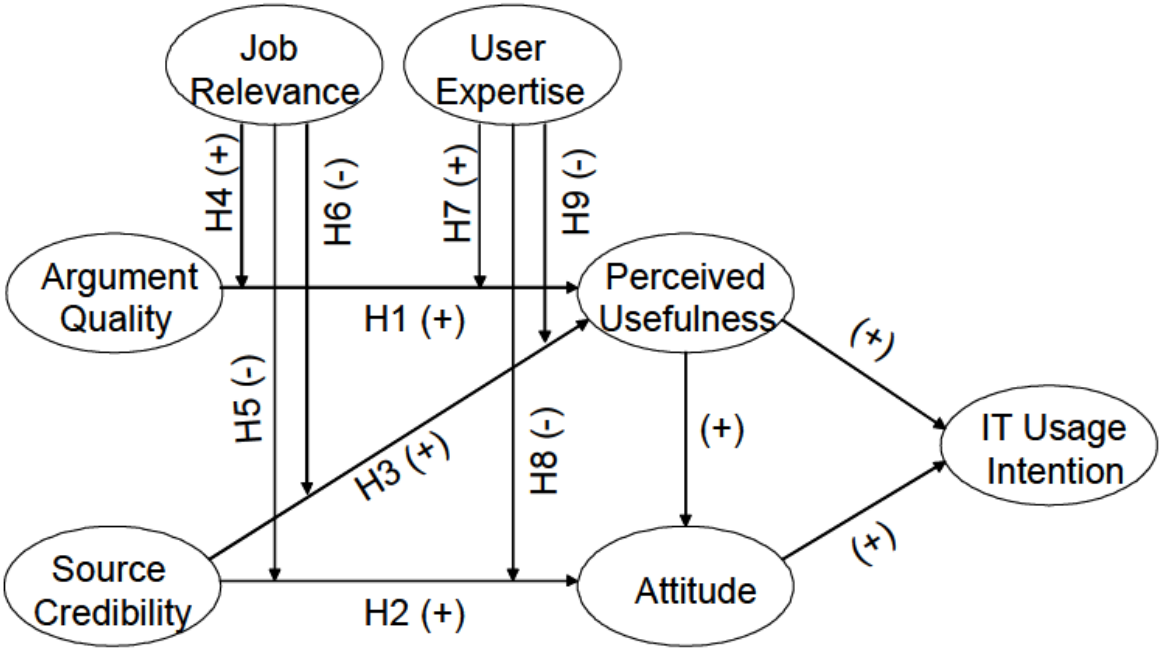


Figure 2. 15 Research model of the study by Bhattacherjee and Sanford (2006:811).

Cheung et al. (2008) built upon the model of information adoption of Sussman and Siegal (2003). By using dual-process theories, they tested the constructs that influence information adoption of online opinion seekers in the online environment. They found that the two most effective dimensions of the argument quality factor are comprehensiveness and relevance. In

their study, they used relevance, timeliness, accuracy, and comprehensiveness, which are the four common dimensions of information quality (argument quality). However, while these dimensions might have worked in their study, for a sensitive context such as mobile banking, researchers may need other dimensions which are more important than these. Also, Cheung et al. (2008) did not include any moderator variable in their study (see Figure 2.16).

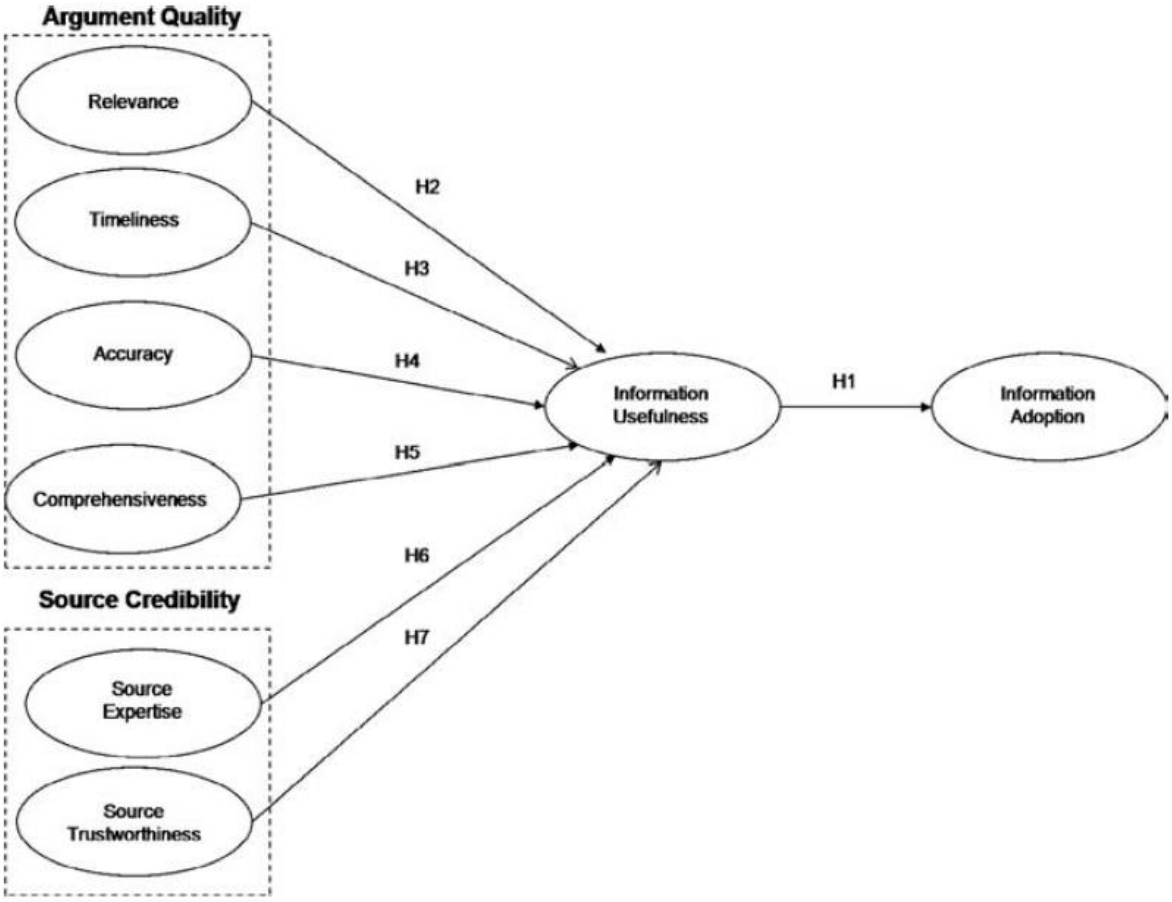


Figure 2. 16 The research model of the study by Cheung et al, (2008:233).

In the same vein, Tseng et al. (2015) developed a theoretical model rooted in ELM by including perceived usefulness. Based on this model, they tested the effect of perceived risk on information acceptance for travel websites. The findings show that perceived usefulness mediated the relationship between the two routes (argument quality and source credibility) and

information adoption on travel websites. Moreover, perceived risk played an important role as a moderator in the peripheral route (see Figure 2.17).

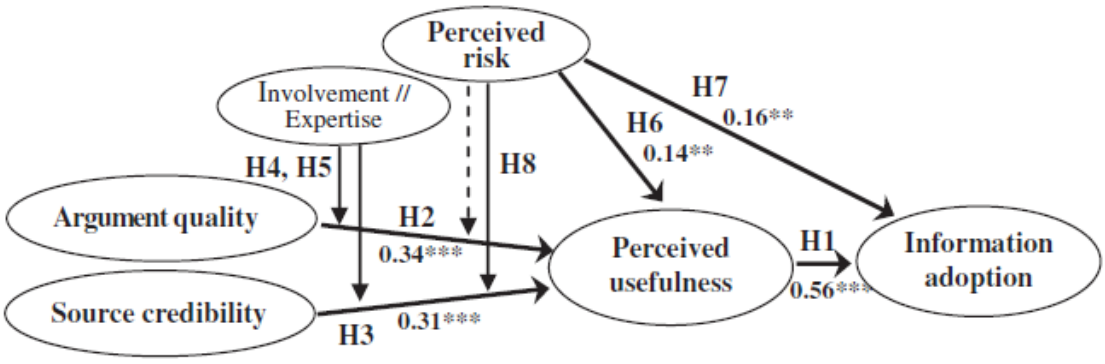


Figure 2. 17 The research model of the study by Tseng et al, (2015: 2291)

Chung et al. (2015) used the Elaboration Likelihood Model, which measures the impact of argument quality (the central route) and source credibility (peripheral route) on traveller information sharing behaviour corresponding with social presence on social media. They collected 527 questionnaires from users who were experienced in travel information adoption via social media. The findings confirm that perceived usefulness was positively affected by both argument quality and source credibility (see Figure 2.18).

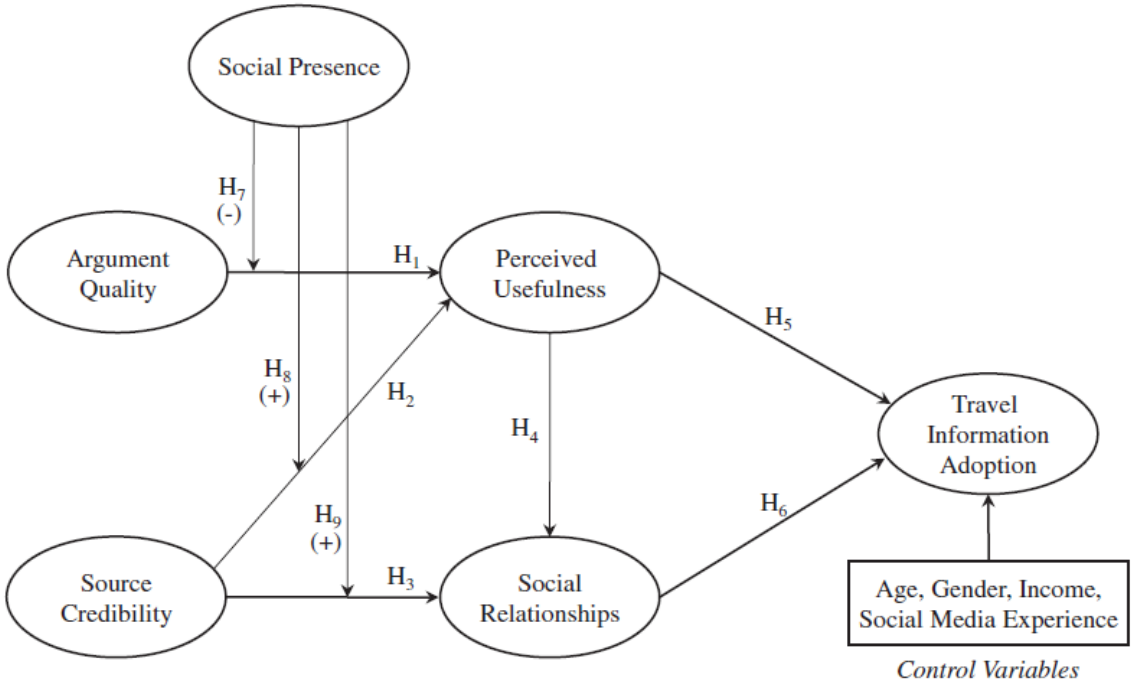


Figure 2. 18 The research model for the study by Chung et al (2015: 908).

To understand employees' system acceptance, Li and Ku (2011) integrated TAM, flow theory, and extended ELM. They found that source credibility positively affects playfulness and argument quality positively affects the main two constructs of TAM, which are perceived ease of use and perceived usefulness (see Figure 2.19).

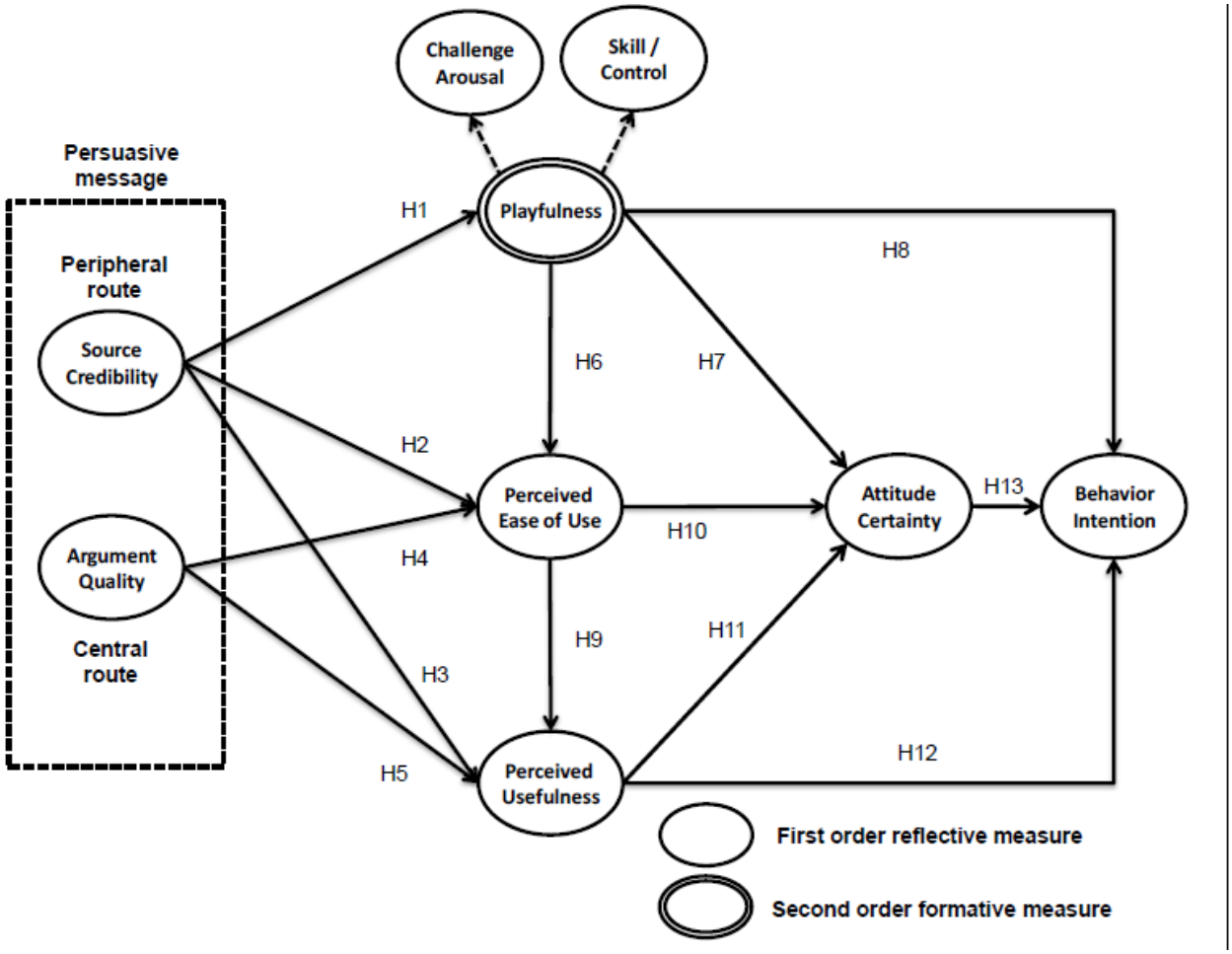


Figure 2. 19 The research model for the study by Li and Ku (2011:3)

Using ELM from a social media perspective, Teng et al. (2014) conceptualised persuasive messages. They highlighted the critical factors that affect formulating effective communication policies on social media.

A recent study also applied ELM in social media marketing to test how persuasive messages (i.e., argument quality, post popularity, and post attractiveness) can lead internet users to click like and share messages in social media marketing activities (Chang et al., 2015). The results

confirm that the three types of persuasive messages are important to encourage users to click like and to share post messages.

A study by Alarifi et al. (2015) employed the Elaboration Likelihood Model to understand how promotional messages influence lurkers and posters' beliefs and participation. This study tested the model by collecting the data from 366 members at two corporate Google communities in a large Australian retail organisation. The results show that promotional messages do not – always – yield the hoped for results among lurkers; however, they do make posters more enthusiastic to participate (see Figure 2.20).

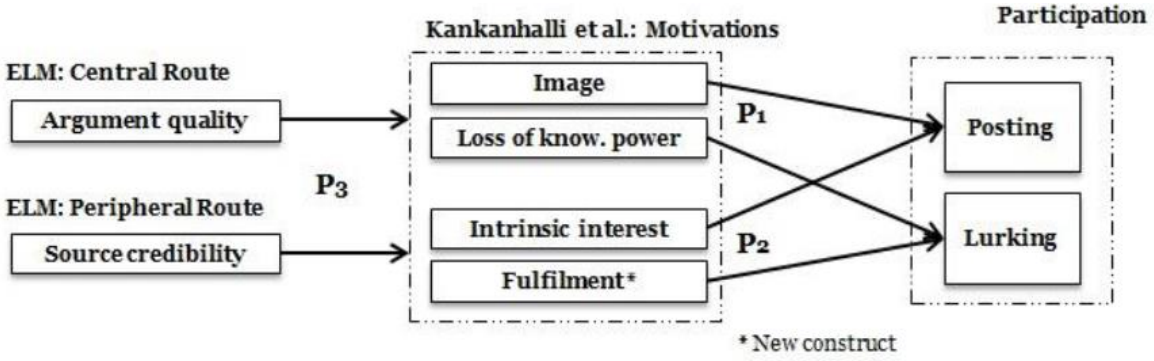


Figure 2. 20 The research model for the study by Alarifi et al., (2015: 7)

To examine the influence of third-party seals on assurance perceptions and, ultimately, trust, Yang et al. (2006) applied the theoretical lens of ELM. Through the peripheral route, they found that the display of third-party seals positively influences assurance perceptions.

Drawing on the Elaboration Likelihood Model (ELM), Cheung et al. (2012) examined four information cues used to evaluate the credibility of online reviews as follows: Source credibility, argument quality, review sidedness and review consistency, under different levels of involvement and expertise. They utilised an online survey that involved users of Epinions.com, a popular online consumer review website, to collect the data and test the proposed model. Their findings confirm that argument quality (central route) was the main factor affecting review credibility. Also, the participants relied on peripheral cues like source credibility, review consistency, and review sidedness to evaluate online consumer reviews (see Figure 2.21).

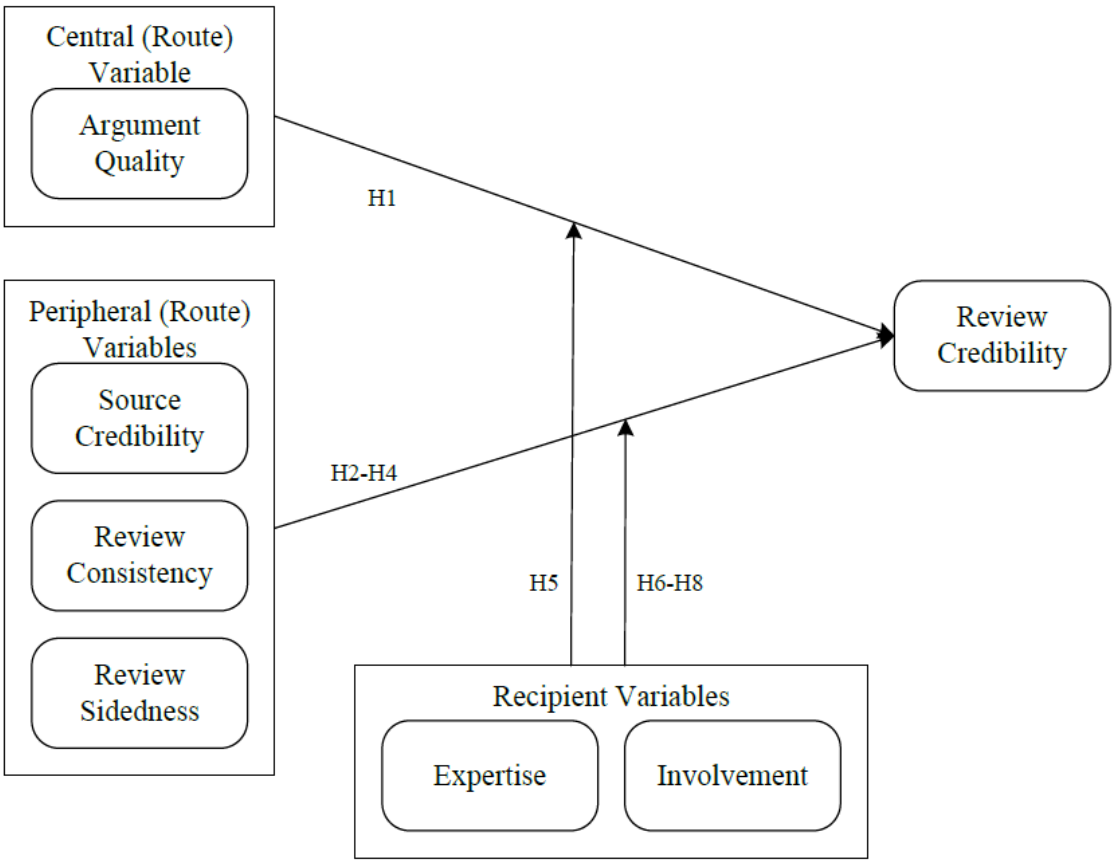


Figure 2. 21 The research model for the study by Cheung et al., (2012: 621).

Differently, the target of Angst and Agarwal' study (2009) was the adoption of electronic health information. Concern over information privacy (CFIP) was used as moderator. Rather than focusing on usefulness, they focused on attitude and adopted CFIP as a moderator between the persuasion routes and attitude (see Figure 2.22).

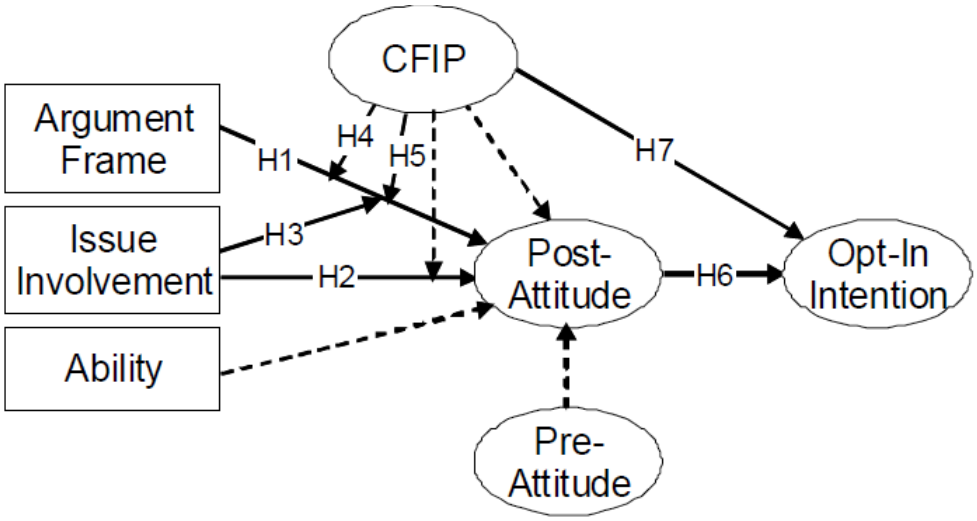


Figure 2. 22 Research model of the study of (Angst and Agarwal' study, 2009: 345).

From the perspective of the Elaboration Likelihood Model (ELM), Lee (2012) tested how attitude changes during the acceptance of Information Technology (IT). The main target of this study was the acceptance of information technology through an education program. He adopted an ELM based longitudinal approach to see how the roles of central and peripheral routes and attitude change during IT acceptance. Lee (2012) collected the data from junior students who were taking an Excel class in business administration, and analysed this data using the partial least-square method. The findings of the study statistically support all hypotheses (see Figure 2.23).

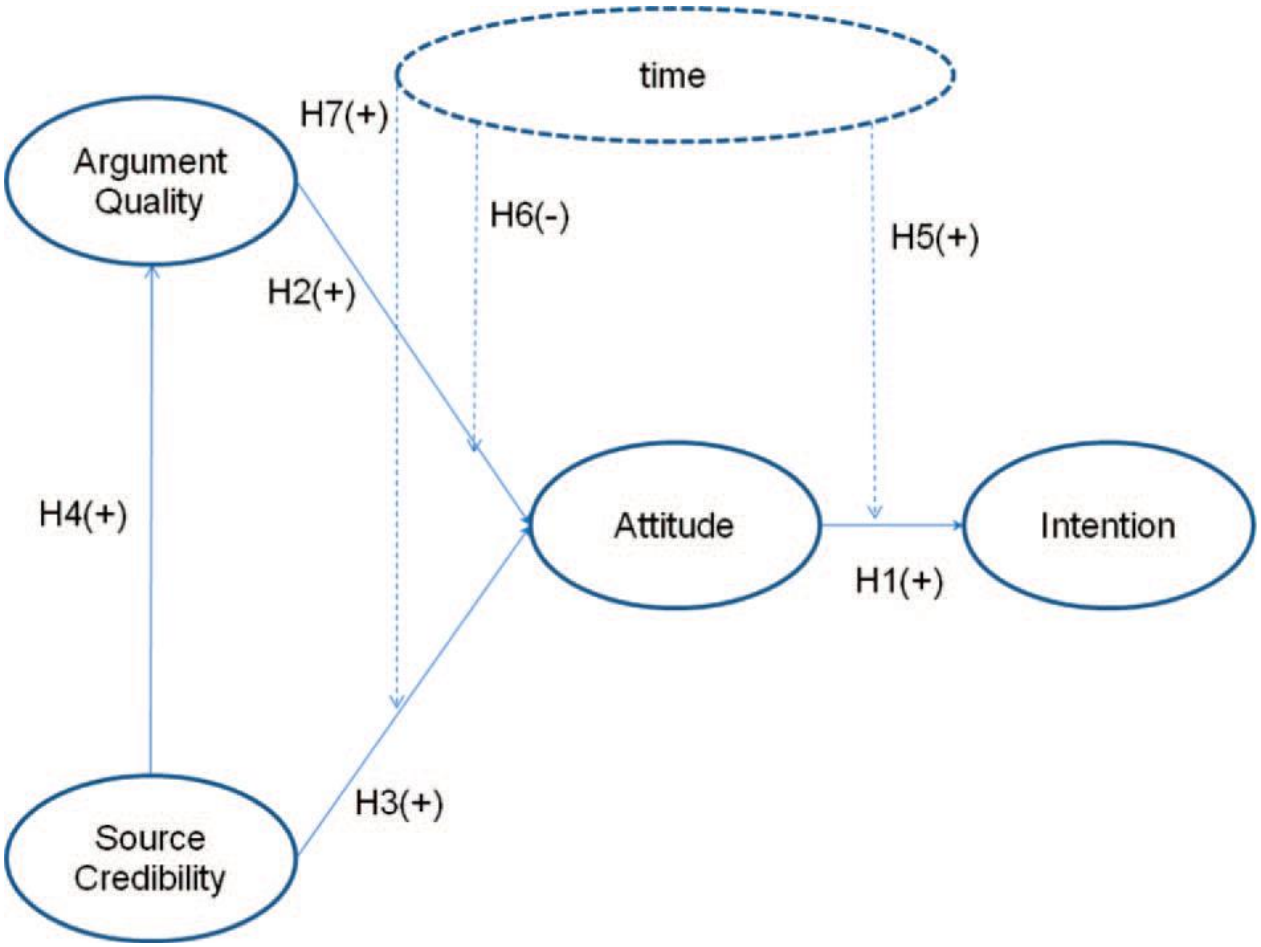


Figure 2. 23 Research model for the study by Lee (2012: 1164)

Zha et al. (2016) utilised the ELM to understand the basic processes underlying the effectiveness of persuasion to use digital libraries to obtain information. They confirm that source credibility and reputation have positive effects on information usefulness. However, the link between information quality and information usefulness is overpowered by reputation. Information need positively moderates the impact of information quality on information usefulness, and negatively moderates the effect of reputation on information usefulness (see Figure 2.24).

