

2003

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**THE SERVICE DELIVERY PROCESS: AN
EXAMINATION OF HOW CONSUMERS EVALUATE
TECHNOLOGY-ASSISTED SERVICE ENCOUNTERS IN
THE RETAIL BANKING INDUSTRY**

By
Catherine Wanjiru Munene

A thesis submitted in fulfilment of the requirements of the award of the degree of Doctor of Philosophy in Marketing at the Faculty of Business and Public Management, Edith Cowan University, Churchlands, Western Australia.

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USE OF THESIS

The Use of Thesis statement is not included in this version of the thesis.

ABSTRACT

This study examined consumers' perceptions post-adoption of technology and how these perceptions affect their levels of dis/satisfaction and their continued use of technology-assisted service encounters. To this end, this study investigated the criteria that consumers in Western Australia's retail banking industry are likely to use when evaluating banking transactions involving EFTPOS, ATM, telephone, and Online banking modes. It examined whether these criteria changed with the mode of electronic banking in use and whether the significance of the criteria changed with consumers' demographic characteristics. In addition, this study explored whether consumers who use these modes of electronic banking experience the paradoxes of technology adoption identified by Mick and Fournier (1998).

Previous studies have shown that when evaluating the quality of services provided by organizations and their levels of dis/satisfaction with these services, consumers are likely to base their judgements on their perceptions of the service delivery process (Lehtinen & Lehtinen, 1982; Brogowicz, Delene, & Lyth, 1990; Danaher & Mattsson, 1994; Danaher & Mattsson, 1998; Gronroos, 1998; Swartz, 1998). In particular, the studies have shown that the most significant element of the service delivery process is personal contact, that is the interactions between organisations' personnel and their customers (Schneider & Bowen, 1985; LeBlanc & Nguyen, 1988; Parasuraman, Zeithaml, & Berry, 1988; Howcroft, 1993; Donner & Dudley, 1997; Nichols, Gilbert, & Roslow, 1998; Tan, Beaumont, & Freeman, 1999; Gabbott & Hogg, 2000).

However, technological advancements have meant that some service organisations have changed their service delivery processes by substituting contact personnel with service delivery technologies. Consequently, consumers have been producing and delivering services for themselves by interacting with the service delivery technologies that are available (Bancel-charensol, 1999). Researchers assert that changing the characteristics of the service delivery process can result in changes in how consumers evaluate the quality of services provided by organisations and how they assess their resulting levels of dis/satisfaction (Chase, 1978; Lovelock & Young, 1979; Gronroos, 1984; Zeithaml, Parasuraman, & Berry, 1990). As such, this study

examined the effects that retail banking technologies have on consumers' evaluations of the service encounter and how these evaluations translate into usage patterns.

Data were collected using qualitative and quantitative research methodologies. The main aim of the qualitative phase of the study was to identify the criteria that consumers are likely to use when evaluating their technology-based banking transactions and the paradoxes of technology adoption that they are likely to experience. Twenty in-depth interviews were conducted with consumers who reported they use at least one of the four modes of electronic banking. The interviews were tape-recorded and analysed using N.U.D.I.S.T. software. The second phase of the study examined consumers' opinions towards relevant criteria identified in the qualitative phase and the effect these criteria have on consumers' use of the four modes of electronic banking. Data for this stage were collected through a mail survey questionnaire that was mailed out to a sample of 1700 Western Australians. In total, 453 useable questionnaires were returned. The data were imported into SPSS v. 10 and analysed using non-parametric statistics.

This study showed that consumers are likely to evaluate their electronic banking service encounters on the basis of perceived convenience, transaction aids available, and perceived risk. The findings also indicate that these criteria have sub dimensions. Perceived convenience relates to the perceived ease of transactions, perceived speed of transactions, and accessibility to consumers' transaction accounts from different locations and beyond the bank's traditional operating hours. The transaction aids include the voice prompts available with telephone banking and the visual cues available with Online banking. Perceived risk dimensions include psychological, performance, financial, and physical risks. The present study also showed that some criteria have a greater effect on consumers' use of some modes of electronic banking than others. For instance, in regards to voice prompts, psychological and performance risks appeared to have an effect on the number of telephone banking transactions consumers are likely to conduct.

Consumers who use electronic banking can experience six of the eight paradoxes of technology adoption identified by Mick and Fournier (1998): freedom/enslavement, control/chaos, engaging/disengaging, efficiency/inefficiency,

fulfils/creates needs, and competence/incompetence. The findings showed that in most cases one side of the paradox dominates.