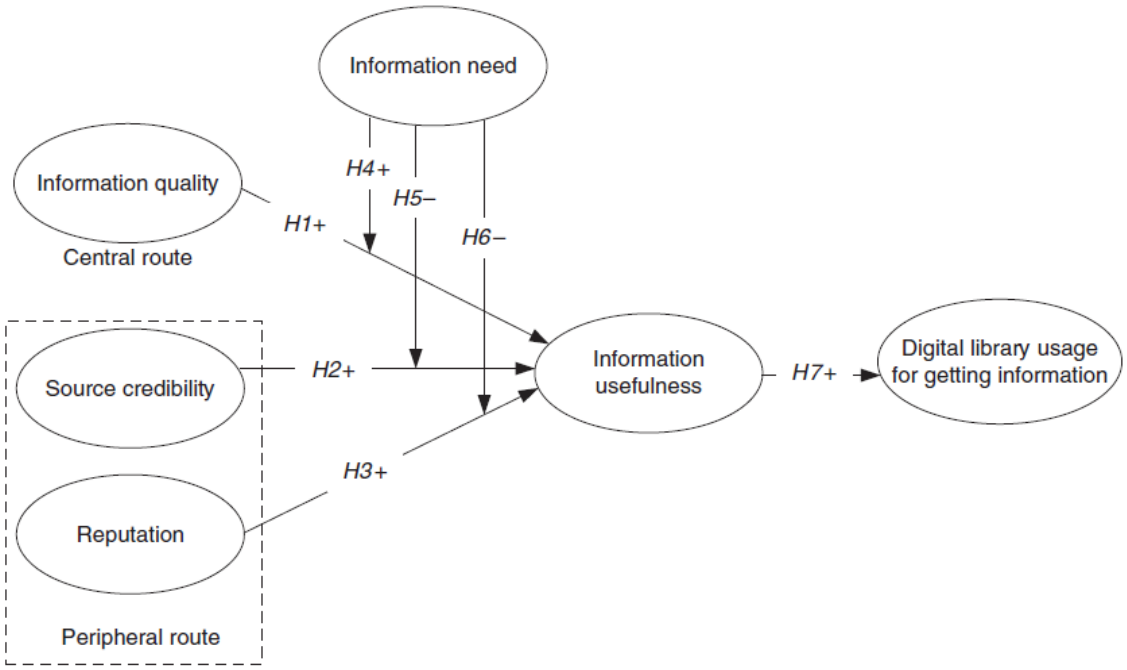


Figure 2. 24 Research model for the study by Zha et al, (2016: 290)

In a study conducted by Bowem et al. (2015), it was shown that consumer attitudes are affected by the source's credibility, but not by the level of elaboration. Moreover, intention to stay at the hotel, and intention to engage with the hotel brand via social media, was not affected by the level of elaboration or source credibility. The main aim of the study was to explore which current Facebook practices are effective/persuasive using the Elaboration Likelihood Model perspective.

The studies presented thus far provide evidence of the two routes of ELM and their effects either on attitude or usefulness.

Differently, Greiner and Wang (2010) applied ELM to test trust-building mechanisms for people to people lending marketplaces. They empirically tested the model by collecting the data from Prosper, the largest U.S. P2P lending marketplace. The major driver of bidding behaviour was economic status, and they used this as central route. However, the trust-building mechanisms that affect trust behaviour were social capital and listing quality. These two contracts were used as peripheral cues. The results support all the hypotheses.

While Greiner and Wang (2010) applied ELM to test trust building mechanisms in lending marketplaces, Yang et al. (2006) applied this model to investigate initial trust formation in

Internet shopping. By applying a 2*2 factorial laboratory experiment, they collected data from 160 respondents. The findings confirm that product information quality and the display of third-party seals positively affects trust in an e-retailer through assurance perception. Moreover, they tested the role of one's product involvement and trait anxiety as moderators. Their findings are in agreement with ELM due to users who have high involvement and low anxiety building their trust via a central route. Users who have low involvement or high anxiety build their trust via a peripheral route. They have proven that a critical strategy for online trust building is customising the persuasive arguments to different consumers (see Figure 2.25).

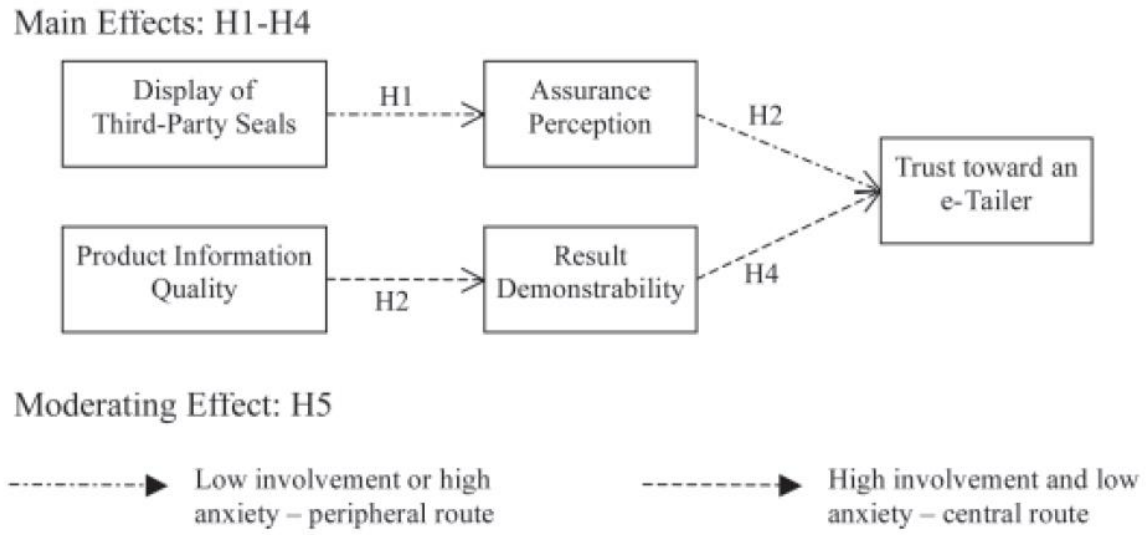


Figure 2. 25 Research model for the study by Yang et al, (2006: 436)

Similarly, by drawing on the Elaboration Likelihood Model and focusing on trust building process in mobile commerce, Yang (2016) examined the factors that influence initial trust in mobile commerce. The data was collected from 192 students who were undergraduates. These students were using a well-known business-to-consumer store in China. The findings indicate that trust in web shopping services significantly affects initial trust in mobile commerce. However, both information quality and the service quality of mobile commerce affect initial trust differently in this service (see Figure 2.26).

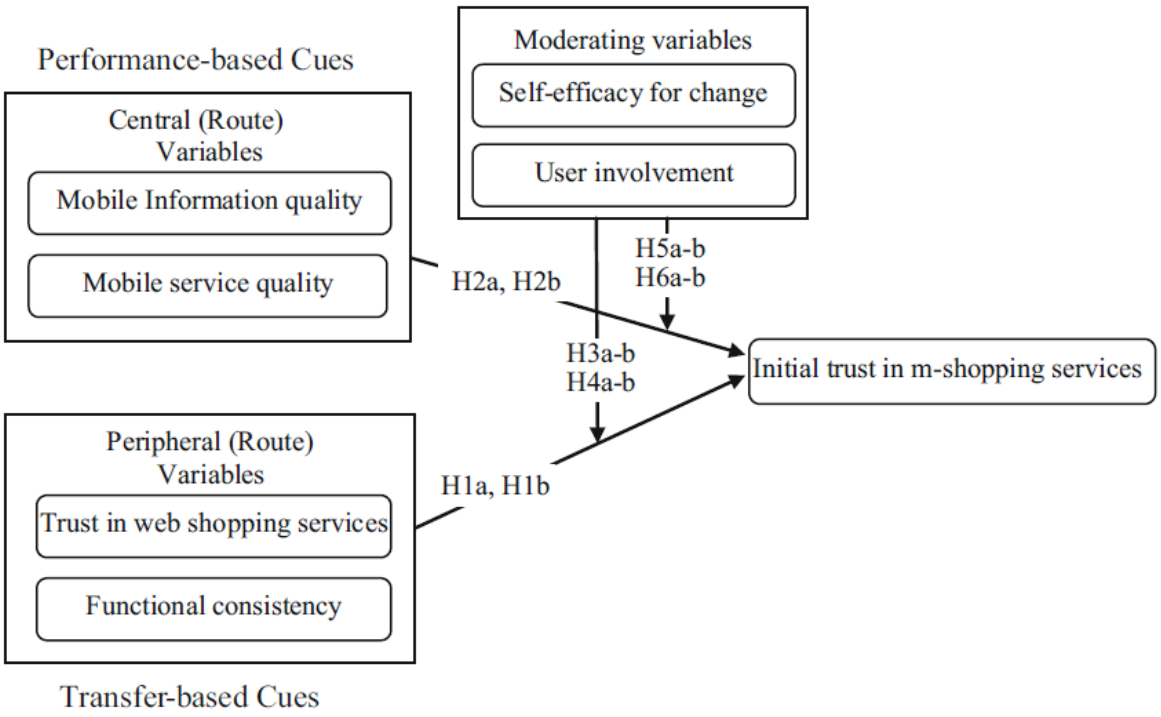


Figure 2. 26 Research model for the study by Yang (2016: 53)

Greiner and Wang (2010), Yang et al. (2006) and Yang (2016) applied ELM to test either trust or initial trust, and they used different types of persuasive arguments as a critical strategy. However, these studies do not show whether persuasive argument will affect trust for users who have privacy and security concerns, or what type of information should be included in it, especially for sensitive context like mobile banking.

Similar to Greiner and Wang (2010) and Yang et al. (2006), Pee (2012) has examined how individuals process information on social media to determine whether or not to trust the information. Based on the Elaboration Likelihood Model, Pee (2012) developed a model to elucidate the effects of information quality, source credibility, and majority influence on users' trust of information on social media. Personal involvement and users' prior knowledge were investigated as moderators. The results indicate that majority influence has a stronger effect on trust than the other factors (see Figure 2.27).

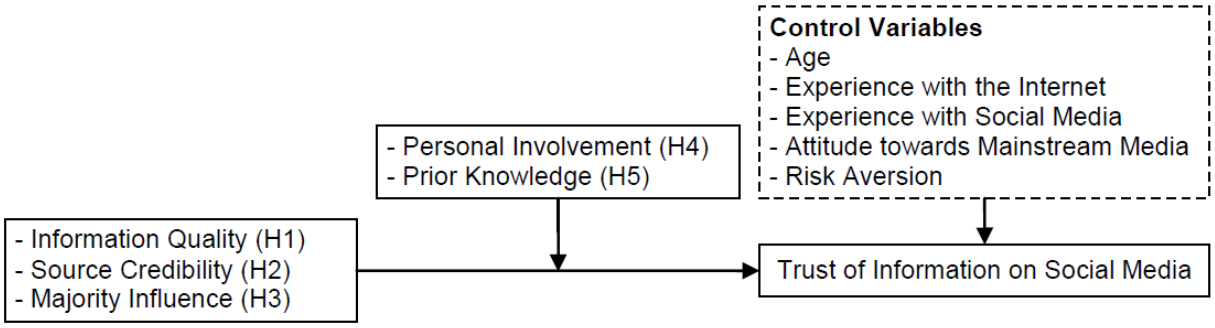


Figure 2. 27 Research model for the study by Pee (2012: 4).

However, Pee (2012) did not use an informational message about privacy and security polices for social media. A likely explanation for not using these polices is that privacy and security policies are more important for mobile banking users than for social media users.

Together, these studies (Greiner and Wang, 2010; Yang et al., 2006; Pee, 2012) applied ELM to test either trust or initial trust. In the same vein, Kong and Hung (2006) developed a model based on ELM to test customers' formation of initial trust and repeat trust simultaneously. They identified motivation and ability to assess online vendors' attributes as the key drivers of online trust attitudes.

To understand why users sometimes agree with the incorrect advice of an expert system, Dijkstra (1999) developed a model based on ELM. He discovered that subjects simply trusted the expert system without reading or studying the advice. This is inconsistent with the social psychological theory of persuasion ELM.

To understand how users follow the two routes of ELM to examine e-WOM, Shih et al. (2015) developed a theoretical model based on the Elaboration Likelihood Model (ELM). For data analysis, they collected data from 395 users who had experience in an online discussion environment. The findings verify that while argument quality affects the use of e-WOM through cognitive and affective attitudes, source credibility effects the adoption of e-WOM through cognitive attitudes only (see Figure 2.28).

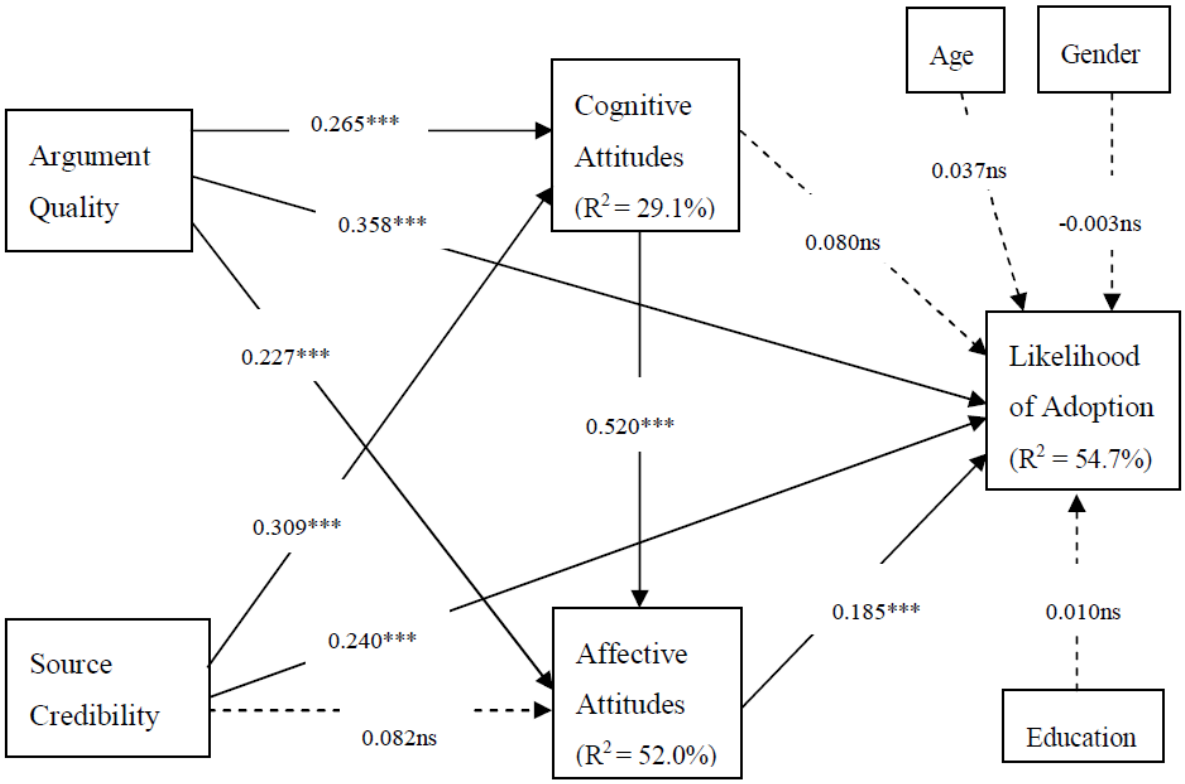


Figure 2. 28 Research model for the study by Shih et al, (2015: 8)

Based on the Elaboration Likelihood Model, Chen and Edward (2013) developed a model to understand the progress of relationship quality and the subsequent influence on members' loyalty in an online environment. They found that argument quality and source credibility had a positive impact on members' perceived relationship quality. Personal relevance and user expertise played positive moderator roles between argument quality and relationship quality, and negative moderator roles between source credibility and relationship quality.

Pee and Lee (2016) used ELM to understand how users form trust in information on social media. This study proposed and empirically examined the proposed model that identified the information processing routes through which users develop trust (see Figure 2.29).

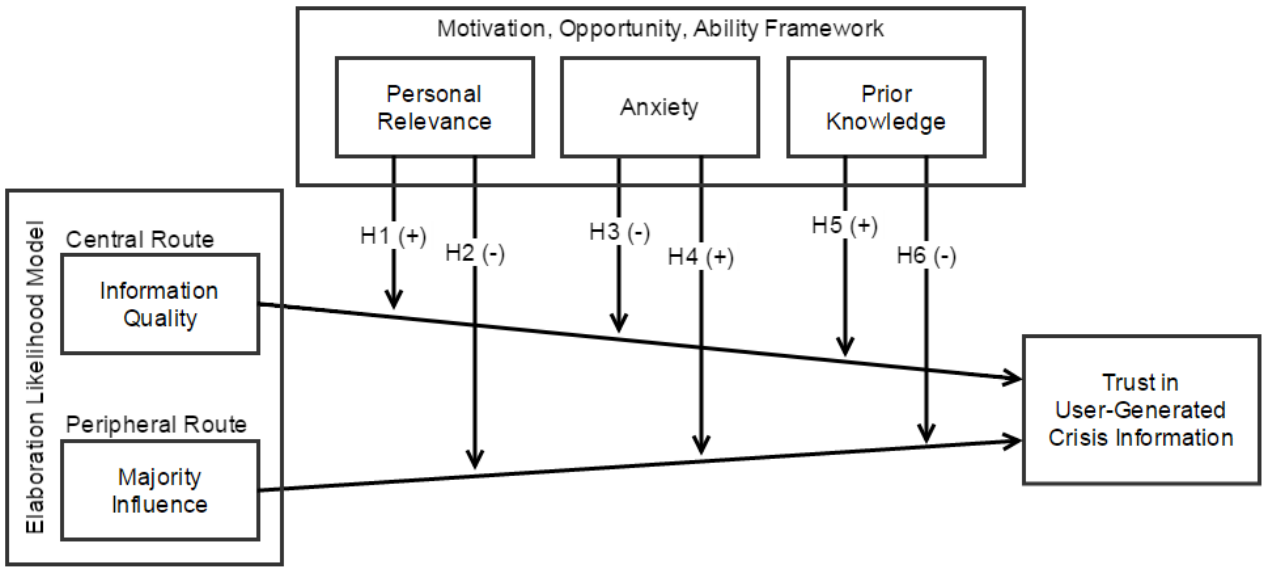


Figure 2. 29 Research model for Pee and Lee (2016: 27).

Based on the Elaboration Likelihood Model (ELM) and the Toulmin's Model of Argumentation, Kim and Benbasat (2009) examined the role of the price of the product on users' trust in e-commerce. Product price was predicted to be a moderating factor that would influence the customers' motivation to scrutinise more closely the content of the trust-assuring arguments. The findings suggest that when the price was high, the customers were influenced by the trust-assuring argument's content.

Bezes (2015) asked "Could the difficulties that retailers face in creating a seamless, cross channel experience is due to the fact that their stores and website activate such different central and peripheral routes to persuasion that perfect transferability between channels is not possible?" To answer this question, Bezes (2015) applied the Elaboration Likelihood Model. He provided a solid support for research aimed at identifying other channel-related central and peripheral elements. According to this study, the store and the website had no central or peripheral dimension in common. Bezes concluded that the pricing and the sales promotions were both peripheral dimensions; the former influences in-store buying, and the latter website buying.

Warden et al. (2006) implemented the ELM to test the importance of the user's experience in online commerce. Their study suggests that users follow the central route concerning

marketing messages when they want to check travel discounts, information access, and system security assurance. However, users follow the peripheral route when they are looking for price comparisons and the protection of personal information.

Bansal et al. (2015) investigated how users perceive and process privacy assurance mechanisms in an e-commerce context. They argue that the privacy concerns of users play a crucial role in these mechanisms. The findings of their study explain that the level of privacy concerns of users play a role in forming trust and disclosing private information (see Figure 2.30).

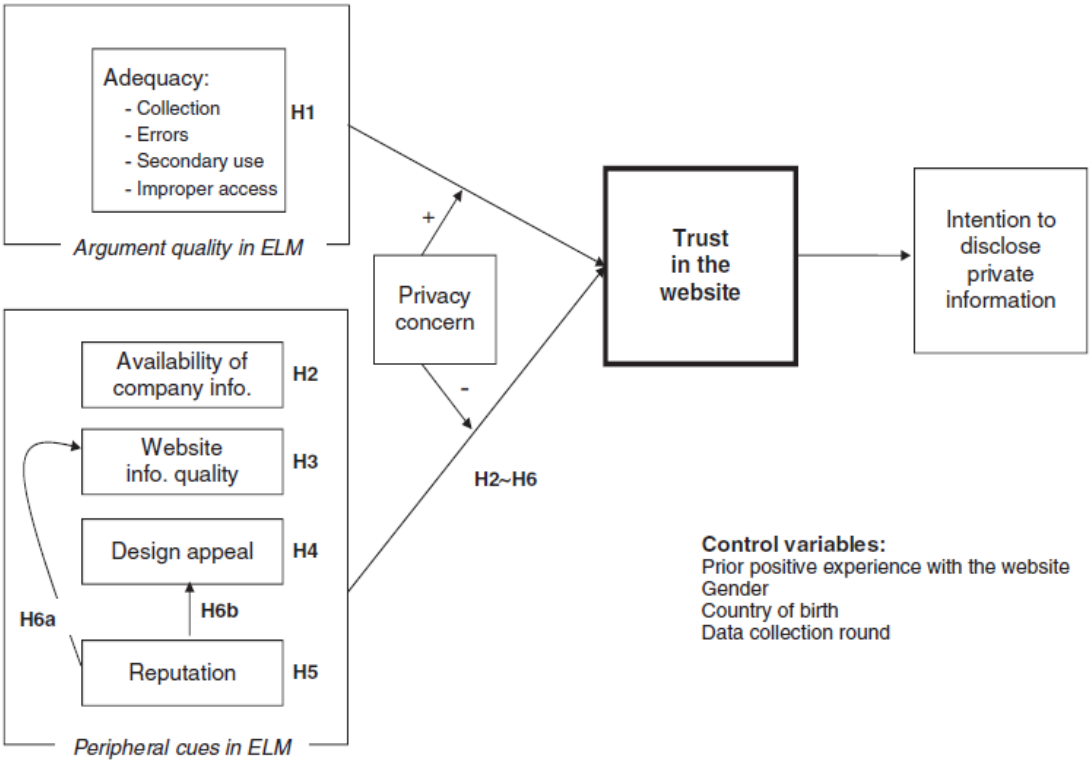


Figure 2. 30 Research model for Bansal et al, (2015: 628).

By integrating the Elaboration Likelihood Model and social influence theory, Li (2013) explored how source credibility and the argument quality of informational message can play a role in social influence. Bansal et al. (2008) examined whether privacy concerns can play a positive moderating role between the quality of privacy policy statements and trust, and between privacy assurance and trust in different contexts, and the subsequent decision to use private information in an online system. The findings show that the level of privacy concerns

of users plays an important role in these relationships. Table 2.7 reviews and highlights the previous studies from the literature on ELM, and the key findings.

2.6.3 ELM, online and mobile banking

Zhou (2012) was the first to apply ELM to the mobile banking context. His main focus was initial trust. He applied self-efficacy as a moderator between the two routes of ELM. The first route included both information quality and service quality, and the second route included system quality; structural assurance and reputation (see Figure 2.31). Although security and the privacy of mobile banking service is a key challenge in attaining users' adoption of it, Zhou (2012) did not consider these two important factors in his study. Up to now, far too little attention has been paid to the privacy and security policies of mobile banking systems to be included in informational messages in a persuasion process.

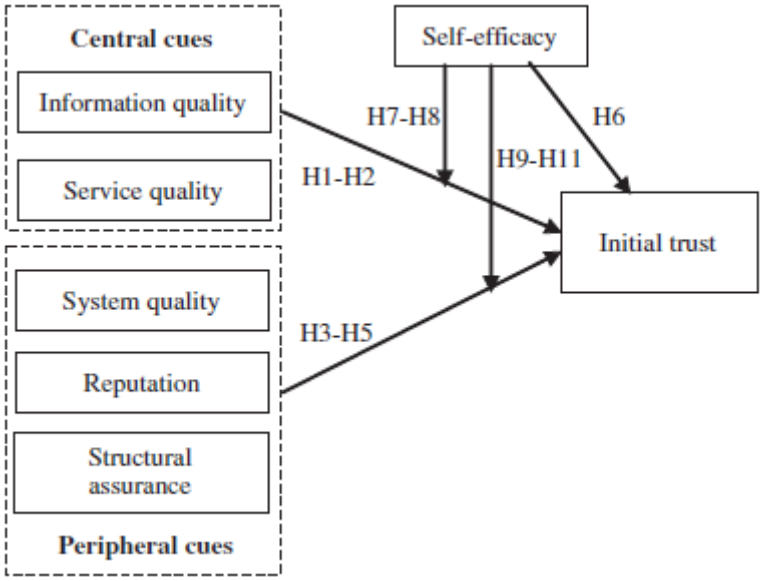


Figure 2. 31 Reserch model of Zhou (2012: 1520)

Munoz Leiva et al. (2010) aimed to examine how to improve trust in online banking systems by focusing on the Elaboration Likelihood Model, and they found that reading customers' comments increased trust in this system.

Bansal et al. (2008) examined whether privacy concerns can play a positive moderating role between the quality of privacy policy statements and trust, and between privacy assurance and

trust, in three contexts, which are online banking, e-commerce and the health sector. This hypothesis was not supported in the online banking sector. They explain that by showing that building trust in a sensitive context requires something more than just the adequacy of the privacy policy statement.

Shih et al. (2010) applied the ELM in a mobile banking context to explain the differences in thinking between users and non-users of a mobile banking system. The findings prove that users equipped with more product knowledge use the central route rather than using peripheral information.

To summarise, although Bansal et al. (2008) examined the positive moderating role of privacy concerns on privacy policy statement (as argument quality) and trust, this moderating role was not supported in the finance sector. They explain this result by showing that building trust in sensitive contexts requires something more than just the adequacy of the privacy policy statement. Accordingly, to ensure the positive moderating role of privacy concerns, it is not enough to include only the privacy policy in an informational message to play a sufficient role in building trust. Therefore, this study argues that an informational message for mobile banking users should include both the privacy and security policies of this system. The following figure (2.32) supports this idea by showing the importance of security issues in the mobile banking sector:

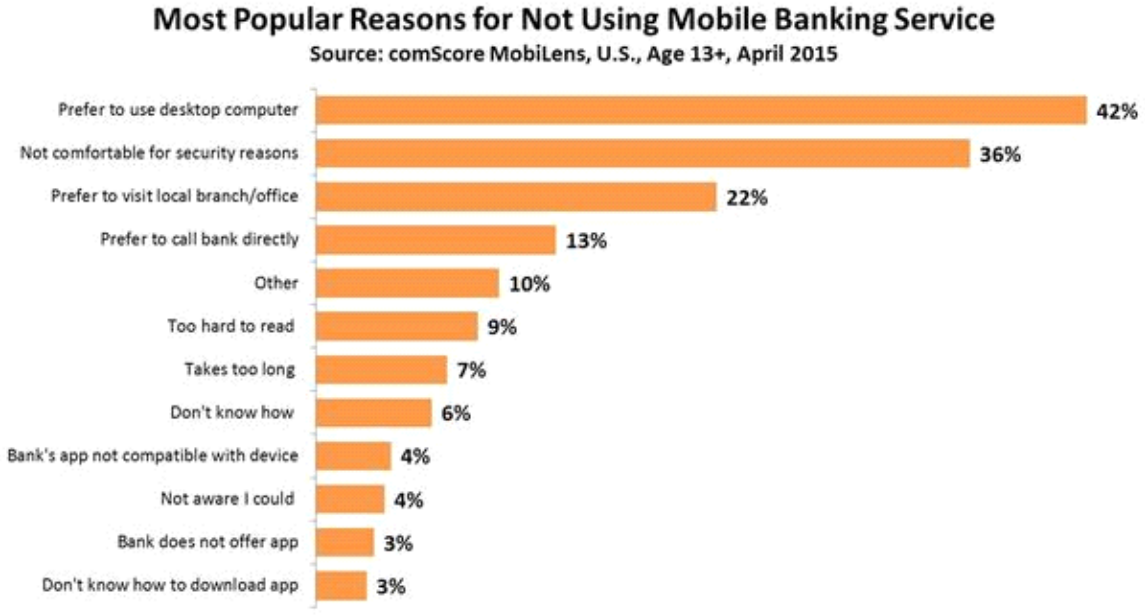


Figure 2. 32 Reasons for not using mobile banking services.

From the figure above, it is clear that 36% of respondents cited security reasons as a main obstacle to not using mobile banking systems. Although, it is important to include privacy policy in an informational message, researchers cannot ignore the importance of the role of the security policy of this service. This policy should be included in an informational message to persuade users to trust and use the service.

For that reason, this study has included the security and privacy policy of the mobile banking system adopted by HSBC bank (as argument quality) in an informational message to test trust changes.

To conclude, while existing studies have identified the antecedents of trust and their direct effect on it, there are few published studies on how an argument in an informational message can change users' trust in mobile banking systems, and how privacy and security concerns play a role in the persuasion process. Consequently, this study aims to explain the persuasion process to increase trust in mobile banking systems through the consideration of privacy and security concerns. In particular, drawing on ELM, the research examines the impact of argument quality and source credibility (trustworthiness and source expertise) on trust. Security and privacy concerns are added as moderators.

Table 2. 7 Summary of the main studies from the ELM literature and the key findings.

Variable	**Findings**	**references**
Argument Quality	The effect of information quality on information usefulness is overpowered by reputation.	Zha et al. (2016).
	Argument quality positively affects perceived usefulness.	Chung et al. (2015).
	Argument quality affects members' perceived relationship quality.	Chen and Edward

	Users' cognitive attitudes towards e-WOM are positively affected by argument quality.	(2013)
	Users' affective attitudes towards e-WOM are positively affected by argument quality.	Shih et al. (2015).
	The likelihood of e-WOM adoption is positively influenced by argument quality.	Shih et al. (2015).
	Consumers' higher elaboration of a hotel marketing message on Facebook is likely to drive consumers to process that message via the central route to persuasion.	Shih et al. (2015)
	Perceived usefulness of information is positively influenced by argument quality.	Bowen et al. (2015).
	Perceived argument quality positively influences attitude	
	Argument quantity is positively related to attitude towards information security.	Bhattacherjee and Sanford, 2006; Sussman and Siegal, 2003.
	Argument quality influences perceived usefulness and ease of use.	Lee, 2012.
	Argument quality influences perceived usefulness.	Ng and Atreyi, 2008.

	Argument quality (privacy assurance mechanisms) positively affects trust in e-commerce.	Li and Ku, 2011, Cheung et al., 2008. Bansal et al. 2015.
Mobile information quality	In mobile shopping services, initial trust and information quality positively correlate.	Yang (2016)
Mobile service quality	In mobile shopping services, initial trust and service quality positively correlate.	Yang (2016)
Trust in web shopping services	Initial trust in mobile shopping services and trust in web shopping services positively correlate.	Yang (2016)
Functional consistency	The relationship between initial trust in mobile shopping services and functional consistency is positive.	Yang (2016)
Source Credibility	The relationship between source credibility and information usefulness is positive. Source credibility positively affects perceived usefulness. The relationship between source credibility	Zha et al. (2016). Chung et al. (2015).

	and attitudes towards e-WOM is positive.	Shih et al. (2015).
	Source credibility and users' affective attitudes towards e-WOM positively correlate.	
	The likelihood of e-WOM adoption is positively influenced by source credibility.	Shih et al. (2015).
	A more credible source associated with a hotel marketing message on Facebook is likely to drive consumers to follow the message through the peripheral route to persuasion.	Shish et al. (2015).
	Source credibility positively affects members' perceived relationship quality.	Bowen et al. (2015)
	Perceived usefulness of information is positively influenced by source credibility.	
	Source credibility positively affects attitude.	Chen and Edward (2013).
	Perceived usefulness, ease of use and playfulness are positively influenced by source credibility.	Bhattacherjee and Sanford 2006;
	Source credibility (trustworthiness and source expertise) positively influences	Sussman and Siegal 2003

	perceived usefulness. Source credibility is positively related to individuals' trust of information on social media.	Lee 2012 Li and Ku (2011) Cheung et al. 2008 Pee 2012
Argument Frame	Positively framed messages versus neutrally framed messages affect post-manipulation attitudes.	Angst and Agarwal (2009)
Issue Involvement	In more highly involved individuals, post-manipulation attitudes positively affect electronic health records use.	Angst and Agarwal (2009)
Self-efficacy for change And user involvement	• The relationship between trust in web shopping services and initial trust in mobile shopping services depends on the level of self-efficacy for change and user involvement. • The relationship between functional consistency and initial trust in mobile shopping services depends on the levels of self-efficacy for change and user involvement. • The relationship between mobile information quality and initial trust in mobile shopping services depends on the levels of self-efficacy for change and user involvement. • The relationship between mobile service quality and initial trust in mobile shopping services depends on the levels of self-efficacy for change and user involvement.	Yang (2016)
Information	Information need positively moderates the effect of information quality on	Zha et al. (2016).

need	information usefulness, and negatively moderates the effect of reputation on information usefulness.	
Privacy concern	The level of privacy concerns of users plays an important role in trust formation process. Privacy concerns positively moderate the influence of understanding the ability of privacy-policy statements and adequacy of privacy-policy statements on trust. Concern for information privacy plays an important moderator role between argument framing and attitude toward EHR use. This role depends on the information included in framing an argument.	Bansal et a. (2015) Bansal et al. 2008 Angst and Agarwal 2009

2.7 Conclusion

This chapter has reviewed the existing literature regarding the research topic. It has reviewed the main theoretical models used in Information Systems. It provided an overview of the Theory of Reasoned Action, the Theory of Planned Behaviour, the TAM and the ELM, followed by presenting an overview of trust and its definition. After that, it summarised the literature on trust and the online environment (e-commerce, m-commerce, online banking and mobile banking). This chapter puts forward the Elaboration Likelihood Model as a persuasion model. This model can be used for two different routes of persuasion, which are the central and the peripheral routes; the main differences between these two routes have been discussed. After

that, this chapter reviewed the literature on ELM and trust in information systems. Finally, the research gap was discussed by explaining that while existing studies have identified the antecedents of trust and their direct effect on trust, it is still unknown how persuasive messages can change the trust of users concerning mobile banking, and how privacy and security concerns play a role in the persuasion process. Therefore, this study aims at explaining the persuasion process to increase trust in mobile banking services, with the consideration of privacy and security concerns. Therefore, this chapter has highlighted the problems around trust in mobile banking services, and the research gap.

Finally, by reviewing and analysing the previous studies related to the research topic, the researcher has been able to use it as the basis for developing a framework (based on ELM) to extend the knowledge on trust in mobile banking, and the role of privacy and security concerns as a moderator. The next chapter presents the development of the theoretical framework to be tested empirically.

Chapter 3 : Conceptual Framework

3.1 Introduction

The purpose of Chapter Two was to review the literature and define the research gap. Drawing on the findings from Chapter Two, a comprehensive theoretical model has been developed for this study based on the ELM. Chapter Three presents this theoretical model. This model explains the dependent variable, which is trust, and the independent variables, which are argument quality, source expertise and trustworthiness. Moreover, it presents the privacy and security concerns as moderators. This chapter is divided into five sections. Section one presents the framework of the research development and research hypotheses. In section two, the dependent variable, which is trust, is explained. Section three explains the independent variables/ factors affecting trust in mobile banking. Section four describes the moderator factors, which include privacy and security concerns. Section five presents the chapter's conclusions.

3.2 Development of the model and thesis hypotheses

In Chapter Two, the literature relevant to trust in information systems in general, and in mobile banking in particular, was reviewed, and the research gap defined. A discussion has been presented on the need to understand how persuasive messages including the privacy and security policies of the mobile banking service can change users' trust in this service; thus, how privacy and security concerns play a role in this persuasion process. This chapter identifies the constructs of this study in more detail. Figure 3.1 presents the research framework proposed for the study and the research constructs. This framework extends the Elaboration Likelihood Model to the mobile banking system context by including information about privacy and the security policies of mobile banking systems in an informative message. Moreover, this model includes both privacy and security concerns together as moderators for the first time. Drawing on the ELM, this model suggests that trust change among users may be caused by argument quality (central route), source expertise and trustworthiness, which are the two dimensions of source credibility (peripheral route) (Ohanian, 1990 and 1991).

It is proposed that these three factors have a positive impact on trust in mobile banking systems. Privacy and security concerns have positive moderating roles between argument quality and trust, as seen in Figure 3.1.

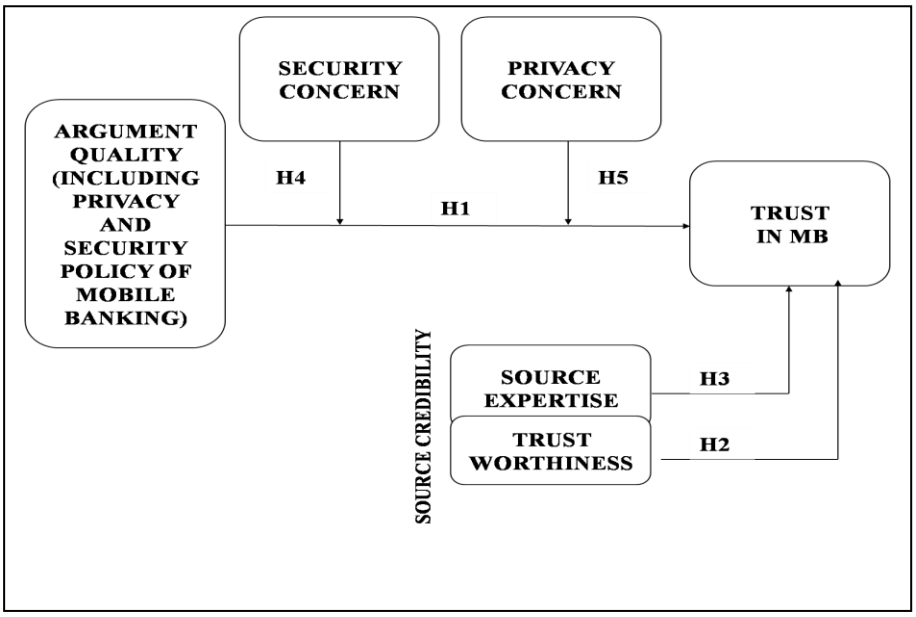


Figure 3. 1 Proposed Research Framework.

Table 3.1 presents all the study constructs (dependent, independents and moderator constructs) and their proposed hypothesised relationships. To summarise, based on the research framework, the impact of argument quality, trustworthiness and source expertise on trust in mobile banking will be investigated. Additionally, the moderating role of privacy and security concerns will be assessed.

Table 3. 1 Constructs, code name, and their hypothesised relationships

Constructs	Code name	Hypothesized relationships.
Argument Quality	AQ	AQ ⟹ TR
Trustworthiness	TW	TW ⟹ TR
Source expertise	SE	SE ⟹ TR
Privacy concerns	PC	Moderator between AQ and TR.
Security concerns	SC	Moderator between AQ and TR.
Trust in Mobile Banking	TR	Dependent variable.

3.3 Dependent variable – Trust

The dependent variable in this study is trust in mobile banking. As mentioned in Chapter Two, trust can be defined as "a psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer's ability to monitor or control bank's actions" (Yousafzai et al., 2003, p. 849). Many different theoretical frameworks, including the Elaboration Likelihood Model, have used trust as a key variable (Yang et al., 2006; Pee, 2012). Thus, for this study, trust in mobile banking is considered a dependent variable.

3.4 Factors affecting trust in mobile banking from the perspective of ELM

According to the ELM, there are two different routes of influence which cause attitude changes among individuals. These two routes are called the central route and the peripheral route (Petty et al., 1981).

A person who depends on the central route needs to think judgmentally about arguments in an informational message before making an informed judgment about the target behaviour (Bhattacherjee and Sanford, 2006). So, attitude change arises from a person's consideration of information that reflects what that person feels are the true merits of a certain position (Petty and Cacioppo, 1984).

According to the ELM, argument quality and the peripheral cues of an informational message affect attitude change (Bhattacherjee and Sanford, 2006). Peripheral cues are related to

information about the message, such as the message source (Bhattacherjee and Sanford, 2006). Source credibility is one of the most frequently referenced cues (Bhattacherjee and Sanford, 2006; Lowry et al., 2012). Table 3.2 presents the definition of all constructs in this study. The next section presents these two main constructs.

3.4.1 Argument quality

A strong determinant of persuasion and attitude change is argument quality (Petty and Cacioppo, 1986). Petty et al. (1981) found that several factors can influence persuasion, such as argument quality, and the central route is normally operationalised as argument quality. This argument refers to the information included in a message. By applying the Elaboration Likelihood Model, Mak et al. (1997) found that users who are involved are influenced by argument quality. Thus, the central route of attitude change is normally defined in ELM research by using argument quality (Bhattacherjee and Sanford, 2006**).** Kim and Benbasat (2003) propose that the formation of website trust can be explicated from the perspective of the ELM. They found that customers might be afraid of many potential issues regarding the general trustworthiness of Internet stores when they consider completing transactions with unfamiliar Internet sites. If assuring arguments about the potential issues are provided, these arguments are expected to weaken the influence of unfavourable thoughts. As a result, trust in the website is likely to increase.

Different studies have confirmed that argument quality plays an important role in forming users' 'trust in online information (Munet et al., 2013; Pee, 2012). Using the Elaboration Likelihood Model, Greiner and Wang (2010) suggest that both the central and peripheral routes of ELM play important roles in the trust development process, which affects trust behaviour. Similarly, Yang et al. (2006) showed that argument quality is a critical strategy for initial online trust building. As a result, vendors can persuade users in order to motivate them to complete online transactions. Users' formation of trust in an online vendor could be explained via a persuasion route. This determines how people change their attitudes (Yang et al., 2006). Consequently, the first hypothesis developed for this study is summarised as follows:

H1: The argument quality of the message has a positive impact on trust in mobile banking services.

3.4.2 Source credibility

Source credibility focuses on the source of the message- not the message itself (Sussman and Siegal, 2003). Many studies have shown that individuals can be persuaded by a message when the source itself is perceived as credible (Wilson and Sherrell, 1993; Eisend, 2006; Sussman and Siegal, 2003). Pee (2012) suggests that source credibility influences users' trust in information on social media because it can generate inferences or expectancies about the probable validity. Sussman and Siegal (2003) define source credibility as *"the extent to which the receiver of the information see a source of information as believable, competent, and trustworthy"* (cited by Bhattacherjee and Sanford, p 11).

Several studies have applied source credibility as the main construct in the peripheral route (Bhattacherjee and Sanford 2006; Brinol and Petty, 2009; and Lee, 2012). Moreover, Bhattacherjee and Sanford (2006) state that, in IT acceptance, since customers often follow expert recommendations to find out about a new system, source credibility can be used as a peripheral cue. In information systems research, Mak and Lytinen (1997) proved that low-involvement individuals' acceptance of advice put forward by knowledgeable systems can be influenced by source credibility. Regarding online services, according to Rieh and Belkin (1998), source credibility positively influences the judgments of cognitive authority.

This study will utilise this factor, motivated by its common use in ELM studies (e.g., Petty et al., 1981; Sussman and Siegal 2003; Bhattacherjee and Sanford, 2006). The two main dimensions of source credibility are trustworthiness and source expertise (Ohanian, 1990, 1991). These two dimensions are discussed in the next section.

Trustworthiness

Trustworthiness reflects the belief of a person that the service provider will provide information in an honest way (Ohanian. 1991). Mayer et al. (1995) define the differences between trust and trustworthiness. They state that while "*perceived trustworthiness is the trustor's perception of how trustworthy the trustee is; trust is the trustor's willingness to engage in a risky behavior" (Cited by Gefen et al., 2003.P.2).* Different studies support the idea that trustworthiness can be identified as a significant predictor of consumers' trust in E-commerce and online banking (Roy et al., 2012; Jarvenpaa and Tractinsky, 1999).

Chu and Kamal (2008) suggest that the readers of a blog are likely to trust the comments the blogger makes if the blogger has the ability to make valid recommendations. Similarly, Ristig (2009) proposes that trustworthiness will be positively related to trust.

Yousafzai et al. (2009) found that the lack of empirical attention paid to perceived trustworthiness has affected a richer examination of users' trust in online shopping. They mention that researchers have rarely addressed trustworthiness as a separate construct; it is mostly subsumed by a trust concept.

Based on the previous discussion, the second hypothesis developed for this study has been summarised as follows:

H2: Trustworthiness positively influences trust in mobile banking services.

Source expertise

Giffin (1967) defines expertness as the extent to which a source is believed to be capable of providing valid assertions. A person appears credible if he or she shows good knowledge and experience of the topic (Feick and Higie 1992; Shrauger and Schoeneman 1999). People assume that credible sources provide credible information, without considering the content of the message (Ko, Kirsch, and King, 2005).

By applying the Elaboration Likelihood Model (ELM) to find out why users sometimes follow the wrong information of an expert system, Dijkstra (1999) showed that users hardly read the information. They simply trust the expert system. This result is in agreement with the ELM peripheral route. As a result, consistent with these rationales, this study proposes that source expertise has a significant impact on trust in mobile banking. This is summarised as follows:

H3: Source expertise positively influences trust in mobile banking services.

3.5 The moderation hypotheses: privacy and security concerns as moderators

With the fast diffusion of online systems, online banking services have become an alternative channel for banks to provide their service to users (Tan and Teo, 2000). Since online banking has the potentially high risk of substantial economic loss, security and privacy have become main concerns for users (Hertzum et al., 2004). Many studies have confirmed that the adoption

of an online banking system can be affected by privacy and security issues (Tavilla, 2012; Hertzum et al., 2004; Tan and Teo, 2000; Luo 2002). Privacy and security concerns are expected to have an increased impact on m-commerce (Coursaris et al., 2003; Tavilla, 2012).

Previous studies have argued that vendors can decrease privacy concerns and increase trust in a website by adopting different strategies like privacy-related mechanisms (Slyke et al., 2006; Chellappa and Sin, 2005). Bansal et al. (2008) highlight how privacy concerns will be an important moderator of the link between argument quality and trust in some contexts. Luo (2002) proposed that building online trust is a solution to consumers' privacy concerns. Also, Bansal et al. (2015) showed that the level of privacy concerns plays a crucial role in the trust formation process and in providing personal information online.

Culnan and Armstrong (1999) found that users who have privacy concerns are educated by fair processes, and such users will provide private financial information online. Then, they will create their own profile to be used for marketing purposes by using their financial information.

At the same time, the existing literature shows that security is the main factor that determines the adoption of online banking (Sudha et al, 2007). Moga et al. (2012), state that the perceived unsafe nature of the Internet has been created because of hackers' actions and extensive phishing websites. These have affected consumers' level of trust in online banking.

Thus, the security of information has become a serious problem and a great concern for information system users (Richardson, 2008). Hertzum et al. (2004) claim that e-banking users have security concerns when they process sensitive private information.

Yenisey et al. (2005) explain that IT users' perceptions of information security should have a great influence on their decisions. Also, Huang et al. (2011) found that users will be more likely to follow the security procedures if they have security concerns. Therefore, users with high security concerns read the message more thoroughly before making a decision. As a result, by sending an informational message to users to inform them about the security of mobile banking services, users' security concerns will decrease. This could have a great effect on trust. This argument is consistent with the ELM's central route.

In the same way, Angest and Agarwal (2009) argue that *"The stronger the concern, the more persuasive a message needs to be in order to overcome the associated apprehension" (p. 349).* Furnell and Karweni (1999) suggested that as a result of such strong messages, users with a greater awareness of the security policies of online banking systems will be more likely to

adopt this system. Therefore, awareness is key to increasing users' confidence in online services.

During an exploratory interview in an experiment, Huang et al. (2011) explain that the participants refused to use e-banking, because they did not know about the potential security threats they might face. Thus, a concise introduction to the security threats related to online banking services should be provided to users to help them perceive those threats as familiar. Then users will be more willing to adopt and use this system.

Therefore, online banking website managers can enhance users' trust in the service (who have privacy and security concerns in our case) by showing how to prevent, observe and predict threats, and then informing them that they can be notified if they are exposed to any threat (Huang et al., 2011).

Hence, privacy and security concerns are expected to play positive roles as moderators between argument quality and trust in mobile banking systems. Thus, consistent with prior research, two hypotheses have been proposed, which are as follows:

H4: Privacy concerns positively moderate the effect of argument quality on trust in mobile banking services.

H5: Security concerns positively moderate the effect of argument quality on trust in mobile banking services.

Table 3. 2 Research constructs definitions

Constructs	**Definition**	**Source**
Argument Quality (AQ)	"Refers to the persuasive strength of arguments in a message".	(Bhattacherjee and Sanford, 2006. P. 811).
Trustworthiness (TW)	"The perceived willingness of the source to make valid assertions"	(McCracken, 1989, p 311)**.**
Source Expertise (SE)	"The perceived ability of the source to make valid	(McCracken, 1989, p. 311).

	assertions"	
Privacy Concerns (PC)	“Individuals’ concern about the ‘threat to their information privacy’ when submitting their personal information on the Internet”	(Son & Kim, 2008, p. 504. Cited by Bansal et al., 2015. P. 626)
Security Concerns (SC)	SC is the concern about the unwillingness and inability of the website to protect the user’s information during transmission and/or storage.	(Pavlou et al., 2007) Cited by Bansal and Zahedi
Trust (TR)	Define trust in online banking as “a psychological state which leads to the willingness of customer to perform banking transactions on the Internet, expecting that the bank will fulfill its obligations, irrespective of customer’s ability to monitor or control bank’s actions”.	(Yousafzai et al., 2003. P. 849)

Chapter 4 : Research Methodology

4.1 Introduction

This chapter aims to explain the methodology used to achieve the aim and the objectives of this thesis. The aim of this research study was to examine how an informational message can affect trust in mobile banking systems, and the moderating role of privacy and security concerns, to extend the body of knowledge regarding trust in this context. By reviewing previous studies, a research framework and hypotheses regarding trust in mobile banking was developed. Privacy and security concerns were used as moderators.

In order to examine the hypothesis of the study, a survey questionnaire was created and distributed to users. First of all, participants were asked to respond to questions measuring privacy and security concerns. Then, participants watched a video and read a message about the privacy and security policies of the mobile banking service, which are provided on the HSBC bank website. After that, users were asked to complete the survey by answering the questions related to the four constructs included in the research framework. These constructs are: Argument quality, trustworthiness, source expertise and trust. This study collected the data regarding trust in mobile banking systems by using a quantitative data collection approach. Based on the previously validated scales and survey tools, the survey questionnaire was created. By using multiple-item perceptual scales from previous studies wherever possible, all constructs were measured. Minor changes were made to fit the mobile banking context. SPSS version 20 was used for the data analysis.

The following sections describe the methodology applied in this research. Section 4.2 describes the research's philosophical paradigms. Section 4.3 provides information about the study design. Section 4.4 presents the sampling method applied in this research. Section 4.5 describes the data collection procedure. Section 4.6 briefly explains the survey questionnaire development and the adoption of its items. Section 47 describes the scales measurement, and section 4.8 explains the data analysis method used in this study. Section 4.9 explains the ethical issues, and finally, section 4.10 presents the chapter's conclusions.

4.2 Research philosophical paradigms

Paradigm refers to the progress of scientific practice regarding people's expectations about life. It is about how research should be conducted (Hussy and Hussy, 1997). “Paradigms offer a framework comprising an accepted set of theories, methods and ways of defining data” (Hussy and Hussy, 1997, p. 47). Understanding of philosophical issues is very useful. It can help to clarify the research design, to recognise which designs will work, and to classify designs which are outside the researcher’s past experience (Easterby-Smith et al., 2012).

There are two main philosophical paradigms. These two paradigms are called phenomenological (interpretivist) and positivist (Hussy and Hussy, 1997). Table 4.1 summarises the alternative terms for these two paradigms.

Table 4. 1 Alternative terms for main research paradigms

Positivistic paradigm	Phenomenological paradigm (interpretivist)
Quantitative Objectivistes Scientific Expérimentalistes Traditionnaliste	Qualitative Subjectivist Humanistic Interpretivist

Source: Hussy and Hussy (1997, p. 47).

These two paradigms have different assumptions. The basis for these research paradigms are ontology, epistemology and methodology (Guba and Lincoln, 1994). Krauss (2005) states that “Ontology involves the philosophy of reality; epistemology addresses how we come to know that reality while methodology identifies the particular practices used to attain knowledge of it” p. 759. So, ontology is about the nature of reality, whereas epistemology is about the techniques used for inquiring into the nature of life.

“Epistemological assumptions are concerned with how knowledge can be created, acquired and communicated, in other words what it means to know” (Scotland, 2012, p. 9). Methodology is

a combination of techniques used to inquire into a specific situation (Easterby-Smith et al., 2012). The different assumptions of the two main paradigms are shown in Table 4.2.

Table 4. 2 The different assumptions of the two main paradigms

Assumption	**Question**	**Quantitative**	**Qualitative**
Ontological	What is the nature of reality?	Reality is the objective and singular, apart from the researcher.	Reality is subjective and multiple, as seen by participants in a study.
Epistemological	What is the relationship of the researcher to what is being researched?	Researcher is independent from what is being researched.	Researcher interacts with what is being researched.
Methodological	What is the process of the research?	Deductive process-cause and effect. Static design-categories isolated before study. Context-free generalisations leading to predictions, explanations and understanding Accurate and reliable through validity and reliability.	Inductive process Mutual simultaneous shaping of factors Emerging design-categories Identified during research process Context- bound Patterns, theories developed for understanding Accurate and reliable through verification.

Source: Creswell (1994. p.5).

Both qualitative and quantitative methods have different uses for different contexts. However, the core concern of these methods is the same. These two approaches will be defined by examining the details used to choose the right approach for this study.

Positivist approach

To explain human behaviour, researchers used to apply the positivist approach, which refers to numerical data collection. By applying this approach, the researcher can measure reality in a neutral way (Gall et al., 2007). Hussey and Hussey (1997) suggest that positivism concerns the sources of social phenomena. Therefore, in this method, the researcher applies the theories language, hypotheses and different variables. This method works with numbers and uses different statistical tools for data analysis. It includes data collection and organisation into quantifiable variables.

By examining the causal relationships between the basic elements of this method, the quantitative method provides an explanation of what is happening in the social world (Burrell and Morgan, 1979). According to this approach, to make generalisations, Nagel (1989) states that to prove the reliably and the validly of the actual causes of social methodical results, it is crucial for social science inquiry to be objective. Therefore, by applying a positivist methodology, the researcher should stay neutral and use a formal style of writing (Tashakkori and Teddlie, 1998). Laboratory experiments, surveys, formal and numerical methods are considered to be the most common quantitative methods (Orlikowski and Baroudi 1991, Cited by Chandio 2011).

Interpretivist approach

The interpretivist or qualitative method is identified as a non-positivistic method or a subjective method. For a better understanding of human behaviour by noticing individuals' values, Cavana et al. (2001) note that a qualitative methodology should be used. Based on qualitative methods, which involve an inductive approach, the researcher starts by focusing on a case and observing relationships. At the end, researcher will create a theory for the case. Conversely, the quantitative approach is deductive; the researcher starts with the theory to develop hypotheses. After that, the researcher will collect and analyse the data to accept or reject the hypothesis. The main differences between these two approaches are presented in Table 4.3.

Table 4. 3 The main differences between these two approaches.

Positivist	Interpretivist
• Uses large sample size. • Researcher does not get involved into problem domain. • The location is artificial. • Data is precise and specific. • It is concerned with testing hypothesis. Generalizes from sample to population	• Uses small sample size. • Researcher gets involved into the problem Domain. • The location is natural. • Data is subjective. It is concerned with developing theories. • Generalizes from one setting to another setting

Source: Hussey and Hussey (1997, p. 312)

To summarise, the phenomenological paradigm is an inductive approach. It starts with seeing what is happening, forming the relationships and then creating a theory. Conversely, the positivist paradigm is deductive, starting with theory to create hypotheses; after that, the data starts to be collected.

4.3 Research method adopted in this thesis

The aim of this research is to explain how persuasive messages affect trust in mobile banking services, and to explore the moderating role of privacy and security concerns.

Based on the Elaboration Likelihood Model (ELM), a hypothesised model of the mobile banking system was developed. In this study, it was decided that the best method to adopt for is a quantitative approach to empirically test and examine the relationship between the research variables that are set out in the proposed model. This is because this method is consistent with the topic, and it is the best method to adopt for this type of study. In fact, concerning the positivistic approach, Bryman and Bell (2011) suggest the normal process is to deduce and test the hypothesis from the theory by reviewing the literature.

Therefore, this study falls under the area of a quantitative methodological approach for many reasons. First of all, the hypotheses were formulated after reviewing the literature. The hypotheses have been tested by using data collected from a survey questionnaire. Second, the researcher has attempted to stay neutral throughout the study. Finally, the same process of quantitative research suggested by Bryman and Bell (2011) has been followed, which is to elaborate on theory, devise hypothesis, select the research design, devise measures of concepts, collect data, process the data, analyse the data, develop findings/conclusions and, finally, write up the findings/ conclusion. In accordance with these reasons, this study has applied a quantitative perspective to find out the factors that affect trust in mobile banking services, and to test the role of privacy and security concerns as moderators.

4.4 Study design

The research design helps the researcher to draw up a framework for data collection and analysis (Bryman and Bell, 2011). It is a framework for the generation of evidence that is suited to the research question (Bryman, 2004). The research design guides the researcher through the research process to achieve research objectives (Wilson, 2010). "A choice of research design reflects decisions about the priority being given to a range of dimensions of the research process" (Bryman and Bell, 2011, p. 40). These highlight the importance attached to stating causal relationships between variables; generalising to large groups; understanding behaviour, and having a temporal appreciation of social phenomena (Bryman and Bell, 2011).

There are three types of research design, which are exploratory, descriptive and casual designs (Wilson, 2010). This study has employed exploratory research to develop a better insight into the topic, leading to the development of the hypotheses (Wilson, 2010).

In this study, the focus has been on the research stage by stage, as seen in Figure 4.1. The research started with reviewing past studies related to the topic of this study, developing the theoretical framework and hypotheses, and finding the results to create rational deductions. The data was obtained via a survey. The survey method was used because it allows researcher to obtain accurate information, and provides accurate and relevant data through thoughtful design (Wilson, 2010).

The survey questionnaire was divided into three main parts. In the first part, the participants were asked to provide their demographic data, such as age, education, gender and occupation. Moreover, the participants were asked to answer questions related to the internet and mobile banking usage. In the second part, the participants were asked to answer a number of questions measuring privacy and security concerns. In the third part, they were asked to watch a video about mobile banking and read a small message that included information about the security and privacy policies of the mobile banking system, which was taken from the HSBC bank website. After that, the participants were asked to answer questions to measure the different constructs involved in the theoretical framework. The questionnaire was distributed to the participants either personally or via electronic mail (using Survey Monkey questionnaire). This study has used the statistical package for social sciences (SPSS) version 20 for the data analysis.

Reliability has been examined by using Cronbach's Alpha, and the validity of latent constructs. At the end of this study, the findings have been discussed, and recommendations for future research suggested, as well as the limitations. Finally, the conclusions to this research study are presented.

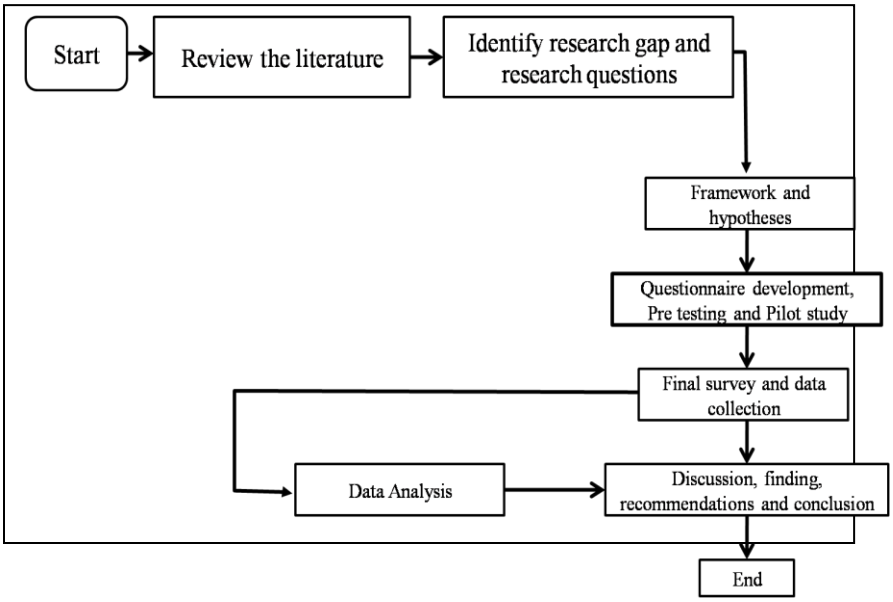


Figure 4. 1 Research design.

4.5 Sampling strategy

4.5.1 Population

Population refers to any group which shares a set of common characteristics (Black, 1999). "By defining the population, the researcher is saying: This is the group from which I will select a representative sample for my study" (Black, 1999, P. 111). Defining the population largely depends on the research questions which the researcher aims to answer (Wilson, 2010). For this study, the researcher contacted the subjects of the study by distributing the questionnaire either personally or via email using an online survey (Survey Monkey). The questionnaire was distributed among users of mobile banking in the UK. By moving from general to more specific, a population can often be broken down (Wilson, 2010). According to the Office of National Statistics (2013), 36 million adults (73%) residing in Great Britain (as the data for this study was collected in UK) access the Internet every day. Therefore, it was obviously not possible for the researcher to approach all participants who use mobile banking systems in the UK.

4.5.2 Sampling frame

Sampling is the way of choosing units from a population of interest to collect data that determines the entire target population**.** In this research, each person who uses a mobile banking service could have been a participant in the study. Thus, individuals who use mobile banking services were chosen.

Due to the limitations of time and money, it was not possible to distribute the survey to the whole population. For that reason, this study uses the sampling method which is usually applied in quantitative survey studies.

4.6 Sampling

Sampling is the process of making inferences about a population or making generalisations in relation to existing theory (Wilson, 2010). It creates a key step in the process of the research (Bryman and Bell, 2011). A representative sample allows the researcher to generalise the results from a sample to the population (Bryman, 2004). "The more the selected sample represents the population, the more the research results are to be found generalizable to the

population" (Chandio, 2011, p. 79). A small sample carefully chosen may give more valid results than a large sample poorly selected (Black, 1999). Obviously, the researcher cannot ask the entire population because it is both costly and time consuming (Wilson, 2010); therefore, the researcher should select a manageable unit to reach a correct conclusion.

Sampling techniques usually fall into two types: probability or random sampling, and non-probability or non-random sampling (Wilson, 2010), as seen in Table 4.4.

Table 4. 4 Sampling techniques.

Probability sampling	Non-probability sampling
• Simple random. • Stratified random. • Cluster sampling. • Systematic sampling. • Multi-stage sampling.	• Quota sampling. • Snowball sampling. • Judgement sampling. • Convenience sampling.

Source: Wilson (2010, p 194)

The former means that every item in the population has an equal chance of being involved in the sample. However, the probability of each case being selected from the total population is not known in probability sampling (Wilson, 2010). Probability sampling involves choosing a large number of units from a population randomly (Tashakkori and Teddlie, 2003). Non-probability sampling does not include random selection. The following sections briefly describe these sampling techniques.

4.6.1 Probability Sampling Techniques

Wilson (2010, P. 194) mentions that there are several different types of probability sampling techniques, as follows:

Simple random sampling

This type of sampling is the most basic form of probability sample. It occurs when each sampling unit of the population has the same chance of being included in the sample.

Systematic Sampling

Systematic sampling is where every nth case after a random start is selected. The advantage of this type of sampling is its simplicity.

Stratified random sampling

This sample means dividing the population into subcategories, so each unit relates to only one subgroup, and then units are selected from those subgroups. Subgroups might be based on company size, gender or occupation.

Cluster sampling

This occurs when the whole population is divided into clusters or groups. It is advantageous for those researchers whose subjects are fragmented over a large area. It saves time and money.

Multi-stage probability sampling technique

This is the process of moving from a broad sample to a narrow one, using a step-by-step process. The main purpose of this sampling is to choose samples which are concentrated in a few areas. This will save time and money.

4.6.2 Non-probability sampling methods

Wilson (2010, P. 198) states that in addition to the probability sampling methods, there are some other different types of non-probability sampling techniques, as follows:

Quota sampling

"It is a non-random sampling technique in which participants chosen on the basis of predetermined characteristics so that the total sample will have the same distribution of characteristics as the wider population" (Wilson, 2010, p 198). However, the problems with this sampling are the difficulty in gaining information and the difficulty inferring the results to wider population (Wilson, 2010).

Snowball sampling

This is a non-random sampling method. It uses a few cases to encourage other cases to take part in the research study (Wilson, 2010). "The disadvantages of this sampling method are that it provides the researcher with very little control over the cases within the sample" (Wilson, 2010, p. 199).

Judgement sampling

"It is a strategy in which particular settings are selected deliberately in order to provide important information that cannot be obtained from other choices" (Patton, 1990; Maxwell, 1996) (Cited by Wilson, 2010, p. 1999).

Convenience sampling

"Convenience sampling is selecting participants because they are often readily and easily available" (Wilson, 2010, p. 199). The advantages with this sampling method are that it is an inexpensive and easy option. It often helps to overcome many of the limitations associated with research (Wilson, 2010). "Fink and Kosecoff (1998) mentioned that the convenience sampling approach is a simple process that can save time, funds and effort, attractive characteristics for the project" (Cited by Husseien, 2012, p. 57). Therefore, this research study has used non-probability sampling techniques; specifically, convenience sampling.

4.7 Sample size

The sample size is crucial to test the proposed hypotheses. Nunnally (1967) state that "ten subjects per item is the minimum for factor analysis" (Cited by Flynn and Pearcy, 2001, p. 4). While DeVellis (1991) mentioned that 300 is a good sample size, Spector (1992) suggests that sample size could be between 100 and 200 (Cited by Flynn and Pearcy, 2001, p. 4).

Therefore, there has been extensive debate around an acceptable sample size (Flynn and Pearcy, 2001). Different scholars have proposed different sample sizes as appropriate, and most of these scholars believe that a large sample would be better than a small one (Hussein, 2012, p. 57). In line with these studies, the current study involved distributing 950 questionnaires to gain a suitable sample size.

4.8 Data collection procedure

The data was obtained by using the survey method with mobile banking users. The respondents had to be mobile banking users or had to have used mobile banking services before. Participation was totally voluntary. In this study, both the survey questionnaire and the covering letter were joined together. The covering letter included information about the main aim of the study and confirmed the privacy of the data collected. It explained that the study was being conducted to understand how persuasive messages can affect trust in mobile banking systems, and the moderating role of privacy and security concerns.

The survey questionnaire was divided into three main sections. The first section of the questionnaire explains that the participants had to provide demographic data, such as their age and gender. Moreover, the participants were asked to answer questions related to the internet

and mobile banking usage. In the next section, the participants were asked to answer a number of questions that measure privacy and security concerns. In the third part, participants were asked to watch a video about mobile banking services and read a small message about the security and privacy policies of this service, which was taken from the HSBC bank website. After that, users were asked to answer questions related to the constructs involved in the theoretical framework. The questionnaire was distributed to the users either personally or by electronic mail (using Survey Monkey questionnaire). This study has used statistical package for social sciences (SPSS) version 20 for the data analysis.

For this research, 950 questionnaires were distributed, although only 380 questionnaires were returned, making the response rate 40% of the original sample. This response rate can be considered as acceptable if the researcher compares it with the response rate reported in previous literature reviews. For example, the final sample in the study of Angst and Agarwal (2009) consists of 366 subjects. Cheung et al. (2008) used 154 usable questionnaires. Li and Ku (2011) applied 124 questionnaires. The response rate reported in their study was 20 percent. Thus, the response rate for the current research is considered acceptable. However, this study discarded 22 responses because eight respondents mentioned that they had never used mobile banking services before. Five responses used the same answers on all the survey items. Four respondents did not fill in the questionnaire and left it completely blank, and five questionnaires answered only some questions. Thus, 358 questionnaires remained. These questionnaires were used to analyse the main data. As a result, the final response rate in this research was 37.68%. The demographic characteristics of the main survey respondents are presented in Table 4.5.

Table 4. 5 Demographic characteristics of the main survey respondents.

Demographic Characteristics of the Main Survey Respondents (n=358)			
Variable	**Category**	**Frequency**	**%**
Gender	Male	223	62.3
	Female	135	37.7
Age	20 or under	36	10.1
	21-30	152	42.5
	31-40	134	37.4

	41-50	33	9.2
	51-60	3	0.8
Marital	single	217	60.6
	married	141	39.4
Education	Less than high school	4	1.1
	High school	98	27.4
	diploma	42	11.7
	Bachelor	72	20.1
	Post-graduate	142	39.7
Occupation	Employed	67	18.7
	Self-employed	29	8.1
	Non-employed	34	9.5
	Professional	10	2.8
	Academics	14	3.9
	Students	204	57.0

4.9 Questionnaire survey

In a quantitative study, and in order to collect data, questionnaires are considered a crucial tool for data collection. In this study, both the survey questionnaire and a covering letter were joined together. The covering letter includes information about the main aim of the study and confirms privacy of the data collected. It explains that the study was being conducted to understand how persuasive messages can affect trust in mobile banking systems, and the moderating roles of privacy and security concerns. The participation in this survey study was voluntary. In addition, the covering letter included the e-mail address of the researcher so that participants could make relevant inquiries if they wanted to.

The survey questionnaire was divided into three main sections, as mentioned earlier. In the first section of the questionnaire, the participants had to answer questions regarding their demographic data, such as age, gender, education, and occupation. Moreover, the researcher asked the participants to answer questions regarding their background information related to internet and mobile banking usage and whether they are using mobile banking services or not. If their answers were NO, they were asked to stop answering the survey. If their answers were YES, then they could continue answering the survey questions in part two and three, as mentioned earlier.

The next section provides details about the survey questionnaire and the development process followed in this study.

4.9.1 Development of the survey questionnaire

Questionnaire design

In descriptive research, the survey questionnaire is one set of techniques used for obtaining primary data (Malhotra et al., 2012). In order to design a questionnaire, the researcher should focus on the type of information needed to reach the research aim.

Any questionnaire has three objectives: 1) It must translate the information needed into a set of specific questions, 2) it must uplift and encourage the participants to become involved and 3) it should minimise response error (Malhotra, 2012).

In the present study, and for the purposes of data collection, a survey questionnaire was developed to test the hypotheses of the study and to achieve the main aim of it. To encourage the participants to join the study, the researcher carefully chose the question items and kept the questions simple and easy to read.

Gilbert and Churchill (1987, P. 272) have suggested following certain steps to develop a questionnaire, which are as follows:

Step 1: Specify what information will be sought. Step 2: Determine the type of questionnaire and method of administration. Step 3: Determine the content of individual questions. Step 4: Determine the form of response to each question. Step 5: Determine the wording of each question. Step 6: Determine the sequence of the questions. Step 7: Determine the physical characteristics of the questionnaire. Step 8: Re-examine steps 1-7 and revise if necessary. Step 9: Pre-test the questionnaire and revise if necessary.

The focus of this thesis is trust in mobile banking systems and the factors that affect trust in this system. In this regard, by using the ELM, the researcher has developed a theoretical framework to investigate the factors that affect trust and the moderator roles of privacy and security concerns. For this quantitative study, a questionnaire was developed, which is divided

into three parts, as explained earlier, to collect the data to achieve the main purpose of this thesis.

Questionnaire content development

For this study, the data was collected based on the opinions of mobile banking users who responded to the questionnaire, to address the research topic (trust in mobile banking and the moderator roles of privacy and security concerns). Therefore, the questionnaire content was kept simple and easy to understand, so that the participants could easily complete it.

Question wording

The phrasing of each question is an important step in the questionnaire development process. Poor wording of a question may cause participants to stop answering it (Gilbert and Churchill, 1987). As recommended by Gilbert and Churchill (1987) for all questions, question wording was kept simple, avoiding ambiguous words and leading questions. During the process of questionnaire development, this study applied all the standard wording principles. The researcher reviewed each question to ensure that the questionnaire, in terms of wording, would be quite simple to understand by the users of mobile banking systems who would participate in this study.

4.9.2 Scale development

This study used nominal and ordinal scales; "With a nominal scale, the only permissible operation is counting" (Gilbert and Churchill, 1987, p. 316). In this study the nominal scales used for questions are related to the participants' demographic characteristics, like gender for example. “The ordinal scale implies identity, since the same number would be used for all objects that are the same” (Gilbert and Churchill, 1987, p. 316). These scales (which called Likert scales) can be used in questions that investigate respondents' beliefs towards trust in mobile banking systems. This study used a five-point attitude rating scale.

The five-point rating scale was chosen as it is commonly used and applied in different studies on information systems. This scale makes the survey quite easy to collect data from participants (Sekaran, 2006; Preston and Colman, 2000). However, most rating scales contain either five or seven response categories (including Likert-type scale) (Bearden, Netmeyer and

Mobley, 1993; Peter, 1979; Shaw & Wright, 1967) (Cited by Preston and Colman, 2000). Cox (1980) suggests that scale points between five and nine should be used. Different studies have used different Likert scales points, such as: five, seven, nine or even 11 points. However, the response rate of any research will increase by up to 90 percent by using the five-point rating scale (Hartely and Mclean, 2006). In some cases, Neuman (1983) found that using a five-point Likert scale is better than using a seven-point scale. Therefore, the researcher chose a five-point Likert scale to be used in this study.

4.9.3 Operationalisation of Variables

The six constructs of interest to this study are trust, argument quality, trustworthiness, source expertise, privacy concerns and security concerns. All of these constructs are measured using multiple-item scales from previous studies. Minor modifications have been made to fit the context of mobile banking services. For each construct, the operationalisation questionnaire items are described below (the questionnaire items can be seen in Table 4.6).

The operationalization of trust (TR)

The operationalization of trust (TR), measured on a five point Likert scale with 1= strongly disagree and 5= strongly agree, was based on five items adapted from (Lee and Chung 2009) as follows:

TR1. HSBC mobile banking keeps its promises

TR2. HSBC mobile banking services meet my needs.

TR3.HSBC mobile banking is trustworthy.

TR4. I think HSBC mobile banking is concerned with the present and future interests of users.

TR5. Overall, I trust HSBC mobile banking.

The operationalization of argument quality (AQ)

The operationalization of argument quality (AQ) was based on four items. This study used a five-point scale (with strongly disagree = 1 and strongly agree = 5). The researcher adapted these items from (Bhattacherjee and Sanford 2006). The items are as follows:

AQ1: The information provided on HSBC website about mobile banking application was informative.

AQ2: The information about mobile banking application provided on HSBC website was helpful.

AQ3: The information about mobile banking application provided on HSBC website was valuable.

AQ4: The information about mobile banking application provided on HSBC website was persuasive.

The operationalization of Trustworthiness (TW)

The operationalization of Trustworthiness (TW) was based on four items which were adapted from (Cheung et al., 2008; Jonas Reichelt et al., 2014). The researcher used a five-point scale (with strongly disagree = 1 and strongly agree = 5). The items are as follows:

TW1: HSBC is trustworthy on the information about mobile banking app on their website.

TW2: HSBC is benevolent about his recommendation of the mobile banking application.

TW3: HSBC is competent in the mobile banking application.

TW4: HSBC seems to be sincere on mobile banking.

The operationalization of Source expertise (SE)

The operationalization of Source expertise was based on three items which were adapted from (Cheung et al., 2008; Jonas Reichelt et al., 2014). This study used a five-point scale (with strongly disagree = 1 and strongly agree = 5)

The items are as follows:

SE1: The HSBC knowledgeable about mobile banking App.

SE2: HSBC seems to have a good sense about mobile banking app.

SE3: HSBC seems to have experience with mobile banking app.

The operationalization of Privacy concern (PC)

The operationalization of privacy concerns (PC), measured on a five-point scale (with strongly disagree = 1 and strongly agree = 5) was based on fifteenth items. These items were modified from (Angst and Agarwal 2009; Malhotra et al., 2004).

The items are as follows:

PC1: It usually bothers me when mobile banking apps ask me for personal information.

PC2: When mobile banking apps ask me for personal information, I sometimes think twice before providing it.

PC3: It bothers me to give personal information to so many mobile banking apps.

PC4: I'm concerned that mobile banking apps are collecting too much personal information about me.

PC5: All the personal information in mobile database should be double-checked for accuracy—no matter how much this costs.

PC6: Mobile banking apps should take more steps to make sure that the personal information in their files is accurate.

PC7: Mobile banking apps should have better procedures to correct errors in personal information.

PC8: Mobile banking apps should devote more time and effort to verifying the accuracy of the personal information in their databases.

PC9: Mobile banking apps should devote more time and effort to preventing unauthorized access to personal information.

PC10: Mobile databases that contain personal information should be protected from unauthorized access no matter how much it costs

PC11: Mobile banking apps should take more steps to make sure that unauthorized people cannot access personal information in their computers.

PC12: Mobile banking apps should not use personal information for any purpose unless it has been authorized by the individuals who provided the information.

PC13: When people give personal information to mobile banking apps for some reason, the apps should never use the information for any other reason.

PC14: Mobile banking apps should never sell the personal information in their computer databases to other companies.

PC15: Mobile banking apps should never share personal information with other companies unless it has been authorized by the individuals who provided the information.

The operationalization of security concern (SC)

The operationalization of security concerns (SC) was based on four items. These items were adapted from (Kim D. J. et al., 2008). The researcher used a five-point scale (with strongly disagree = 1 and strongly agree = 5).

The items are as follows:

SC1: Mobile banking apps will implement security measures to protect my personal Information.

SC2: Mobile banking apps will ensure that my transactional information is protected from being altered or destroyed accidentally during a transmission on the mobile.

SC3: I will feel secure about the mobile banking App system.

SC4: I will feel safe in making transactions through mobile banking apps.

Table 4. 6 Questionnaire items.

Measures	Number of items	Sources of Measurement Items
Privacy concern (PC)	15	(Angst and Agarwal 2009; Malhotra et al., 2004)
Security concerns (SC)	4	(Kim D. J. et al., 2008)
Argument quality (AQ)	4	(Bhattacherjee and Sanford 2006).
Source credibility		
Source expertise (SE) Trustworthiness (TW)	3 4	(Cheung et al., 2008 ; Reichelt et al., 2014) Cheung et al., 2008) ;(Reichelt et al., 2014)
Trust (TR)	5	(Lee and Chung 2009).

4.10 Pre-testing procedures and Pilot Study

Before the actual data collection, quantitative researchers should apply two important steps, which are pre-testing the questionnaire and pilot studies. The pre-testing process helps the researcher to know whether the questionnaire can be understood by the respondents or not (Zikmund et al., 2013). Also, a pilot study means that the researcher can test the questionnaire on a small sample of participants to eliminate potential problems (Malhotra et al., 2012). As a result, an initial version of the survey tool was subsequently refined through pre-testing with 30 PhD students from Brunel University. All of them have used mobile banking services at least one time during the last three to six months. After that, the researcher revised the survey according to the suggestions that were received from the participants. The instrument was further pilot tested with 38 mobile banking users. This test resulted in a significant degree of restructuring of the survey instrument, as well as establishing the initial face reliability and validity of the measures. The next two sections briefly explain the pre-test and the pilot study applied in this research.

4.10.1 Pre-testing the Questionnaire

The purpose of pre-testing is to explore any problems that the questionnaire may create (Zikmund et al., 2013). In this study, the pre-test was conducted by distributing questionnaires to 30 PhD students from Brunel University in the UK. All of them have used mobile banking at least once during the last three to six months. All questionnaires were returned. The respondents were asked if they found any difficulties or had any problems in understanding the questionnaire to get feedback in order to improve the questionnaire. Some interesting comments were obtained from the respondents.

Some of them stated that they did not like to answer the question about age. Other participants suggested changing some ambiguous words. According to that, in the pre-test, the researcher made minor changes as needed.

4.10.2 Pilot Study

A pilot test should be conducted with a good sample to gather reliable and valid information (Donna, 2010). Therefore, for this study, a pilot study was conducted to discover the weaknesses and the limitations of the questionnaire tool. For the pilot study, mobile banking users who are postgraduate students at Brunel University in the UK, and have used mobile banking services before, were asked to fill in a questionnaire. In total, 57 questionnaires were distributed. However, only 38 questionnaires were used for the pilot study, with 19 responses discarded because two respondents mentioned that they had never used mobile banking before; eight participants returned the survey completely blank, and nine questionnaires had only some questions answered. Consequently, the remaining 38 questionnaires were used for the pilot study analysis. For this pilot study, basic statistical analysis was carried out using SPSS 20.0. The descriptive analysis of the data used in the pilot study is presented in the next section.

Demographic characteristics of pilot study participants

The demographic characteristics of the pilot study participants are presented in Table 4.7. This table presents gender, education and the occupation of participants.

Table 4. 7 Demographic characteristics of pilot study participants (N=38).

Variable	Category	Frequency	%
Gender	Male	21	55.26
	Female	17	44.74
Education	Less than high school	0	0
	High school	20	52.63
	diploma	3	7.89
	Bachelor	0	0
	Post-graduate	15	39.47
Occupation	Student	38	100

As can be seen in Table 4.6, among 38 respondents, there were 21 males (n=21, 55.26%) and 17 females (n=17, 44.74%). All the participants were students. The findings of this pilot study show that 52.63% of participants had high school qualifications (n= 20), 39.47% of participants were post-graduate students (n=15) and 7.89% of participants had a diploma (n=3). The response rate and the sample size in this pilot study were very good for further analysis, and this will be presented in the next section.

Reliability of the pilot study instrument

To test the reliability of the items measured in the pilot study, this research used the internal reliability test Cronbach's alpha. Gliemand Gliem (2003) states that "Cronbach's alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0 the greater the internal consistency of the items in the scale" (p. 87). Consequently, the reliability will be better when the Cronbach's alpha is closest to 1. However, George and Mallery (2003) confirm that value 0.7 is acceptable. Table 4.8 presents the results of the reliability test in the current pilot study for all constructs (Cronbach's alpha coefficients).

Table 4. 8 The reliability test (cronbach's alpha coefficients) in pilot study

Variable	Cronbach's alpha
Privacy Concerns (PC)	.753
Security Concerns (SC)	.845
Argument Quality (AQ)	.803
Source expertise (SE)	.904
Trustworthiness (TW)	.870
Trust (TR)	.930

This test resulted in a significant degree of restructuring of the survey instrument, as well as establishing the initial face reliability and validity of the measures. The values of Cronbach's alpha in the pilot study ranged between 0.753 and 0.930. The researcher considered these values to be good, except two items from privacy concerns which are as follows:

The first one is: It bothers me to give personal information to so many mobile banking apps.

The second one is: Mobile banking apps should devote more time and effort to verifying the accuracy of the personal information in their databases.

These two items were deleted from the final survey questionnaire.

4.11 Data Analysis

After completing the introduction, the literature review and the framework chapters, the step now is to describe the data analysis techniques used in this study. The primary purpose of this study is to test how persuasive message can affect trust in mobile banking services, and to test the roles of privacy and security concerns as moderators. In order to achieve these objectives, the main data has been analysed using Statistical Package for Social Sciences SPSS version V.20. Therefore, for data analysis including descriptive statistics, reliability testing, factor analysis, regression analysis and presentation of the findings, this study has utilised statistical package SPSS V.20.

4.11.1 Exploratory Factor Analysis and Reliability Assessment

Osborne and Costello (2009) mention that exploratory factor analysis (EFA) is a common analysis which is widely used in social science research. Exploratory factor analysis is 'exploratory' in nature. By using it, the researcher can determine the underlying dimensions or factors that exist in a set of data (Hooper, 2012). Filed (2013) has clarified that this method has three main uses, which are as follows: 1) to understand the structure of a set of variables. 2) To construct a questionnaire to measure underlying variables. 3) To reduce a data set to a manageable size. Thus, the main aim of exploratory factor analysis (EFA) is to find the latent structure of the dataset by uncovering common factors (Hooper, 2012). It purposes to decrease a set of variables into a smaller set of dimensions (Field, 2013).

Therefore, for this study, and to apply exploratory factor analysis, researchers should follow two main steps, which are extraction and rotation. By using SPSS version 20, this study has

applied exploratory factor analysis to extract factors in which different techniques are available for extraction and rotation. Principal component extract method is the most common one. The eigenvalues and scree plot were used in this study to calculate the number of factors and the adequacy of the extraction. This research study will retain only factors with large eigenvalues, as suggested by Field (2013).

Field (2009) points out that "Before extracting the factors, calculating the variability in scores for any given measured is important" (Cited by Khorassani, 2012, p. 158). Field (2013), states that communality is the total amount of common variance present in a variable. He confirms that "a variable that has no unique variance would have a communality of one and the variable that shares none of its variance with any other variables would have a communality of 0" (p. 375).

To discriminate between factors, this study has used the factor rotation technique, as suggested by Field (2013). SPSS has many methods of rotation. However, this study has used varimax rotation, as suggested by Field (2013), who mentions that varimax attempts to maximise the dispersion of loading within factors. By using it, the best interpretation of factors will be achieved.

In order to validate the questionnaire, this study has included checking the reliability of the scale by using Cronbach's alpha, which is the most common measure of scale reliability (Field, 2009). By following George and Mallery (2003), this study has considered each value of Cronbach's alpha to be acceptable if it is equal to or above 0.70.

4.11.2 Reliability and Validity Testing of the Final Survey

Reliability

Zikmund defines reliability as "Reliability is an indicator of a measure's internal consistency" (p. 301). The most common method used to test reliability is Cronbach Coefficient Alpha (Bryman and Bell, 2011). Cronbach Alpha ranges in value from 0 to 1. While a zero value means no consistency, one value means complete consistency (Zikmund et al., 2013). However, if the scale has a Cronbach's Alpha value bigger than 0.70, the researcher can consider it reliable in measuring the construct (George and Mallery, 2003). By applying Cronbach's Alpha, the reliability was tested. All values of Cronbach' Alpha which were equal to 0.70 or greater were considered acceptable (see Table 4.7).

Validity

The validity of a measurement instrument is the accuracy of its measure or the extent to which a score represents a concept (Zikmund et al., 2013). There are different forms of validity tests, which are as follows:

Content validity

Establishing content validity means to review the items in the measurement instrument to determine the degree to which they reflect what they are supposed to measure (Mertens, 2010). Haynes et al. (1995) define content validity as "It is the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose" (p. 238).

Content validity is particularly important in studies that purport to compare two or more different programs and so on (Mertens, 2010). To test the content validity in this study, the following steps have been followed, as suggested by Cooper and Schindler (2001): Step 1, determine the variables related to this study from the previous literature. All constructs have been measured using multiple-item perceptual scales. Minor modifications have been made to fit the context of mobile banking services. Step 2, conducting a pre-test by distributing a questionnaire to 30 PhD students at Brunel University in the UK. All of them have used mobile banking at least once during the last three to six months, and have some knowledge about the topic of this study. Accordingly, minor modifications were made to the instrument by following the suggestions received from the students. Step 3, conducting a pilot test with a good sample.

Construct validity

Haynes (1995) states that "Construct validity is the degree to which an assessment instrument measures the targeted construct" (p. 239). In order to achieve construct validity, the researcher must examine convergent and discriminant validity.

- ***Convergent validity***

Zikmund et al. (2013) states that "Convergent validity requires that concepts should be related are indeed related" (p. 305). Therefore, convergent validity should arise when "considering two constructs hypothesized to be related and the correlation between the two constructs should be high in order to contend test validity" (Thanasegaran, 2009, p. 38). So, convergent validity is one way of checking construct validity in this study. Carlson and Andrew (2012) confirm that convergent validities above r 0.70 are recommended, whereas those below 0.50 should be avoided. For the current study, the researcher followed the same procedure to assess the convergent validity.

- ***Discriminant validity***

Bertea and Zait (2011) state that discriminant validity assumes that items do not correlate highly with other construct items that are theoretically supposed not to correlate. "At item-level discriminant validity, Chin (1998) recommends to examine cross-loading within factor loading" (Cited by Khorassani, 2012, p 146).

4.11.3Regression Analysis

Regression analysis is a statistical tool used to test the link between constructs; the researcher seeks to discover the causal effect of one variable upon another (Sykes, 1993). By using regression analysis techniques, the researcher can assess the statistical significance of the estimated relationships between the study constructs (Sykens, 1993). Equally, this technique describes the way in which a dependent variable (in this study: trust in mobile banking) is affected by a change in the value of one or more independent variables (Auka et al., 2013).
Therefore, this study has included performing linear regression analysis to test if there are significant relationships between the independent and dependent variables. As suggested by Field (2013), multiple regressions have been used in this study to guess an outcome from different predictors. The results of all these tests are presented in Chapter Five.

4.12 Hypotheses Testing

To test the hypotheses of this study, multiple regression techniques have been applied, as this is an appropriate method. It is usually applied to test the relationship between a dependent

variable and two or more independent variables (Sykes, 1993; Auka et al., 2013). In order to test the hypotheses, this study has used SPSS version.20.

4.13 Ethical Considerations

The role of ethics is crucial when a study is conducted on human topics. The ethical principles in business research have been broken down by Diener and Crandall (1978) into four main areas as follows:

1. "Whether there is harm to participants.
2. Whether there is a lack of informed consent.
3. Whether there is an invasion of privacy.
4. Whether the deception is involved" (Cited by (Bryman and Bell, 2011, p. 128).

Therefore, researchers "need two attributes: the sensitivity to identify an ethical issue and the responsibility to feel committed to acting appropriately in regard to such issues" (Eisner and Peshkin, 1990, p. 244). All of the ethical principles procedures have been followed in this research. On the first page of the survey questionnaire, this study included a clear letter to clarify that participation is voluntary. The identity of respondents will remain anonymous as no personal data will be collected. The researcher asked those who were willing to take part in the survey questionnaire to answer and return it. All participants were assured that no personal data would be collected, and the questionnaires would remain anonymous. The researcher did not ask for the name of the participants. The Brunel University Ethics Committee guided the ethical process. To follow the university's ethics policy, the researcher signed a Brunel Business School Research Ethics form, which was approved by the research student's supervisor. A covering letter and consent form were attached to the survey questionnaire. The covering letter states the title and the purpose of the research study, the researcher's school's name, the full name of the researcher and her email address. Moreover, the data collected was used only for the purpose of the study (see Appendix: B).

4.14 Conclusion

The main aim of this chapter was to provide full details about the research methodology and the appropriate statistical analysis methods chosen for use in this study. In the domain of methodology, the philosophical paradigms of research have been discussed, which are the two main philosophical paradigms. These two paradigms can be called phenomenological (interpretivist) and positivist. These two different paradigms have different assumptions. The positivist approach, which is a quantitative approach, focuses on numerical data collection to explain human behaviour. The interpretivist approach is known as a subjective approach, which is qualitative in nature. The researcher examined both of these methods and then adopted a quantitative approach, as this was deemed the most appropriate one for this study. This approach is deductive. It starts by developing hypotheses from theory and then collecting data for the main study analysis (by using the survey method), analyses, discussion and conclusions. A questionnaire was developed to collect the data. All constructs were measured using multiple-item perceptual scales from previous studies wherever possible. Minor modifications have been made to fit the context of mobile banking.

After that, the researcher contacted the subjects of the study personally (face to face) and by using an online survey (Survey Monkey). Pre-test procedures and pilot tests were carried out before the preliminary data collection.

The main aim of the pre-testing and pilot test was to explore any problems that the questionnaire may cause and to test the reliability of measurement items. Almost all the items showed adequate reliability. In order to analyse the data, this study has used statistical package for social sciences (SPSS) version 20.0. SPSS was applied to test descriptive statistics and exploratory factor analysis, which have been discussed briefly. Finally, the ethical procedures were applied. The main study's results (testing the hypotheses and the moderator role of privacy and security concerns) are presented in Chapter Five.

Chapter 5 : Main Study Analysis and Findings

5.1 Introduction

The previous chapter explained the methodology used in this study in detail.

In this chapter, the results of the data analysis are presented by testing the relationship between argument quality, trustworthiness and source expertise (as independent variables), and trust which is the dependent variable. After that, this study tests the effect of privacy and security concerns as a moderator to achieve the research objectives. All results have been obtained by using SPSS V.20. All the analysis outcomes and conclusions are presented in this chapter.

5.2 Data Management

Collecting data started during the period June 2015 to October 2015 by using a survey questionnaire. The survey questionnaire contained three sections. In the first section of the survey, the participants were asked to provide demographic data. In the second part, the participants were asked to answer questions measuring the privacy and security concerns. In the third part, participants were asked to watch a video about mobile banking services and read a small message about the privacy and security policies of mobile banking which were provided on the HSBC bank website. After that, participants were asked to answer questions measuring the different constructs involved in the theoretical framework. The researcher distributed the questionnaire to the users either personally or via electronic mail (using Survey Monkey questionnaire).

None of the participants were forced to fill in the questionnaire. A sample of individuals was randomly selected from UK society. These individuals are either students or working in different organisations. During the data collection (for on-line survey), the researcher sent a reminder to non-respondents after two weeks.

As mentioned previously, 950 questionnaires were distributed 380 of which were returned, making the response rate 40% of the original sample. In addition, 22 unsuitable responses were discarded because eight respondents mentioned that they had never used mobile banking services before; five had the same responses for all the Likert scale items; four respondents did

not fill in the questionnaire and left it completely blank, and five questionnaires contained answers to only some of the questions. This left 358 questionnaires, which have been used for the main data analysis. Consequently, the final response rate in this thesis is 37.68%.

The statistical package for social science (SPSS) version 20 was used for the data analysis (descriptive statistics and factor analysis). First of all columns and rows were created to code the items of the question. The questionnaire items were coded with numbers in the columns of the SPSS. The value "1" was used for strongly disagree and "5" for strongly agree on a five point Likert Scale. "999" was used for missing values not provided in the questionnaire.

5.3 Data Screening Prior to Analysis

To analyse the data obtained from the survey questionnaire, this study has applied the statistical package for social sciences (SPSS, Version 20), which is extensively accepted by previous studies. The study used SPSS to screen the data, to check the data coding, missing data, outliers and normality. Nominal and ordinal scales have mostly been used in this study. Moreover, by using SPSS, this study has obtained descriptive statistics and factor analysis. All these steps are described and explained in the following sections prior to the data analysis.

5.4 Missing data

The most common problem facing the researcher in any survey questionnaire study is missing data. It occurs in a survey study when an element of the target population is not included in the survey's frame; when a sampled element does not participate, and when a responding sampled element fails to provide acceptable responses (Brick and Kalton, 1996). In social science research, the most common reasons for missing data occurring might be due to long questionnaires. Tabachnick and Fidell (2001) note that "the potential effects of missing data depend on the frequency of occurrence, the pattern of missing observations, and the reasons for the missing value" (Cited by Chandio, 2011, p 123). There are many different methods for dealing with missing data. Malhotra et al. (2012) note that assigning missing data is desirable if:

1) The number of participants with poor responses is small.
2) The proportion of unsatisfactory responses is small.
3) The variables with unsatisfactory responses are not the main variables.

Also, there are other ways to deal with missing data. Tabachnick and Fidell (2007) explain that if five percent of the data or less is randomly missing from a large data set, then there is no serious problem and all techniques for dealing with missing data give the same results. For this study, the research employed SPSS version 20 to deal and found missing data. The percentage of missing data was less than five percent of the whole data; therefore, this amount is very low and can be considered acceptable.

5.5 Response rate

For this research, 950 questionnaires were distributed, but only 380 questionnaires were returned, therefore the response rate is 40% of the original sample. However, 22 responses were discarded, as mentioned earlier. For the final data analysis, this study used 358 questionnaires. As a result, the final response rate in this thesis is 37.68%.

5.6 Non-response bias

It is important to examine any possible non-response bias. Miller and Smith (1983) suggest grouping the respondents as early or late respondents. Then, the researcher can compare the differences between these two groups in their answers to the Likert scale questions. If it is found that there are no variances between the answers of these two groups, the researcher can generalise the results to the target population. For this study, and in order to assess the non-response bias, the questionnaire was divided into two different groups: early respondents and late respondents. The researcher compared the age, education and occupation between the first 50 and the last 50 respondents. To assess the response bias, analysis variance (ANOVA) statistical testing was used, and then the mean value for the first and last 50 respondents compared, as shown in Table 5.1.

From Table 5.1, it is clear that there are no significant variances between these two groups. Therefore, there is no serious limitation in non-response bias in this survey study.

Table 5. 1 Response bias analysis for demographic data

Respondents' Characteristics	ANOVA (First 50-Last 50)	
	F	Sig
Age	.780	.512
Education	.886	.432
Occupation	.491	.477

5.7 Descriptive statistics analysis

The descriptive statistics of all the constructs in this study, which are trust, argument quality, source expertise, trustworthiness, security concerns and privacy concerns, are presented in this section as follows:

Trust

To measure this construct, five items were used on a Likert scale. The descriptive statistics of these items include means, standard deviations, and skewness, and Kurtosis tests are presented in Table 5.2. The low mean rating observed was for item Trust4 which is: I think HSBC mobile banking is concerned with the present and future of users. The high mean rating observed was for item Trust5 which is: Overall, I trust HSBC mobile banking. The mean ratings of these items were between 3.51 and 3.80. This suggests that some respondents had reservations about trusting this system. This is obvious from item Trust4 which has a low mean rating. This may suggest that respondents were not sure whether HSBC mobile banking is concerned with the present and future of users or not. However, the Cronbach's alpha for this construct was .865, which confirms the strong internal consistency of these items, which used to measure trust construct.

Table 5. 2 Descriptive statistics of measured items of trust construct

	Mean	**Std. Deviation**	**Skewness**	**Kurtosis**
	Statistic	Statistic	Statistic	Statistic
Trust1	3.56	.796	-.229	.132
Trust2	3.68	.895	-.368	-.030
Trust3	3.77	.777	-.542	.878
Trust4	3.51	.900	-.274	-.122
Trust5	3.80	.803	-.708	.114

Argument quality

To measure this construct, four-items were used on a Likert scale. The descriptive statistics of these items include the mean, standard deviations, and skewness, and Kurtosis tests are presented in Table 5.3. The lowest mean rating observed was for item AQ4, and the highest mean rating observed was for item AQ2.

Table 5. 3 Descriptive statistics of measured items of argument quality construct (AQ)

	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic
AQ1	3.77	.872	-.712	.421
AQ2	3.78	.921	-.613	.203
AQ3	3.59	.905	-.494	.109
AQ4	3.45	.974	-.745	.297

Source expertise (SE)

To measure this construct, three-items were used on a Likert scale. The descriptive statistics of these items, including means and standard deviations, are presented in Table 5.4 along with skewness and Kurtosis tests. The lowest mean rating observed was for item SE2 and the highest mean rating observed was for item SE1.

Table 5. 4 Descriptive statistics of measured items of source expertise construct

	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic
SE1	3.61	.922	-.347-	-.235-
SE2	3.53	.916	-.248-	-.392-
SE3	3.59	.950	-.275-	-.499-

Trustworthiness

To measure this construct, this study used four-items on a Likert scale. The descriptive statistics of these items, including means and standard deviations, are presented in Table 5.5, along with skewness and Kurtosis tests. The lowest mean rating observed was for item TW3 and the highest mean rating observed was for item TW1.

Table 5. 5 Descriptive statistics of measured items of trustworthiness construct

	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic
TW1	3.63	.725	-.722	.955
TW2	3.38	.796	-.187	.076
TW3	3.30	.825	-.093	-.026
TW4	3.36	.880	-.275	.078

Security concerns

To measure this construct, four-items on a Likert scale were used. The descriptive statistics of these items, including means and standard deviations, as well as skewness and Kurtosis tests, are presented in Table 5.6. The lowest mean rating observed was for item SC2 and the highest mean rating observed was for item SC4.

Table 5. 6 Descriptive statistics of measured items of security concerns construct

	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic
SC1	3.00	1.209	-.096	-.083
SC2	2.97	1.249	-.055	-.159
SC3	3.20	1.208	-.204	-.039
SC4	3.24	1.268	-.241	-.098

Privacy concerns

Similarly, to measure this construct, thirteen items on a Likert scale were used. The descriptive statistics of these items, including means and standard deviations, are presented in Table 5.7, along with skewness and Kurtosis tests. The lowest mean rating observed was for item PC1 and the highest mean rating observed was for item PC12.

Table 5. 7 Descriptive statistics of measured items of privacy concerns construct

	Mean	Std. Deviation	Skewness	Kurtosis
	Statistic	Statistic	Statistic	Statistic
PC1	3.07	1.060	-.182	-.931
PC2	3.35	1.100	-.350	-.737
PC3	3.13	1.081	-.239	-.738
PC4	3.58	.975	-.375	-.428
PC5	3.58	.954	-.504	-.194
PC6	3.59	.945	-.400	-.258
PC7	4.03	.942	-.697	-.158
PC8	3.96	.945	-.549	-.475
PC9	4.08	.910	-.750	.038
PC10	4.12	.933	-.776	-.191
PC11	4.06	.983	-.747	-.299
PC12	4.21	.895	-.855	-.144
PC13	4.15	.941	-.833	-.066

5.8 Outliers

The detection of data outliers and unusual data structures is one of the main tasks in statistical analysis (Filzmoser et al., 2005). Alves and Nascimento (2003) state that "Outliers are observations with a unique combination of characteristics identifiable as distinctly different from the other observations" (p. 2). Hodge and Austin (2004) indicate that many different issues can cause outliers to happen, such as changes in system behaviour, mechanical errors, false behaviour, human fault, tool fault, or through natural deviations among populations.

Hair et al. (2006) categorises outliers into four classes: 1) "it can occur from procedural errors such as data entry errors. 2) It is an observation that happens as a result of an extraordinary event. 3) It comprises extraordinary observations for which the researcher has no explanation. 4) It contains observations that fall within the ordinary range of values on each of the variables" (Cited by Khorassani, 2012, p. 153).

There are many different procedures used to discover outliers, for example univariate detection and multivariate detection (Cousineau and Chartier, 2015; Tabachnick and Fidell, 2007; Alves et al., 2003). The univariate outliers were used to detect outliers by using a criterion based on z-scores (Cousineau and Chartier, 2015). In this study, to identify univariate outliers, descriptive Statistics function on SPSS was used. The data values were converted into Z-

scores. As the sample size is larger than 80 cases, following Hair et al. (2006), all cases with standard score ±3.0 were considered as outliers. However, this study did not identify univariate outliers, because it used a five point Likert scale ranging from (1) strongly disagree to (5) strongly agree.

To identify the multivariate outlier, the researcher determined the Mahalanobis distance (D^2) (Filzmoser, 2004). Rousseeuw and Van Zomeren (1990) mention that "the standard method for multivariate outlier detection is robust estimation of the parameters in the Mahalanobis distance and the comparison with a critical value of the $\chi 2$ distribution" (cited by Filzmoser, 2004, p. 1).

In this study, SPSS 20.0 was used to deduct the outliers; the Mahalanobis distance (D^2) was calculated with the regression procedure for the variables. (D^2) follows a chi-square distribution. The degrees of freedom (df) equal to the number of variables (Tabachnick and Fidell, 2007). A case is a multivariate outlier if $P \leq 0.001$. The results of multivariate outliers show that there are few outliers. Deletion of outliers might limit the generalisability (Hair et al., 2006; Anderson et al., 2009). So, to ensure generalisability, the outliers should be kept. As a result, this study retains the cases of multivariate outliers.

5.9 Normality and Linearity

Before inferring the results from the data, it is essential to check data normality and linearity. The results of these tests are presented in the next section.

Data Normality for Individual Item

Normality is an important assumption for measuring the variation of variables. Kurtosis and skewness are the most common tests used to measure data normality. Malhotra et al. (2012) define them as follows: "Kurtosis is a measure of the relative peakednss of the curve defined by the frequency distribution, Skewness is the tendency of the deviations from the mean to be larger in one direction than in the other" (p, 624). In order to test the data normality, SPSS v.20 was used and descriptive statistics applied to check kurtosis and skewness (see Table 5.2). The results are shown in tables 5.2 to 5.7. From these tables, it is clear that the values for skewness and kurtosis statistics are small (±1). Therefore, this result shows that data normality has been achieved.

Linearity

Linearity is the correlation coefficient that is used for bivariate analysis. It measures the correlation between two variables. Measurement is signified between -1 and 1. While a value of 1 means that there is a significant positive correlation, a value -1 means there is a significant negative correlation. There is no relationship between the two variables when the correlation is zero (Wilson, 2010). In statistics, testing the relationships between the variables is an essential part of data analysis. Linearity can be checked by using Pearson's correlation (Wilson, 2010). This research study applied Pearson's correlations by using SPSS version 20. The results can be seen in Table 5.8. The results show that all factors were (either positively or negatively) significantly correlated with each other.

Table 5. 8 Pearson's correlations

	PC	SC	AQ	TW	SE	TR
PC	1					
SC	.684**	1				
AQ	.696**	.787**	1			
TW	-.639**	-.659**	.656**	1		
SE	-.694**	-.683**	.697**	.739**	1	
TR	-.71**	-.76**	.754**	.728**	.507**	1

** P< 0.01.

5.10 Demographic Characteristics and Relationships

As mentioned earlier, the researcher distributed 950 questionnaires; 380 questionnaires were returned and 22 responses discarded, therefore 358 questionnaires remained. These questionnaires were used for the main data analysis. The respondent characteristics (gender, age, education, occupation and the use of internet) are presented in Table 5.9

Gender

Table 5.9 shows that 62.3 % of the respondents are male and 37.7 % female.

Age

From Table 5.9, it is clear that the majority (i.e. 42.5%) of respondents were aged between 20-30 years. The percentage of respondents aged between (31- 40) was 37.4%. The percentage of respondent's age 20 years or under was 10.1%.

Marital status

Table 5.9 shows that 60.6 % of the respondents were single (217) and 39.4 % were married (141).

Education

The percentage of the participants who have a high level of education (postgraduate qualifications) was 39.7%. Then high school (27.4%), Bachelor's (20.1%), Diploma (11.7) and less than high school (1.1).

Occupation

Six categories of occupation (employed, self-employed, non-employed, professional, academic and student) were presented to respondents. The largest percentage of the participants was students (57.0 %), while employed were the second highest number of respondents (18.7 %), then non-employed (9.5 %), self-employed (8.1 %), academics (3.9 %) and professionals (2.8 %).

Internet experience

31.0 % of participants have used the internet for between five to six years. Only 4.7 % of the participants have used internet for less than one year.

Using mobile banking

From Table 5.9, 43.85 % of participants use mobile banking services only when they need to and when they cannot use online banking. The percentage of participants who use it once a month is 24.30 %. Only 3.09 % of participants use mobile banking every day.

Table 5. 9 Descriptive statistics of measured items of source expertise construct

Demographic Characteristics of the main survey Respondents (n=358)			
Variable	**Category**	**Frequency**	**%**
Gender	Male	223	62.3
	Female	135	37.7
Age	20 or under	36	10.1
	21-30	152	42.5
	31-40	134	37.4
	41-50	33	9.2
	51-60	3	0.8
Marital	single	217	60.6
	married	141	39.4
Education	Less than high school	4	1.1
	High school	98	27.4
	diploma	42	11.7
	Bachelor	72	20.1
	Post-graduate	142	39.7
Occupation	Employed	67	18.7
	Self-employed	29	8.1
	Non-employed	34	9.5
	Professional	10	2.8
	Academics	14	3.9
	Students	204	57.0
Internet Experience	<1 Year	17	4.7
	1-2 years	70	19.6
	3-4 years	90	25.1
	5-6 years	111	31.0
	6> years	70	19.6
Using Mobile banking	Only when I need it and cannot use online banking.	157	43.85
	Less than once a month.	87	24.30
	Once a month	63	17.60
	Two or three times a week.	19	5.31
	Once a week	20	5.59
	Daily	12	3.09

5.11 Factor Loading and Data Analysis

"Factor analysis is one of the most commonly used procedures in the development and evaluation of psychological measures" (Floyd and Widaman, 1995, p.268). The aim of factor analysis is to decrease a group of variables into a smaller group of dimensions (Field, 2013). According to Field (2013), this technique has three main uses, as follows: 1*)" to understand the structure of a set of variables. 2) To construct a questionnaire to measure an underlying variable. 3) To reduce a data set to a more manageable size while retaining as much of the original information as possible" (p.666)*.

Exploratory factor analysis (EFA) and confirmatory factory analysis are the most common techniques for factor analysis (Floyd and Widaman, 1995). Both techniques have the same aim. While exploratory factor analysis involves a series of steps that include guessing, or removing, factors; determining the number of factors that should retain; and rotating factors to an interpretable location, confirmation of hypothesised factor structures is most adequately proven with confirmatory factor techniques (Floyd and Widaman, 1995). However, this study has applied only the exploratory factor technique.

Exploratory Factor Analysis

Osborne and Costello (2009) mention that exploratory factor analysis (EFA) is a common statistical technique that is usually used in the social sciences. Floyd and Widamam (1995) mention that exploratory factor analysis consists of two general approaches, principal components analysis, which should be used for data reduction, and common factor analysis, which should be applied to explain the relations among a set of measured variables in terms of underlying latent variables. The most common one, which is available in SPSS, is principal components analysis.

Principal component analysis attempts to represent all of the variance of observed variables (Floyd and Widamam, 1995; Tabachnick and Fidell, 2007). Eigenvalues and scree plots are considered the most common methods for measuring the adequacy of extraction and the number of factors (Khorassani, 2012). Before that, it is essential to measure the communality of a variable, which is the variance that a variable shares with the latent variables underlying the set of observed measures (Floyd and Widamam, 1995; Haire et al., 2007). While "a variable that has no unique variance would have a communality of 1; a variable that shares none of its variance with any other variable would have a communality of 0" (Field, 2013, p.

675). Small values show variables that do not fit well. So, communalities of more than 0.5 are required and more than 0.7 in large sample (Hair et al., 2007) (Cited by (Khorassani, 2012). This study computed the communality by using SPSS V.20. See Table 5.10.

Table 5. 10 Communalities

	Initial	Extraction
PC1	1.000	.740
PC2	1.000	.766
PC3	1.000	.756
PC4	1.000	.702
PC5	1.000	.730
PC6	1.000	.703
PC7	1.000	.724
PC8	1.000	.776
PC9	1.000	.708
PC10	1.000	.723
PC11	1.000	.756
PC12	1.000	.831
PC13	1.000	.785
SC1	1.000	.796
SC2	1.000	.822
SC3	1.000	.847
SC4	1.000	.833
AQ1	1.000	.782
AQ2	1.000	.819
AQ3	1.000	.761
AQ4	1.000	.723
TW1	1.000	.732
TW2	1.000	.753
TW3	1.000	.781
TW4	1.000	.702
SE1	1.000	.743
SE2	1.000	.772
SE3	1.000	.773
TR1	1.000	.707
TR2	1.000	.852
TR3	1.000	.778
TR4	1.000	.709
TR5	1.000	.834

Extraction Method: Principal Component Analysis.

The results show that communalities between measured items varied, but all the variables in this test have communality values above 0.7.

Eigenvalue

The process of deciding how many factors to keep is called extraction, and it is logical to retain only factors with large eigenvalues (Field, 2013). Kaiser (1960) suggests that the researcher should retain all factors with eigenvalues greater than 1 (Cited by Field, 2013). Consequently, factors with eigenvalues more than 1 are significant. Table 5.11 shows the highest component findings where six of them had eigenvalue > 1. The first one has a high eigenvalue.

Table 5. 11 Total variance explained

Total Variance Explained									
Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	9.952	30.158	30.158	9.952	30.158	30.158	8.435	25.559	25.559
2	6.258	18.965	49.123	6.258	18.965	49.123	4.919	14.905	40.465
3	3.969	12.026	61.149	3.969	12.026	61.149	3.717	11.265	51.729
4	1.714	5.193	66.342	1.714	5.193	66.342	3.437	10.415	62.144
5	1.289	3.906	70.248	1.289	3.906	70.248	1.930	5.850	67.994
6	1.042	3.158	73.406	1.042	3.158	73.406	1.786	5.412	73.406
7	.806	2.443	75.849						
8	.769	2.331	78.181						
9	.670	2.030	80.211						
10	.556	1.686	81.897						
11	.497	1.507	83.404						
12	.487	1.476	84.880						
13	.445	1.348	86.229						
14	.403	1.220	87.449						
15	.344	1.043	88.492						
16	.337	1.021	89.513						
17	.329	.998	90.511						
18	.310	.940	91.451						
19	.301	.912	92.362						
20	.264	.801	93.164						
21	.241	.731	93.895						
22	.236	.716	94.611						
23	.225	.681	95.292						
24	.217	.657	95.950						
25	.194	.587	96.537						
26	.185	.560	97.097						
27	.176	.533	97.629						
28	.165	.501	98.131						
29	.156	.471	98.602						
30	.137	.414	99.016						
31	.129	.392	99.408						

32	.117	.353	99.761						
33	.079	.239	100.000						

Extraction Method: Principal Component Analysis

To achieve factor analysis, the principal component extraction method was applied by using SPSS V.20 (Table 5.12). By viewing Table 5.12, this study states that the convergent and divergent liabilities of the variables and their items have been confirmed.

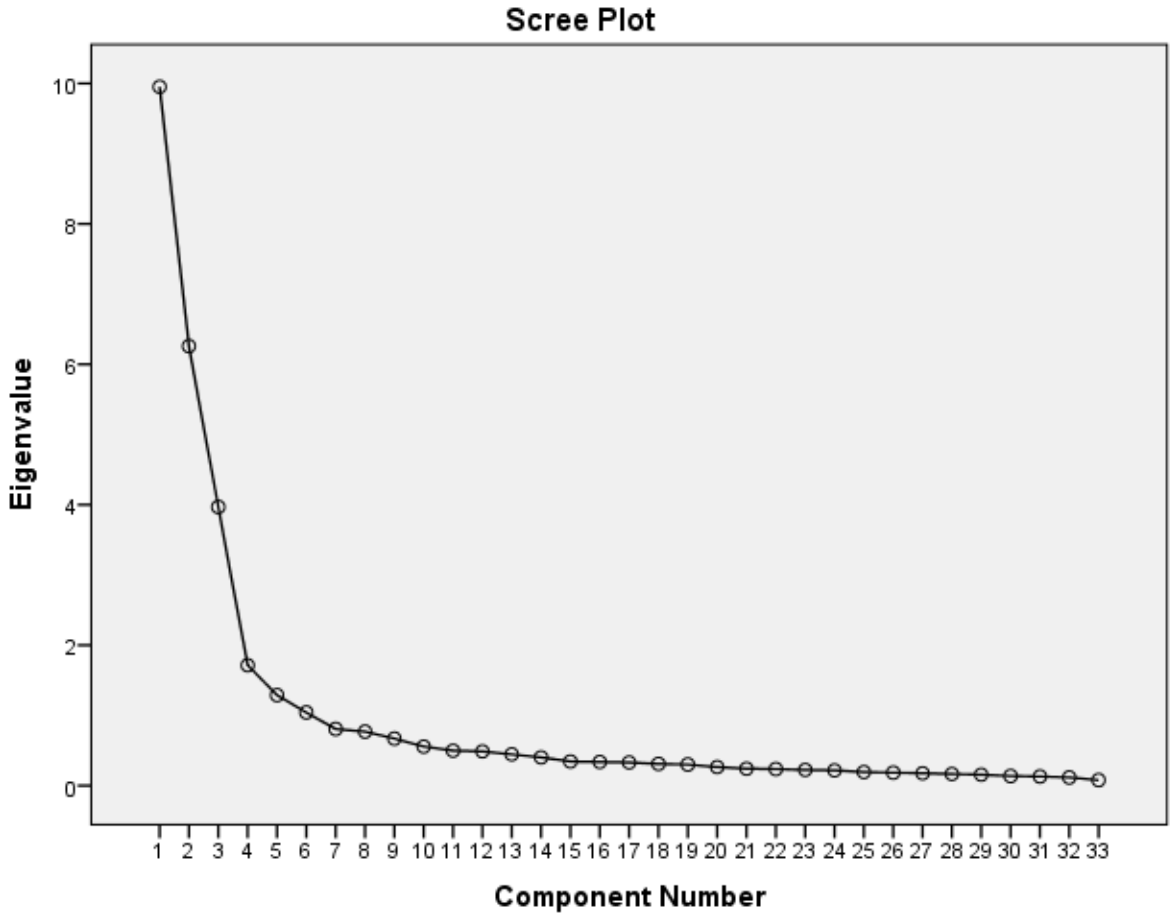
Table 5. 12 Component matrix

	Component					
	1	2	3	4	5	6
PC1	**.920**	-.033	-.030	.184	-.113	-.019
PC2	**.724**	-.024	-.019	.055	-.176	-.061
PC3	**.820**	.023	-.262	.086	-.253	-.065
PC4	**.704**	.224	-.249	.027	-.269	-.143
PC5	**.707**	.224	-.122	.092	-.224	-.134
PC6	**.695**	.163	-.108	.045	-.222	-.194
PC7	**.743**	.179	-.161	-.108	-.023	.041
PC8	**.766**	.258	-.101	-.075	.036	.158
PC9	**.769**	.101	-.185	-.114	.045	.195
PC10	**.738**	.212	-.240	-.181	.125	.167
PC11	**.752**	.166	-.118	-.072	.099	.218
PC12	**.736**	.166	-.290	-.257	.082	.124
PC13	**.721**	.180	-.264	-.277	.094	.278
SC1	.097	**.710**	.114	.235	.074	.154
SC2	.281	**.798**	.249	.182	.128	.165
SC3	.296	**.867**	.196	.258	.129	.158
SC4	.275	**.716**	.188	.238	.137	.182
AQ1	.201	.238	**.789**	-.164	.174	-.107
AQ2	.266	.248	**.883**	-.220	.211	-.274
AQ3	.130	.229	**.870**	-.168	.230	-.196
AQ4	.019	.250	**.807**	-.162	.179	-.254
TW1	-.185	.101	.127	**.781**	.057	-.037
TW2	-.241	.238	-.103	**.882**	.062	-.058
TW3	-.300	.132	-.136	**.774**	.068	-.037
TW4	-.220	.235	-.184	**.814**	.111	-.015
SE1	-.278	.116	-.081	.214	**.796**	.119
SE2	-.112	.100	-.210	.252	**.877**	.015
SE3	-.261	.220	-.097	.255	**.728**	.063
TR1	-.137	.208	.216	-.056	-.233	**.864**
TR2	-.132	.131	.091	-.205	-.253	**.874**
TR3	-.104	.271	.264	-.159	-.234	**.847**
TR4	.045	.073	.221	-.012	-.177	**.903**
TR5	-.045	.059	.109	-.196	-.284	**.837**

Extraction Method: Principal Component Analysis.

Scree Plot

A scree plot shows the eigenvalues on the y-axis against the factor with which it is associated on the x-axis (Field, 2013). This test is used to determine how many factors are removed in this framework with eigenvalues less than one (Field, 2013). Usually, the first factor has the highest eigenvalue and then decreases. Figure 5.1 presents the scree plot test. From this figure, it can be seen that the results of the scree plot slope are exactly the same as the results for the eigenvalues.



Scree Plots of Eigenvalues

Figure 5. 1 Kaiser–meyer–olkin measure of sampling adequacy (KMO) test

The Kaiser–Meyer–Olkin (KMO) and Bartlett's Test of Sphericity should be computed to assess the suitability of the respondent data for factor analysis (Williams et al., 2010). "The KMO index ranges from 0 to 1, with 0.50 considered suitable for factor analysis. The Bartlett's

Test of Sphericity should be significant (p<.05) for factor analysis to be suitable" (Williams et al, 2010, p. 5). Table 5.13 presents the KMO and Bartlett's Test. The results show that the Kaiser-Meyer-Olkin (KMO) value was .825 and the Bartlett's test of sphericity value was (P <.001). Therefore, the data of this study is suitable for using factor analysis.

Table 5. 13 KMO and bartlett's test

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.825
Bartlett's Test of Sphericity	Approx. Chi-Square	601.377
	df	10
	Sig.	.000

Now, after finishing all these steps, Cronbach's alpha measure was used to assess each loaded factor. These are discussed in the next section.

Factor 1: Trust (TR)

This factor (which is the dependent factor) covers the information regarding trust in mobile banking system.

The operationalization of trust (TR) was measured by using five items used from (Lee and Chung 2009) as follows:

TR1. HSBC mobile banking keeps its promises

TR2. HSBC mobile banking services meet my needs.

TR3.HSBC mobile banking is trustworthy.

TR4. I think HSBC mobile banking is concerned with the present and future interests of users.

TR5. Overall, I trust HSBC mobile banking.

By applying factor loading at 0.5, as suggested by Field, 2013, the researcher did not exclude any item (Table 5.14).

Table 5. 14 Factor loading and cronbach's alpha of trust (TR)

Factor and related items	Factor loading	Cronbach's Alpha
Trust (TR)		.865
TR1. HSBC mobile banking keeps its promises	.864	
TR2. HSBC mobile banking services meet my needs.	.874	
TR3.HSBC mobile banking is trustworthy.	.847	
TR4. I think HSBC mobile banking is concerned with the present and future interests of users.	.903	
TR5. Overall, I trust HSBC mobile banking.	.837	

Factor 2: Argument quality (AQ)

This factor which shows the quality of the informational message was measured by using four items adapted from (Bhattacherjee and Sanford 2006). The items were as follows:

AQ1: The information provided on HSBC website about mobile banking application was informative.

AQ2: The information about mobile banking application provided on HSBC website was helpful.

AQ3: The information about mobile banking application provided on HSBC website was valuable.

AQ4: The information about mobile banking application provided on HSBC website was persuasive.

By after applying factor loading at 0.5 (As suggested by Field, 2013), the researcher did not exclude any item (Table 5.15).

Table 5. 15 Factor loading and cronbach's alpha of argument quality (AQ)

Factor and related items	Factor loading	Cronbach's Alpha
Argument Quality (AQ)		.903
AQ1: The information provided on HSBC website about mobile banking application was informative.	.789	
AQ2: The information about mobile banking application provided on HSBC website was helpful.	.883	
AQ3: The information about mobile banking application provided on HSBC website was valuable.	.870	
AQ4: The information about mobile banking application provided on HSBC website was persuasive.	.807	

Factor 3: Trustworthiness (TW)

The researcher measured this construct by using four items adapted from (Cheung et al., 2008; Jonas Reichelt et al., 2014). These items are:

TW1: HSBC is trustworthy on the information about mobile banking app on their website.

TW2: HSBC is benevolent about his recommendation of the mobile banking application.

TW3: HSBC is competent in the mobile banking application.

TW4: HSBC seems to be sincere on mobile banking.

By applying factor loading at 0.5 (As suggested by Field, 2013), the researcher did not exclude any item as seen in Table 5.16.

Table 5. 16 Factor loading and cronbach's alpha of trustworthiness (TW)

Factor and related items	Factor loading	Cronbach's Alpha
Trustworthiness (TW)		.870
TW1: HSBC is trustworthy on the information about mobile banking app on their website.	.781	
TW2: HSBC is benevolent about his recommendation of the mobile banking application.	.882	
TW3: HSBC is competent in the mobile banking application.	.774	
TW4: HSBC seems to be sincere on mobile banking.	.814	

Factor 4: Source expertise (SE)

Source expertise (SE) was measured on a five-point scale. The researcher used three items to measure this construct which were adapted from (Cheung et al., 2008; Jonas Reichelt et al., 2014). The items were as follows:

SE1: The HSBC knowledgeable about mobile banking App.

SE2: HSBC seems to have a good sense about mobile banking app.

SE3: HSBC seems to have experience with mobile banking app.

By applying factor loading at 0.5 (As suggested by Field, 2013), the researcher did not exclude any item. See, Table 5.17).

Table 5. 17 Factor loading and cronbach's alpha of source expertise (SE)

Factor and related items	**Factor loading**	**Cronbach's Alpha**
Source expertise (SE)		**.**801
SE1: The HSBC knowledgeable about mobile banking App.	.796	
SE2: HSBC seems to have a good sense about mobile banking app.	.877	
SE3: HSBC seems to have experience with mobile banking app.	.728	

Factor 5: Privacy concern (PC)

The operationalization of privacy concerns (PC), measured on a five-point scale, and was based on thirteen items. The researcher adapted these items from (Angst and Agarwal 2009; Malhotra et al., 2004). By applying factor loading at 0.5 (As suggested by Field, 2013), the researcher did not exclude any item. See Table 5.18.

Table 5. 18 Factor loading and cronbach's alpha of privacy concern (PC)

Factor and related items	Factor loading	Cronbach's Alpha
Privacy concern (PC)		.751
PC1: It usually bothers me when mobile banking apps ask me for personal information.	.920	
PC2: When mobile banking apps ask me for personal information, I sometimes think twice before providing it.	.724	
PC3: I'm concerned that mobile banking apps are collecting too much personal information about me.	.820	
PC4: All the personal information in mobile database should be double-checked for accuracy—no matter how much this costs.	.704	
PC5: Mobile banking apps should take more steps to make sure that the personal information in their files is accurate.	.707	
PC6: Mobile banking apps should have better procedures to correct errors in personal information.	.695	
PC7: Mobile banking apps should devote more time and effort to preventing unauthorized access to personal information.	.743	
PC8: Mobile databases that contain personal information should be protected from unauthorized access no matter how much it costs	.766	
PC9: Mobile banking apps should take more steps to make sure that unauthorized people cannot access personal information in their computers.	.769	
PC10: Mobile banking apps should not use personal information for any purpose unless it has been authorized by the individuals who provided the information.	.738	
PC11: When people give personal information to mobile banking apps for some reason, the apps should never use the information for any other reason.	.752	
PC12: Mobile banking apps should never sell the personal information in their computer databases to other companies.	.736	
PC13: Mobile banking apps should never share personal information with other companies unless it has been authorized by the individuals who provided the information.	.721	

Factor 6 security concern (SC)

Security concern (SC) measured on a five-point scale. To measure this construct, this study used reverse coded on SPSS, V. 20. It used four items to measure this construct. The researcher adapted from (Kim D. J. et al., 2008). The items are:

SC1: Mobile banking apps will implement security measures to protect my personal Information.

SC2: Mobile banking apps will ensure that my transactional information is protected from being altered or destroyed accidentally during a transmission on the mobile.

SC3: I will feel secure about the mobile banking App system.

SC4: I will feel safe in making transactions through mobile banking apps.

By applying factor loading at 0.5 (As suggested by Field, 2013), the researcher did not exclude any items. As seen in Table 5.19.

Table 5. 19 Factor loading and cronbach's alpha of security concern (SC)

Factor and related items	Factor loading	Cronbach's Alpha
Security concern (SC)		.801
SC1: Mobile banking apps will implement security measures to protect my personal Information.	.710	
SC2: Mobile banking apps will ensure that my transactional information is protected from being altered or destroyed accidentally during a transmission on the mobile.	.798	
SC3: I will feel secure about the mobile banking app system.	.867	
SC4: I will feel safe in making transactions through mobile banking apps.	.716	

From all of the tables above (Tables 5.14, 5.15, 5.16, 5.17, 5.18 and 5.19), the factor loading and Cronbach's Alpha were conducted to establish trust in the context of mobile banking. All the tests above had confirmed that the exploratory factor analysis was applied correctly. Cronbach's alpha for each factor has been confirmed.

5.12 Regression Analysis

5.12.1 Regression analysis: Examining the Relationship between argument quality (AQ), source expertise (SE), trustworthiness (TW) and trust (TR)

The dependent variable is trust in mobile banking. The explanatory variables are argument quality, source expertise and trustworthiness. The moderator variables are privacy and security concerns. The descriptive statistics for the variables in the data set are shown in Table 5.20.

The average star rating of each satisfaction dimension is around 3.5, and that of trust is the largest, followed by argument quality, source expertise, privacy concerns, trustworthiness and security concerns.

Table 5. 20 The descriptive statistics for the variables

Variable	N	Mean	Std. Deviation
PC	358	3.4676	.69872
SC	358	3.1027	1.12868
AQ	358	3.6487	.80812
TW	358	3.4169	.68567
SE	358	3.5764	.85134
Trust	358	3.6665	.67359

To test the relationship between argument quality, source expertise, trustworthiness and trust, this study ran a multiple regression analysis by using SPSS V.20. While trust is the dependent variable, argument quality, source expertise and trustworthiness are the independent variables. The results can be seen in tables 5.21, 5.22 and 5.23.

Table 5. 21 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	.346	.340	.54709

Predictors: (Constant), SE, AQ, TW
Dependent variable: Trust (TR)

From Table 5.21, it can be seen that the value of R, which is the multiple correlation coefficient, is 0.588. The value of $R^2$is 0.346 and the value of adjusted R^2 is 0.340. Thus, the predictor variable for argument quality, source expertise and trustworthiness explains 34 percent of the variance in trust, which is the dependent variable.

Table 5.22 presents the results from ANOVA. Here, the researcher should focus on F-ration and the degree of freedom from which it was calculated and the corresponding significance

value (Field, 2013). Table 5.22 shows that the F-ratio is 62.390 and ($p < 0.001$). These results tell us that the final model significantly increases the ability to explain the dependent variable.

Table 5. 22 ANOVA

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.022	3	18.674	62.390	.000[b]
	Residual	105.956	354	.299		
	Total	161.978	357			

a. Dependent Variable: Trust
c. Predictors: (Constant), SE, AQ, TW

Table 5.23 presents the standardised beta coefficient (β) between argument quality, trustworthiness and source expertise variables, and the dependent variable, trust in mobile banking service. From the regression analysis (Table 5.23), it is clear that the relationship between the argument quality of the informational message (AQ) and trust (TR) in mobile banking services is statistically significant ($P < 0.001$). The beta coefficient ($\beta = .258$) confirms that the relationship between argument quality and trust is positive and statistically significant at this level ($P < 0.001$). Therefore, the higher the argument quality scores, the higher the trust scores. Similarly, the relationship between trustworthiness (TW) and trust (TR) in mobile banking services is statistically significant ($p < 0.001$). The beta coefficient ($\beta = .493$) confirms that there is a positive and significant relationship between trustworthiness and trust in mobile banking services at the level ($P < 0.001$). Therefore, the higher the trustworthiness scores, the higher the trust scores.

Contrary, the relationship between source expertise (SE) and trust (TR) in mobile banking services is not significant ($\beta = 062$, $p > .05$). Table 5.23 below illustrates the significant variables, which are argument quality ($\beta = 0.258$, $p < 0.001$), and trustworthiness ($\beta = 0.493$, $p < 0.001$).

Table 5. 23 Coefficients [a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.052	.203		5.177	.000
	AQ	.215	.036	.258	5.990	.000
	TW	.484	.063	.493	7.721	.000
	SE	.049	.051	.062	.971	.332

a. Dependent Variable: Trust

This section has presented hypotheses one to three, which were between argument quality, trustworthiness and source expertise variables, and trust as the dependent variable, as follows:

H1: The argument quality of the message has a positive impact on trust in mobile banking. This hypothesis is supported.

H2: Trustworthiness positively influences trust in mobile banking. This hypothesis is supported.

H3: Source expertise positively influences trust in mobile banking. This hypothesis is not supported (see Table 5.24).

Table 5. 24 Hypotheses assessment

Research hypotheses	β	P- value	Results
H1: The argument quality of the message has a positive impact on trust in mobile banking.	.258	P^{***}<.001	supported
H2: Trustworthiness positively influences trust in mobile banking.	.493	P^{***}<.001	supported
H3: Source expertise positively influences trust in mobile banking.	.062	P>. 05	Not supported

P^{***} < 0.001.

The second section presents the hypotheses 4 and 5, which examine the moderator role of privacy and security concerns between argument quality and trust in mobile banking services.

In order to test these hypotheses, this study used SPSS V.20 following the suggestion of Field (2013).

5.12.2 Moderator role of privacy concerns PC

"The combined effect of two variables on another is known conceptually as moderation, and in statistical terms as an interaction effect" Field, 2013, p. 395).

Regression analysis was ran; while trust is the dependent variable, the argument quality, trustworthiness and source expertise are independent variables and privacy concerns is the moderator between argument quality and trust. The results are clear from tables 5.25, 5.26 and 5.27.

Table 5.25 presents the model summary. For model (1), this table shows that the value of the multiple correlation coefficients (R) is 0.588 and the value of the adjusted R^2 is 0.340. Thus, the independent variables, which are the argument quality, the source expertise and the trustworthiness, explain 34 percent of the variance in trust, which is the dependent variable. In model (2), after adding the privacy concerns as the moderator, this table shows that the multiple correlation coefficients (R) is 0.633 and the adjusted R^2 value is 0.40. Thus, the adjusted R^2 increased from 0.34 to 0.40. See Table 5.25.

Table 5. 25 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	.346	.340	.54709
2	.633[b]	.400	.393	.52463

a. Predictors: (Constant), SE, AQ, TW

b. Predictors: (Constant), SE, AQ, TW, moderator PC

Table 5.26 presents the results from ANOVA. Again, the researcher should focus on F-ration and the degree of freedom from which it was calculated and the corresponding significance value (Field, 2013). From Table 5.27, the results confirm that the F-ratio for the first model is 62.390and ($p < 0.001$) and the F-ratio for the second model is 58.878 and ($p<0.001$).

Table 5. 26 ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.022	3	18.674	62.390	.000[b]
	Residual	105.956	354	.299		
	Total	161.978	357			
2	Regression	64.821	4	16.205	58.878	.000[c]
	Residual	97.157	353	.275		
	Total	161.978	357			

a. Dependent Variable: Trust
b. Predictors: (Constant), SE, AQ, TW
c. Predictors: (Constant), SE, AQ, TW, moderator PC

Hypothesis four (H4) proposes that privacy concerns positively moderate the relationship between argument quality and trust. The moderating test in Table 5.27 shows that there is a positive significant interaction effect between argument quality and privacy concerns on trust in mobile banking ($\beta = .380$, $p < 0.001$). Hence, hypothesis 4 is supported.

Table 5. 27 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.052	.203		5.177	.000
	AQ	.215	.036	.258	5.990	.000
	TW	.484	.063	.493	7.721	.000
	SE	.049	.051	.062	.971	.332
2	(Constant)	.720	.203		3.541	.000
	AQ	.317	.039	.380	8.155	.000
	TW	.425	.061	.433	6.974	.000
	SE	.068	.049	.085	1.391	.165
	Moderator PC	.164	.029	.267	5.654	.000

a. Dependent Variable: Trust

5.12.3 Moderator role of security concerns SC

Again, regression analysis was run. While trust is the dependent variable, argument quality, trustworthiness and source expertise are independent variables. Security concern is the moderator between argument quality and trust. The results are stated in tables 5.28, 5.29 and 5.30.

Table 5.28 presents the model summary. Model (1) shows that the value of the multiple correlation coefficients (R) is 0.588 and the value of the adjusted R^2 is 0.340. Thus, the independent variables, which are the argument quality, the source expertise and the trustworthiness, explain 34 percent of the variance in trust, which is the dependent variable. Model (2), after adding the security concerns as moderator, shows that the value of the multiple correlation coefficients (R) is 0.662 and the value of adjusted R^2 is 0.431. Thus, the adjusted R^2 increased from 0.34 to 0.431 (see Table 5.28).

Table 5. 28 Model summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.588[a]	.346	.340	.54709
2	.662[b]	.438	.431	.50791

a. Predictors: (Constant), SE, AQ, TW
b. Predictors: (Constant), SE, AQ, TW, moderator SC

Table 5.29 presents the results from ANOVA. The researcher should focus on the F-ration and the degree of freedom from which it was calculated and the corresponding significance value (Field, 2013). From Table 5.30, the results show that the F-ratio for the first model is 62.390 and ($p < 0.001$), and the F-ratio for the second model is 68.772 and ($p<0.001$).

Table 5. 29 ANOVA [a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	56.022	3	18.674	62.390	.000[b]
	Residual	105.956	354	.299		
	Total	161.978	357			
2	Regression	70.913	4	17.728	68.722	.000[c]
	Residual	91.065	353	.258		
	Total	161.978	357			

a. Dependent Variable: Trust
b. Predictors: (Constant), SE, AQ, TW
c. Predictors: (Constant), SE, AQ, TW, moderator SC

Table 5.30 shows that hypothesis 5 is supported. This hypothesis proposes that security concerns positively moderate the relationship between argument quality and trust. Table 5.30 shows that there is a positive significant interaction effect between argument quality and security concerns on trust in mobile banking ($\beta = .305$, $p < 0.01$). Hence, hypothesis 5 is supported. See Table 5.31 for hypotheses assessment.

Table 5. 30 Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.052	.203		5.177	.000
	AQ	.215	.036	.258	5.990	.000
	TW	.484	.063	.493	7.721	.000
	SE	.049	.051	.062	.971	.332
2	(Constant)	.871	.190		4.583	.000
	AQ	.254	.034	.305	7.523	.000
	TW	.439	.058	.447	7.508	.000
	SE	.072	.047	.091	1.535	.126
	Moderator SC	.227	.030	.308	7.598	.000

a. Dependent Variable: Trust

This section presents the last two tests. These tests were performed to explain the moderator roles of privacy and security concerns between argument quality and trust in mobile banking.

H4: Privacy concerns positively moderate the effect of argument quality on trust in mobile banking. This hypothesis is supported.

H5: Security concerns positively moderate the effect of argument quality on trust in mobile banking. These hypotheses are supported (see Table 5.31).

Table 5. 31 Hypotheses assessment of moderators

Research hypotheses	**P-value**	**Result**
Privacy concerns positively moderate the effect of the argument quality on trust in mobile banking.	**P < 0.001**	**supported**
Security concerns positively moderate the effect of the argument quality on trust in mobile banking.	**P < 0.001**	**supported**

The empirical results of research hypotheses are stated in Figure 5.2.

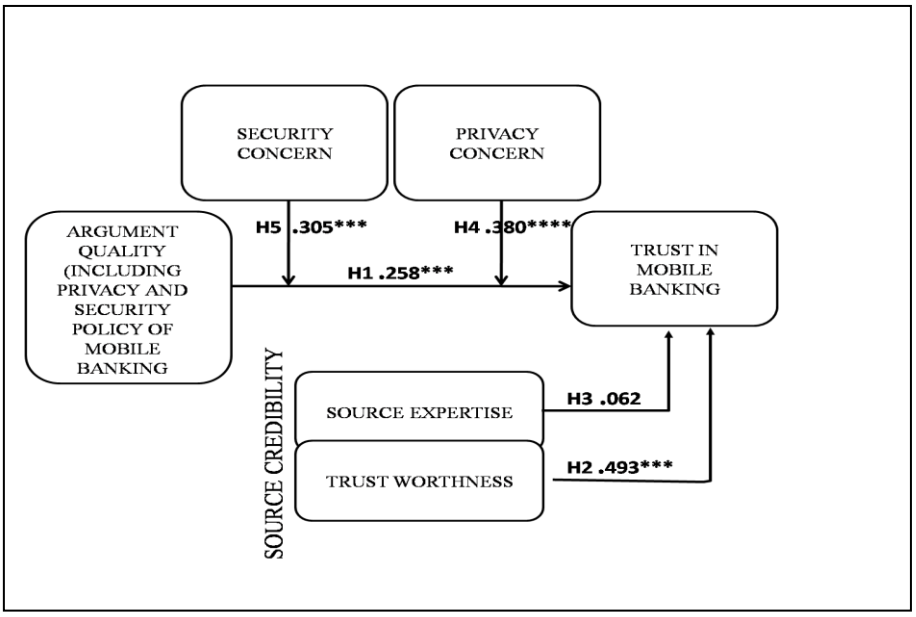


Figure 5. 2 Final framework supported by empirical results of research hypotheses

5.13 Conclusion

This chapter has displayed the findings of this study. It started by applying many different statistical procedures, before applying factor analysis and regression analysis, including data management, screening the data before data analysis, dealing with missing data, outliers, and presenting the results of normality and linearity tests.

The percentage of missing data was less than five percent of the total data. This amount is very low and has been considered acceptable. To identify univariate outliers, this study used SPSS function of descriptive statistics. The data values were converted into Z-scores. To identify the multivariate outlier, the researcher determined the Mahalanobis distance (D^2). This study has retained the cases of outliers.

To test normality, this study has used skewness and kurtosis. By checking the values of skewness and surtosis, this study has confirmed that the data were normally distributed. Next, an explanation of the factor loading and exploratory factor analysis technique was provided. By using SPSS V.20, principle components analysis was applied. The results of the reliability and the construct validity tests were confirmed before showing the findings.

Thereafter, the regression analysis method was assessed to test the relationship between independent and dependent variables, and to test the moderator relationship. The first two hypotheses are:

H1: The argument quality of the message has a positive impact on trust in MB, and

H2: Trustworthiness positively influences trust in mobile banking.

These two hypotheses were positive and significant, and therefore have been accepted.

The third one was:

H3: Source expertise positively influences trust in mobile banking. This hypothesis was statistically not significant and so it has been rejected.

The fourth and fifth hypotheses have also been supported. These two hypotheses are:

H4: Privacy concerns positively moderate the effect of argument quality on trust in mobile banking.

H5: Security concerns positively moderate the effect of argument quality on trust in mobile banking.

The discussion of the results of this research is presented in Chapter Six, which is the next chapter.

Chapter 6 : Discussion

6.1 Introduction

The previous chapter examined the relationship between the independent and dependent variables, and the moderator roles of privacy and security concerns to achieve the research objectives. The results were obtained by using SPSS V.20. An overview of this research study and a discussion of the key findings are presented in this chapter.

6.2 Overview of this research study

The previous chapters (1- 5) have discussed the research background, research gap, aims and objectives, and literature review related to the research topic, as well as the development of the research framework. The research methodology and the analytic strategy were also explained. Then, the results of this study were presented. The aim of this study was to test how informational persuasive message can affect trust in mobile banking services, and the roles of privacy and security concerns as moderators. To achieve this aim, this study proposed a theoretical framework model based on the Elaboration Likelihood Model (ELM), and empirically tested it. It tested the effect of argument quality, source expertise and trustworthiness on trust as the dependent variable. Privacy and security concerns were used as moderators between argument quality and trust. This study extended the ELM in the context of mobile banking and added the privacy and security policies of mobile banking in an informative message. Furthermore, to the best to my knowledge, it is the first study to include security concerns as a moderator.

In order to achieve the aim and objectives of this study, a quantitative methodology was used, involving a questionnaire survey for the data collection. The survey was developed based on the previous published studies by adopting exiting measurement scales.

Minor changes were made to make it suitable for the mobile banking services context.

A pre-test and a pilot study were carried out before distributing the final questionnaire. A final sample of 358 responses was used in the main analysis.

This study developed five hypotheses and used the statistical software tool (SPSS V. 20.0) for the data analysis. The data was collected from mobile banking users in UK. The SPSS V. 20.0 was used for all tests in this study, for: descriptive analysis, dealing with missing value, outliers, normality and linearity, exploratory factor analysis and regression analysis. The proposed model was found to be valuable in understanding the factors that affect trust in mobile banking services and the roles of privacy and security concerns as moderators.

This chapter will evaluate and discuss the results of the study. This will be done by reviewing all the hypotheses tested and comparing them with past studies, and then presenting the conclusions.

6.3 Discussion

In the following sections, a discussion on the response rate, population and demographic characteristics is provided. After that, the results of hypotheses testing are discussed, followed by the conclusions reached.

6.3.1 Response rate

For this research study, the researcher distributed 950 questionnaires. Only 380 questionnaires were returned, therefore the response rate was 40 % of the original sample. However, 22 responses were discarded because eight respondents mentioned that they had never used mobile banking services before; five responses gave all the same answers in the questionnaire; four respondents did not fill in the questionnaire and left it completely blank, and five respondents answered only some questions. This left 358 questionnaires remaining. These questionnaires were used for the main data analysis. As a result, the final response rate in this thesis is 37.68%.

This response rate can be considered acceptable if comparing it with the response rate reported in previous literature reviews. For example, the final sample in the study of Angst and Agarwal (2009) consists of 366 subjects. Cheung et al. (2008) used 154 usable questionnaires. Li and Ku (2011) applied 124 questionnaires. The response rate reported in their study was 20 percent. Thus, the response rate for the current research is considered to be acceptable.

6.3.2 Population and demographic characteristics

In this survey study, the percentage of males was 62.3%, with only 37.7% females partaking. Also, about 42.5 percent of respondents were aged between 20-30years. The percentage of the second group was 37.4, for respondents whose ages were between 31- 40 years old. The percentage of respondent's age 20 years or under was 10.1. Moreover, six categories of occupation (employed, self-employed, non-employed, professional, academic and student) were presented to respondents. The largest percentage of the participants was students (57.0%).

6.3.3 Discussion of the results of hypotheses testing

This thesis has presented a framework based on the Elaboration Likelihood Model (ELM) to test how a persuasive message can affect trust in mobile banking services, and the moderator roles of privacy and security concerns. The independent variables that affect trust in mobile banking services were argument quality, trustworthiness and source expertise. The relationships between these variables and trust were significant, although the relationship between source expertise and trust was not. The moderation roles of privacy and security concerns were investigated. These hypotheses were positively significant and accepted. Table 6.1 summarises the hypotheses and states whether they are supported or not. This table shows that a total of five hypotheses were tested. Only one hypothesis was rejected after applying regression analysis.

Table 6. 1 Results of research hypotheses

Number of the Hypothesis	Relationship	Results
H1	The argument quality of the message has a positive impact on trust in mobile banking.	**Supported**
H2	Trustworthiness positively influences trust in mobile banking.	**Supported**
H3	Source expertise positively influences trust in mobile banking.	**Rejected**
H4	Privacy concerns positively moderate the effect of the argument quality on trust in mobile banking.	**Supported**
H5	Security concerns positively moderate the effect of the argument quality on trust in mobile banking.	**Supported**

Argument quality and Trust

This section discusses the relationship between argument quality and trust in mobile banking. The proposed model hypothesised that the argument quality of the message (central route) positively impacts on trust in mobile banking systems (H1).

The analysis results found that argument quality had a positive and significant effect on trust (β= 0.258, t-value=5.990, p<0.001). As a result, the first hypothesis is accepted.

Therefore, drawing from the ELM, educating users about the privacy and security policies of the mobile banking system, by providing them with an informational message, can significantly increase trust levels. This informational message should include information about privacy and the security policies of the mobile banking system. This result suggests that using the central route in fostering users' trust in the mobile banking service is apparently an effective persuasion route for most users.

The result of this test of the hypothesis is in agreement with previous studies' results (e.g. Kim and Benbasat, 2003; Mun et al., 2013; Pee, 2012; Greiner and Wang, 2010; Yang et al., 2006). Thus, argument quality is often found to have a significant relationship with trust. This finding highlights the importance of argument quality (central route) in the ELM in developing trust in mobile banking systems. In other words, the significance of argument quality in this study means that users can be persuaded to trust mobile banking services. Hence, it is essential for mobile banking managers to provide users with an informational message about the privacy and security polices of this service.

To sum up, the results from this testing of the hypothesis about the relationship between argument quality and trust is in agreement with previous studies, which clarify that the argument quality of an informational message plays an important role in trust formation.

Trustworthiness and Trust

In this study, it was hypothesised that the trustworthiness of an informational message source positively impacts trust in mobile banking systems (H2). The hypothesis testing found that trustworthiness has a positive significant effect on trust (β= 0.493, t- value= 7.721, p< 0.001). Hence, the higher the level of trustworthiness of the message source, the more positive the trust level. By having a high level of trustworthiness, the level of trust will be increased. The findings show that a strong predictor of trust in mobile banking is trustworthiness. Thus, mobile banking managers must highlight their trustworthiness through a persuasive and informational message.

These results are in agreement with previous studies' results, which clarify that trustworthiness plays a crucial role in trust formation (e.g. Roy et al., 2012; Jarvenpaa and Tractinsky, 1999; Chu and Kamal, 2008). This finding demonstrates the importance of trustworthiness in building trust in the context of mobile banking. If mobile banking managers want to organise motivational persuasive messages to educate users about the privacy and security policies of their mobile banking service, they should take into account the trustworthiness of the message source in order to develop trust in this service.

Trustworthiness often found to have a significant effect on trust. This result highlights the importance of the peripheral route in the ELM (here it is trustworthiness) in forming trust in this system. Additionally, the significance of trustworthiness in this study means that users can be persuaded to trust mobile banking services.

Source Expertise and Trust

In the research framework of this study, it was assumed that the expertise of the message source positively affects the trust in mobile banking systems (H3). The analysis of the results shows that this relationship was not significant (β= 0.62, t- value= 0.971, P> 0.05). Therefore, this hypothesis has been rejected. The findings for this hypothesis mean that the source expertise of the informational message has no effect on trust in mobile banking and does not influence it. This hypothesis was suggested based on the previous literature review on the Elaboration Likelihood Model (ELM) and the previous literature on trust in an online context.

This result might be explained as follows:

- A likely explanation for this unexpected result is that HSBC being the source of the message does not enhance the trust of the users in this service. It may be difficult for users to evaluate whether this information message was from a professional person in mobile banking services or not.
- This study mentions that the source of the message is HSBC bank website without mentioning the name of a professional person in the context of mobile banking. So, users need a signal of credibility, especially for a service such as mobile banking. The nature of this service is a little complex as it involves money. Therefore, mobile banking managers should seek ways to make the source of the informational message clear to users.

Mobile banking managers should make the source of the informational message more attractive and helpful to increase trust in this service by, for example, indicating the name of a professional presenter in this system.

Although trustworthiness had a positive significant impact on trust in mobile banking, source expertise did not. These findings are in accordance with the findings of prior studies, for example many studies have suggested that managers must ensure their trustworthiness, even more so than expertise, in an online setting (Reichelt et al., 2014; Brown et al., 2007; Lee et al., 2006; Casalo et al., 2007; Park and Lee 2009).

The moderating role of privacy concerns between argument quality and trust

This research study hypothesised that privacy concerns have a significant positive moderator effect between argument quality and privacy concerns on trust in mobile banking services. The hypothesis testing has confirmed this relationship (β= 0.380, t-value= 8.155, $p<0.001$). This significant interaction effect supports hypothesis four (H4). Thus, hypothesis four has been accepted. These findings provide clear support for the central route of the Elaboration Likelihood Model (ELM). According to the ELM, users with high motivation (here privacy concerns) will follow the argument of the informational message, which emphasises the central route of the ELM.

This finding is in agreement with the previous studies' findings, such as Slyke et al. (2006), who argued that vendors can decrease privacy concerns and increase trust in a website by adopting different strategies like privacy-related mechanisms. Also, Bansal et al. (2008, 2015) highlights that privacy concerns is a significant moderator of the relationship between argument quality and trust in some contexts.

The positive moderating role of privacy concerns in this thesis shows that an informational message about privacy and the security policies of a mobile banking service will have a strong impact on trust in this service. As a result, mobile banking managers need to understand the privacy concerns of users and find the best way of dealing with this concern. They can provide them with a good informational message about the privacy and security policies of this service and then establish a good level of trust in it.

To summarise, for users who have privacy concerns, an informational message about the privacy and security policies of the mobile banking system will likely be the most effective way of developing trust in this system.

The moderating role of security concerns between argument quality and trust

This research study hypothesised that there is a significant interaction effect between argument quality and security concerns on trust in mobile banking service. The results confirm this relationship (β= 0.305, t-value= 7.523, $p<0.001$). This significant interaction effect supports hypothesis five (H5). Thus, hypothesis five has been accepted.

These findings provide clear support for the central route of the Elaboration Likelihood Model (ELM). According to the ELM, users with high motivation (here security concerns) will follow the argument of the informational message, which emphasises the central route of the ELM.

This finding is in agreement with the previous studies' findings, such as Huang et al. (2011), who argued that users will be more likely to follow the security procedures if they have security concerns. In the same way, Angest and Agarwal (2009) argue that "The stronger the concern, the more persuasive a message needs to be in order to overcome the associated apprehension" (p. 349).

The moderating role of security concerns in this study, show that the argument of an informational message about privacy and the security policies of mobile banking services, will have a strong impact on trust. As a result, mobile banking managers need to understand the security concerns of users and find the best way of dealing with these concerns by providing them with an informational message about the privacy and security policies of this service and then establishing a good level of trust in it.

To summarise, for users who have security concerns, an informational message about privacy and the security policies of the mobile banking system will likely be the most effective way of developing trust in this system.

6.4 Conclusions

The aim of this chapter was to discuss the results of this research study.

First of all, this chapter has discussed the response rate and found that the researcher distributed 950 questionnaires. Only 380 questionnaires were returned. However, 22 responses had to be discarded, so 358 questionnaires remained. These remaining questionnaires were used for the main data analysis. Thus, the final response rate in this study was 37.68 %. The response rate achieved in this study is considered to be acceptable.

The demographic information shows that 62.3 % were male and 37.7 % were female. Also, 42.5 per cent of the respondents were aged between 20-30 years. Moreover, six categories of occupation (employed, self-employed, non-employed, professional, academic and student) were presented to respondents. The largest percentage of the participants was students (57.0 %). This may not be surprising as the survey were distributed in many different places, especially Brunel University between undergraduate and postgraduate students.

Moreover, this study has developed a model to explain how persuasive messages can affect trust in mobile banking systems from the perspective of the Elaboration Likelihood Model. In addition, this study has tested the moderating roles of privacy and security concerns between argument quality and trust. While the analyses of the results confirm that both argument quality and trustworthiness had positive and significant effects on trust, source expertise did not. The moderating roles of privacy and security concerns between argument quality and trust were supported. Therefore, all the hypotheses in this research study were positively and significantly supported, except for hypothesis three concerning source expertise and trust.

The next chapter presents the theoretical contribution and the practical implications. The limitations will also be presented, along with recommendations for future studies and the final conclusions.

Chapter 7 : Conclusion

7.1 Introduction

This chapter presents the theoretical contributions and practical implications. Next, it highlights the limitations of this study and the directions for future research studies. The last section presents the final conclusions of this research study.

7.2 Research Implications

7.2.1 Theoretical contributions

After reviewing the existing studies in the area of mobile banking services, a conceptual model was established that includes argument quality, source expertise, trustworthiness, and privacy and security concerns. The dependent variable for this study was trust in mobile banking. This study was carried out in the UK by contacting mobile banking users. It was proposed that argument quality, source expertise and trustworthiness all have an influential impact on trust in mobile banking services. Thus, in the framework, the direct impacts of these factors on trust were investigated. Moreover, the moderating roles of privacy and security concerns on the relationship between argument quality and trust were investigated as well. The statistical results confirm that all the research hypotheses were accepted, except the effect of source expertise on trust.

The results of this thesis have many different theoretical contributions. First of all, this study has developed a comprehensive theoretical framework based on the Elaboration Likelihood Model in a new context, which is mobile banking systems, to understand the effect of an informational message on trust in mobile banking and the moderating roles of privacy and security concerns between argument quality and trust. To the best of my knowledge, the theoretical model for this study has been tested theoretically and empirically for the first time. The success of the incorporation of these factors all together in a framework is evident from the results. Thus, the integration of all these factors in one framework is both theoretically and empirically significant. Since this study found that argument quality and the trustworthiness of the informational message have a significant impact on trust in mobile banking. This study

supports the use of the ELM. Trust was built through both the routes of the ELM, which are the central route the peripheral route. The first one is represented by argument quality and the second one is represented by trustworthiness. This improves the trust development process.

Secondly, the model developed in this research study can be employed to explain how persuasive messages can affect trust in other online contexts, such as e-commerce and m-commerce.

Thirdly, while previous studies on online trust formation have tested the effect of argument and source credibility (Pee, 2012; Kim and Benbasat, 2009), their comprehensive effects have been tested separately. Consequently, the overall impact of the results has been limited to date (Mun et al., 2013). When evaluating information online, the researcher should examine the effect of these factors together. Therefore, it is important to test the effect of these factors together in the trust formation process (Mun et al., 2013). By joining these factors together and explaining the effect of them on the trust development process in the mobile banking context, this study has explained the role of these factors together in forming trust in mobile banking.

Fourthly, to the best to my knowledge, this is the first time security concerns have been included as a moderator. It shows that security concern is a strong moderator in addition to privacy concerns. Previous studies (e.g. Bansal et al., 2015; Angst and Agarwal, 2009) used only privacy concerns as a moderator.

Fifth, to best to my knowledge, this is the first study to include both privacy and the security policies of mobile banking services in the informational message (argument quality). Thus, this study has measured argument quality, which includes the privacy and security policies of the mobile banking service. Other studies have used different cues to form an informational message, such as Bansal et al., (2008), who used perceived adequacy of a privacy policy statement; however, their hypothesis is not supported in a finance context. They explain this result by showing that building trust in sensitive contexts requires something more than just the adequacy of the privacy policy statement.

7.2.2 Practical Implications

The findings presented in this thesis have many different practical implications. First of all, this study indicates that managers should include both the privacy and security policies of mobile banking systems in an informational message in order to persuade users to trust this service.

Second, the argument quality of the message works significantly by interacting with privacy and security concerns. Thus, a persuasive message endorsed by the privacy and security policies of the mobile banking system has a greater impact on trust in mobile banking services, especially for users who have privacy and security concerns. In this case, mobile banking managers could enhance trust in this service by sending a persuasive message to mobile banking users, especially those who have privacy and security concerns.

Thirdly, source expertise has no significant impact on trust. A likely explanation for this unexpected result is that HSBC as the source of the message did not enhance the trust of consumers in this service. It may be difficult for users to evaluate whether this information message was from a professional person in the mobile banking service or not. In order to create a highly credible source for an informational message, mobile banking managers should mention the name of a professional person in mobile banking.

Fourthly, having a persuasive message including trustworthiness of the source, as in this way, the managers of mobile banking services would be able to increase trust in their service.

Fifthly, explaining the factors that affect trust in this system is useful for managers. Managers need to provide more details about this service in a sufficient way. For example, persuasive messages with a strong argument can play a sufficient role in the trust process. Managers of mobile banking services could run informational sessions to inform users about the privacy and security policies of this service. This may help to alleviate their privacy and security concerns and increase trust in the system.

Therefore, the providers of mobile banking services should carefully consider the concerns of users and try their best to alleviate these concerns. All these actions should increase the level of trust in this service.

7.3 Limitations

This study has some limitations. First, for central and peripheral routes, this study used only three factors, which are argument quality, source expertise and trustworthiness. Other cues may be included as either peripheral or central cues. Moreover, this study tested the moderator role of privacy and security concerns between argument quality and trust. Other investigations may be needed to test the effect of these moderators between trustworthiness and trust, and between source expertise and trust. Also, this study tested the effect of privacy and security concerns as

moderators, without dividing the data into different groups with different levels of privacy and security concerns. Dividing the data into different groups and finding the difference between these groups needs to be tested. This study did not expand the model to include intention to use and actual usage. Therefore, additional research is needed to expand the current research model.

7.4 Future studies

This study extended a theoretical framework model to test the effect of persuasive messages on trust in mobile banking system, and the moderating roles of privacy and security concerns from the perspective of the Elaboration Likelihood Model. However, future studies could be beneficial in other areas, for example the context of this study is mobile banking services, but future studies may apply this framework to other online contexts, such as m-commerce and e-commerce. For central and peripheral routes, this study used only three factors which are argument quality, source expertise and trustworthiness. Future studies may expand the research model by including other cues as either peripheral or central cues. This study tested the effect of privacy and security concerns as moderators without dividing the data into different groups with different levels of privacy and security concerns. Future studies may divide the data into different groups to find the differences between these groups. Moreover, future studies may test the current research model in other cultures to provide evidence about the strength of this model across different cultural settings. The current study used trust as the dependent variable. Future studies may expand the framework of this study by including the intention to use and the actual behaviour.

7.5 Final remarks

The Internet revolution has fundamentally changed the banking sector with regard to the diversity of services and how they are delivered to users. Nowadays, with mobile banking services, customers can use banking services easily and quickly and whenever they want. Despite the claimed benefits of this service, its acceptance is still less than the expectations of the industry (Kim et al., 2009; Luo et al., 2010, Lee et al., 2007). One reasonable explanation may be lack of trust in this service and concerns about privacy and security.

Although, existing studies have focused on the antecedents of trust in mobile banking and revealed the effect of trust on customer behaviour, there is typically limited discussion about how persuasive messages, which includes information about the privacy and security policies of mobile banking services, can affect trust in this service, and the roles of privacy and security concerns as moderators. Knowing the variables that determine trust development in mobile banking services is crucial to develop successful tools to improve the use of this service. Thus, it is essential to understand how informational messages can affect trust in this service and the moderating roles of privacy and security concerns.

To address this research issue, this study has developed a theoretical model based on the Elaboration Likelihood Model. The model was tested by applying quantitative methods and collecting 358 questionnaires from mobile banking users in the UK. For the data analysis, this research used SPSS V. 20. This thesis has examined the effect of argument quality, source expertise and trustworthiness on trust in mobile banking. Moreover, the roles of privacy and security concerns as moderators between argument quality and trust have been tested. The findings of this study provide empirical support for the research model.

In this study, both argument quality and the trustworthiness of the informational message have been observed to have a positive impact on trust in mobile banking. However, the effect of source expertise on trust was not significantly supported. The moderating roles of privacy and security concerns between argument quality and trust were significantly supported. The results of this study provide additional validity to the Elaboration Likelihood Model.

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Appendix

Appendix A: Questionnaire

Brunel Business School

A covering Letter:

Dear Respondent,

This survey is being carried out as part of my PhD study to understand how to build trust in Mobile Banking from the perspective of ELM and to test the moderating role of privacy and security concerns. Please answer the questions freely. The participation is voluntary. Your identity will remain anonymous as no personal data will be collected.

The questionnaire should take 20-25 minutes of your time to fill out. Please answer the questions in the space provided. Your cooperation is highly appreciated and will contribute to the success of this study.

I hope you find completing the questionnaire enjoyable, and thank you for taking the time to help. If you have any queries or would like further information about this research, please contact me: kinana.jammoul@brunel.ac.uk.

Thank you for your cooperation

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Consent:

I have read the above information and I agree to participate in this study.

Please Tick the box□

Date: _____

Part One: Personal and Background Information:

Please answer the following questions with one tick (√) for each question:

1. Please indicate your gender □□Male□□□□□□□□□□Female□	**6. Internet Experience** □**<1 Year** □**1-2 years** □**3-4 years** □**5-6 years** □**6> years**
2. What is your age? □ 20 or under □ 21- 30 □ 31- 40 □ 41 -50 □ 51- 60 □ 61 +	**7. Have you ever used the Mobile Banking App?** □ Yes. □ No. If your answer is NO, you can stop now. Thank you for your time. If your answer is yes, please continue answering the following survey.
3. Marital Status? □□Married□□□□□□□□□Single	**8. How often do you use mobile banking service?** □ □Only when I need it and cannot use online banking.
4. **Education:** □□Less than high school. □High school. □□Diploma. □Bachelor. □□Post-graduate	
5. **Occupation** □ Student. □ Government employee □ Private sector □ Businessperson □	□Less than once a month. □once a month. □Two or three times a week. □Once a week. □Daily.

Part 2:

Mobile banking is defined: "*refers to the use of mobile device to perform* online banking *tasks while away from your home computer".*

Here are some statements. If you **strongly agree** with the statement, choose (**5**) and if you **strongly disagree** with the statement choose (**1**). **1**= strongly disagree, **2**= disagree, **3**= neutral or no opinion,**4**= agree, **5**= strongly agree.

1.	**Concern for information privacy:**					
1.1	***Collection***	**strongly disagree**	**disagree**	**neutral or no opinion**	**agree**	**strongly agree**
	It usually bothers me when mobile banking apps ask me for personal information.	1	2	3	4	5
	When mobile banking apps ask me for personal information, I sometimes think twice before providing it.	1	2	3	4	5
	I'm concerned that mobile banking apps are collecting too much personal information about me.	1	2	3	4	5
1. 2	***Errors***					
	All the personal information in mobile database should be double-checked for accuracy—no matter how much this costs.	1	2	3	4	5
	Mobile banking apps should take more steps to make sure that the personal information in their files is accurate.	1	2	3	4	5
	Mobile banking apps should have better procedures to correct errors in personal information.	1	2	3	4	5
1. 3	***Unauthorized Access (Improper Access)***					
	Mobile banking apps should devote more time and effort	1	2	3	4	5

	to preventing unauthorized access to personal information.					
	Mobile databases that contain personal information should be protected from unauthorized access no matter how much it costs	1	2	3	4	5
	Mobile banking apps should take more steps to make sure that unauthorized people cannot access personal information in their computers.	1	2	3	4	5
1.4	***Secondary Use***					
	Mobile banking apps should not use personal information for any purpose unless it has been authorized by the individuals who provided the information.	1	2	3	4	5
	When people give personal information to mobile banking apps for some reason, the apps should never use the information for any other reason.	1	2		4	5
	Mobile banking apps should never sell the personal information in their computer databases to other companies.	1	2	3	4	5
	Mobile banking apps should never share personal information with other companies unless it has been authorized by the individuals who provided the information.	1	2	3	4	5
2.	**Security concern:**					
	Mobile banking apps will	1	2	3	4	5

	implement security measures to protect my personal Information.					
	Mobile banking apps will ensure that my transactional information is protected from being altered or destroyed accidentally during a transmission on the mobile.	1	2	3	4	5
	I will feel secure about the mobile banking app system.	1	2	3	4	5
	I will feel safe in making transactions through mobile banking apps.	1	2	3	4	5

Part 3:

Before continuing, please watch the following video about mobile banking and then read the provided information about mobile banking app. (The source of the video and the information is HSBC Bank website).
http://www.youtube.com/watch?v=YpULjd3FevI.

HSBC's business has been built on trust between us and our customers. To preserve the confidentiality of all information you provide to us:

- HSBC will only collect information that it believes to be relevant and required to understand the customer's financial needs and to conduct HSBC's business.
- HSBC will use customer information to provide customers with better customer services and products.
- HSBC may pass customer information to other HSBC Group companies or agents, as permitted by law.
- HSBC will not disclose customer information to any external organization unless HSBC have customer consent or are required by law or have previously informed the customer.
- HSBC aim to keep customer information up-to-date.
- HSBC maintain strict security systems designed to prevent unauthorized access to customer information by anyone, including HSBC staff.
- All HSBC group companies, or HSBC staff and all third parties with permitted access to customer information are specifically required to observe HSBC's confidentiality obligations.

By maintaining our commitment to these principles, we will ensure that we respect the inherent trust that you place in HSBC.

Security of Mobile Banking:

Your security obligations

You must take all reasonable precautions to keep safe and prevent fraudulent use of your mobile device and security information.
These precautions include:

- Never writing down or otherwise recording your security details in a way that can be understood by someone else.
- Not choosing security details that may be easy to guess.
- Keeping your security details unique to Internet Banking and the Mobile Banking App.
- Logging out of the Mobile Banking App once you have finished using the Mobile Banking App services.
- Follow all security measures provided to you by the manufacturer of your mobile device operating system.

Security and passwords:

Q. Why do I need to set up a new password for the app?

A. The login process for the app has been created with our customers' security in mind and a unique password is required to help prevent account details being compromised.

Q. What happens if I forget my app password? Can I change it once it's been created?

A. If you forget your password or want to change it, you can do this by logging on to Personal Internet Banking and going to the 'Change my log on details' section.

Q. Will the app lock me out if I get my password wrong? Will this also lock me out of telephone and Internet Banking?

A. Yes, the mobile app will be locked after three incorrect attempts and you will need to reset your details using Personal Internet Banking and your Secure Key.You won't be able to access your accounts via Personal Internet Banking until your password has been reset. You will still be able to access Telephone Banking.

Q. Can I be confident that Mobile Banking is secure? What if I lose my mobile device?

A. We have ensured that no data about your account is stored on the phone itself. Each time you access the app and enter your security details correctly you will be securely connected to our servers. Always remember to log out when you have finished.

We would also encourage customers to take precautions when using their mobile devices in a public area. If you are worried that your security details have been compromised, or if you have lost your phone, please contact us on 0845 600 2290 to let us know.

Q. Will the app keep on running if I forget to log out or will it time out?

A. The app will time out automatically after 15 minutes of inactivity. Unlike Personal Internet Banking there won't be a pop up message advising that it will time out.

Q. What if I change my phone/SIM card/network or tablet? What happens if I uninstall the app?

A. The app will be saved to your mobile device so will not be affected if your SIM card or network changes. If you are changing your mobile device then delete the app from your mobile device and reinstall it on your new device. This will not affect your account or your log on details and your password will remain the same.

Please confirm that you watched and read the provided information by checking yes:

□ yes □No.

-If your answer is YES, please continue answering the survey. If your answer is No, please go back: watch the video and read the provided information and then, please, continue answering the survey.

Regarding the video and the information provided by HSBC Bank about mobile banking, here are some statements about the quality of the argument and the source credibility of this information and about trust in mobile banking. Please indicate the extent to which you**agree or disagree** with each statement by circling the appropriate number (1 = strongly disagree; 5 = strongly agree).

1.	**Argument quality**	**Strongly Disagree**	**Disagree**	**Neutral**	**Agree**	**Strongly Agree**
	The information provided on HSBC website about mobile banking application was informative.	1	2	3	4	5
	The information about mobile banking application provided on HSBC website was helpful.	1	2	3	4	5
	The information about mobile banking application provided on HSBC website was valuable.	1	2	3	4	5
	The information about mobile banking application provided on HSBC website was persuasive.	1	2	3	4	5

2.	**Trustworthiness**					
	HSBC is trustworthy on the information about mobile banking app on their website.	1	2	3	4	5
	HSBC is benevolent about his recommendation of the mobile banking application	1	2	3	4	5
	HSBC is competent in the mobile banking application.	1	2	3	4	5
	HSBC seems to be sincere on mobile banking.	1	2	3	4	5
3.	**Source expertise**					
	The HSBC knowledgeable about mobile banking app.	1	2	3	4	5
	HSBC seems to have a good sense about mobile banking app.	1	2	3	4	5
	HSBC seems to have experience with mobile banking app.	1	2	3	4	5
5	**Trust**					
	HSBC mobile banking keeps its promises	1	2	3	4	5
	HSBC mobile banking services meet my needs.	1	2	3	4	5
	HSBC mobile banking is trustworthy.	1	2	3	4	5
	I think HSBC mobile banking is concerned with the present and future interests of users.	1	2	3	4	5
	Overall, I trust HSBC mobile banking.	1	2	3	4	5

Appendix B: Ethics form

Brunel Business School

Research Ethics Form PhD

Students and Staff

Any research that involves human participation, the collection or study of their data, organs and/or tissues, and that is carried out on Brunel University premises and/or by Brunel University staff or Brunel University students under the supervision of Brunel University staff requires ethical approval.

This document is designed to help you ensure that your research is conducted in an ethical manner. It is the "Ethical Clearance" part of your research (whether it requires funding or not). You need to submit this form with your research documents. In addition to this and other requirements for your project, you might need to submitthree documents – see Ethics Submission Guidelines for PhD-Staffforconsideration by BBS Research Ethics Committee:

1. A Participant Information Sheet (created by you)
2. A Participant Consent Form (created by you)
3. A Company Confidentiality Agreement Form (created by you, not always required)

Section A – Information About You and Your Research Project
This is used to identify you and to give us a brief overview of your project.

Name: Kinana Jammoul	**Contact email address:** Kinana.jammoul@brunel.ac.uk
Date:13/07/2014	
Name of Supervisor (if PhD student): Dr Habin Lee and Dr Emel Aktas	
Title of Research Project: Trust in Mobile Banking from the perspective of Elaboration Likelihood Model: The moderation roles of privacy and security concerns.	
Describe the Data Collection Process (200 words): First, the researcher will generate items for data collection from previous literature reviews. Second, the researcher will prepare the questionnaire. This questionnaire is to collect feedback from customers on trust in mobile banking. The data will be collected in UK, using online survey tools (Survey Monkey software). At the beginning, participants will answer questions regarding their online behavior, gender, education and privacy and security concerns. After which the participants will be instructed to carefully read the information regarding mobile banking application (by using the following link:	

http://www.hsbc.co.uk/1/2/ways-to-bank/mobile). After finishing browsing, Researcher asks them to fill in a questionnaire that consisted of the variables of the study (argument quality, source credibility and trust in mobile banking). The targeted participants of the main survey are citizens. The researcher will send an email to all respondents with the link to the online survey website. (Voluntary participation). The personal details of respondents will not be collected.

Section B – Identification of Ethical and Risk Issues

Most research projects involve a number of potential risks (either to participants or yourself). The more risk factors that can be identified at the start, the easier it will be to guard against them. Answer the questions below to identify potential risks in your project. Please refer to the guidelines if you are unsure about your answer to any of these questions. Please indicate your answer by selectingeither "Yes" or "No" options.

1. Is it possible participants might have been told to co-operate rather than freely volunteering? Sometimes it is difficult to ensure interviewees do not feel "obligated" in some way. You will need gatekeeper consent for this.	Yes ⊙No ○
2. Is it possible that participants might be under eighteen years of age? Normally minors are not legally able to give their consent to participation.	Yes ⊙ No ○
3. Is it possible that participants might be required to discuss sensitive issues (e.g. private or of criminal nature)? Such discussion could put yourself or the participants in danger.	Yes ⊙ No ○
4. Is it possible that your research might cause clinical or psychological harm to participants or yourself? This may include discussion of topics of sensitive nature or prolonged strenuous psychological or physical pressure for participants and/or yourself.	Yes ⊙ No ○
5. Are all or some of the participants unable to give their own consents Including organisations with gatekeepers (e.g. schools and prisons); or vulnerable participants (e.g., children, people with learning disabilities, your own students).	Yes ⊙ No ○
6. Will you be recording the identity of any participants (e.g. their name or employee number)? Sometimes it is difficult to guarantee anonymity. If so, you will need explicit consent.	Yes ⊙ No ○
7. Is it possible that identity of participants could be traced (e.g. their name or employee number)? Sometimes anonymity can be broken by combining information from more than one source. If so, you will need explicit consent.	Yes ⊙ No ○
8. Will you be storing traceable participant data on a laptop or in a file at any point during and/or after the duration of your project? There is a risk if a laptop or file is lost or stolen.	Yes ⊙ No ○
9. Is it possible that your company will want the research kept confidential? Some companies allow research only on condition that the results are not made public. If so, you will need to fill in Company Confidentiality Form.	Yes ⊙ No ○
10. Is it possible that copyright material might be copied? It may be necessary to get permission to use it.	Yes ⊙ No ○
11. Will the study involve recruitment of patients through the NHS? If you answered „Yes", you will have to submit an application to the appropriate external health authority ethics committee, **after** you have received approval from the School Research Ethics Committee.	Yes ⊙ No ○

- If you have answered „No" to all questions, you may upload **the completed form to your supervisor via uLink** (see submission guidelines)**.**

- If you have answered „Yes‟ to ***any*** of the questions **1 – 5**, you will need to describe more fully how you plan to deal with the ethical issues raised by your research. You should use the University Ethics Application form by clicking on this link: Application Form for Research Ethics Approval. You will need to submit the form via uLink.
- If you have answered „Yes‟ to***any*** of the questions **6 – 10**, please tell us in the box below how you are planning to mitigate against these risks. On completionsyou may upload **the completed form to your supervisor via uLink** (see uLink submission guidelines)**.**
- If you answered „Yes‟ to ***question 11***, you will have to submit an application to the appropriate external health authority ethics committee, **after** you have received approval from the School Research Ethics Committee.

Describe which risks(6-10) you have said "Yes" to and your mitigation plans:

Section C – Declaration

Please note that it is your responsibility to follow the University‟s Code of Research Ethics and any relevant academic or professional guidelines in the conduct of your study. **This includes providing appropriate information sheets and consent forms, and ensuring confidentiality in the storage and use of data.**We should be notified of any significant changes in the protocol over the course of the research and may require a new application for ethics approval.

You need to indicate that you have carried out various activities prior to submitting this form along with your proposal.

I have read through and understood the Brunel University Code of Ethics (available at:https://intranet.brunel.ac.uk/registry/minutes/researchethics/CoEv7.pdf**).**	Yes ⊙ No ○
I have written and attached a Participant Information Sheet ONLY needed if your research involvesdirect data collection from people.	Yes ⊙ No ○
I have written and attached a Participant Consent Form ONLY needed if your research requires*explicit* consent.	Yes ⊙ No ○
I have written and attached a Company Confidentiality Agreement Form Only needed if your research involves a company that is concerned about information being made public.	Yes ⊙ No ○

For PhD students ONLY

I confirm that the application submitted has been discussed with the supervisor mentioned in Section A, and that he/she fully supports theapplication submitted and confirm that the information entered is correct.

Brunel Business School

Research Ethics

Participant Information Sheet

Title of Research:

Trust in Mobile Banking from the perspective of Elaboration Likelihood Model: The moderation roles of privacy and security concerns.

2. Researcher: Kinana Jammoul, PhD student, Brunel Business School, Brunel University

3. Contact Email: kinana.jammoul@brunel.ac.uk

4. Purpose of the research*:*

The primary aim in undertaking this research is to apply Elaboration Likelihood Model in the context of mobile banking to explore the process of trust development and the role of privacy and security concerns as moderators. This involves exploring the effect of argument quality and source credibility on trust.

This research will help the bank's management in formulating appropriate strategies for building trust in mobile banking for customers who have privacy and security concerns. Then, we will apply ELM to see if customers who have privacy and security concerns in MB will proactively follow an argument to alleviate their concerns.

Then, present study aims to achieve the following objectives:

- To undertake a review of the literature in the area of trust in e-Commerce and e-banking from the customer's perspectives in the information system field.
- To summarise key findings of previous studies about trust in MB.
- To define a theoretical framework to explain the development of trust in MB.

- To develop a new model that integrates the privacy and security concerns as moderators.
- To assess empirically the proposed conceptual framework.
- To delineate theoretical and practical implications of the findings to enhance trust in MB.

5. What is involved: Participants would be asked to complete an online survey containing 34 questions.The survey questionnaire will be created on the basis of previously validated scales and survey instruments. All constructs will be measured using multiple-item perceptual scales, using pre-validated instruments from prior research wherever possible. Minor modifications will be made to fit the context of mobile banking. Data analysis for the final conceptual model will be performed by Structured Equation Modelling (SEM).The questionnaire contains items on argument quality, source credibility, trust, and privacy and security concerns.

6. Voluntary nature of participation and confidentiality. The participation is voluntary. Respondents' identity will remain anonymous as no personal data will be collected. These two statements are clearly stated on the front page of the questionnaire.