It appears that existing theories, instruments, and techniques of evaluating the service encounter need to be adapted to be applicable to technology-assisted service encounters. Specifically, these theories, instruments, and techniques need to minimise or exclude elements that require consumers to evaluate their interactions with and perceptions of organisations' customer service personnel and replace them with dimensions relating to consumers' interactions with the technologies that facilitate the service delivery process. However, an exception needs to be made for technology-assisted service encounters conducted using the telephone because in these service encounters consumers can access organisations' customer service representatives.

The findings were used to propose the TASE (technology-assisted service encounters) model, which includes items relating to the three main dimensions of perceived convenience, transaction aids, and perceived risk. The TASE model can be adapted and used to measure consumers' evaluations of the service delivery processes of organisations in various service industries.

The findings of this study have significant managerial applications. Organisations can use these findings to assess the viability of commercial technologies that they intend to implement by examining consumers' perceptions of new technologies based on the relevant criteria and paradoxes identified in this study. In addition, organizations can use these findings to develop promotional strategies that address consumers' concerns about using technology-based service delivery options in order to encourage them to participate more in the service delivery process. In addition the proposed TASE model can be used to develop an instrument for measuring consumers' levels of dis/satisfaction with technology-based service encounters in general.

CERTIFICATE

I certify that this thesis does not, to the best of my knowledge and belief:

- (i) Incorporate without acknowledgement any material previously submitted for a degree or diploma in any institution of higher education;
- (ii) Contain any material previously published or written by another person except where due reference is made in the text; or
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Signed



Date

3rd June 2004

ACKNOWLEDGEMENTS

I would like to acknowledge the people whose assistance, guidance, and support made it possible to complete this project.

I express my gratitude to my principal supervisor and mentor Simone Pettigrew. I am truly grateful for Simone's guidance, assistance, and constant critique of all my work, I learnt a lot. I am particularly grateful for the intellectual and emotional support Simone has provided during the course of my study and especially during the difficult times. She has been a constant source of motivation. I am also grateful to my associate supervisor Katherine Mizerski for her assistance and help with the quantitative sections.

I am grateful and acknowledge the scholarship awarded by Edith Cowan University's School of Marketing. I am also appreciative of all the facilities that the School of Marketing provided and in so doing, made it possible for me to complete this study. I extend my gratitude to my fellow PhD students for their support, rapport, humour, and encouragement.

Lastly and most importantly, I would like to express my gratitude to my parents Mr and Mrs Chubi. I truly appreciate the motivation, encouragement, and support that they continue to provide. I thank my Uncle Ndegwa for constantly requesting the date of completion and graduation. Finally, thank you to Tony, Greg, and Philip whose stories and sense of humour provide a constant source of strength and resilience.

Table of Contents

USE OF THESIS	2
ABSTRACT.....	3
CERTIFICATE.....	6
ACKNOWLEDGEMENTS	7
Table of Contents	8
List of Tables	14
CHAPTER 1	17
INTRODUCTION	17
1.1 Background.....	17
1.2 Aim of the study	19
1.3 Study Context	21
1.4 Methodology.....	24
1.5 Thesis Outline.....	25
CHAPTER 2	26
LITERATURE REVIEW	26
2.1 Introduction	26
2.2 The Service Delivery Process	26
2.2.1 Consumer’s Role.....	27
2.2.2 Stages of The Service Delivery Process	29
2.3 Evaluation of the service encounter	32
2.3.1 Service quality and customer satisfaction.....	32
2.3.2 Disconfirmation theory	33
2.3.3 Theories	36
2.3.3.1 Script theory.....	36
2.3.3.2 Role theory.....	37
2.3.3.3 Holistic theory.....	38
2.3.3.4 Nordic school theory.....	39
2.3.3.5 Customer value theory	40

2.3.4 Instruments.....	42
2.3.4.1 SERVQUAL	42
2.3.4.2 SERVPERF	45
2.3.4.3 SYSTRA-SQ.....	46
2.3.4.4 TRI	48
2.3.5 Techniques	48
2.3.5.1 Critical incident technique	48
2.3.5.2 SOPI.....	49
2.3.6 Summary	50
2.4 Technology Adoption.....	51
2.4.1 The technology adoption process.....	51
2.4.2 Factors that motivate or dissuade technology adoption	55
2.4.3 Post-adoption	56
2.4.4 TASE	57
2.4.5 Banking technology	58
2.4.6 Summary.....	60
2.5 Conclusion.....	61
CHAPTER 3	63
METHODOLOGY	63
3.1 Introduction	63
3.2 Research Questions	63
3.3 Qualitative Phase.....	64
3.3.1 Overview.....	64
3.3.2 Sample	65
3.3.3 In-depth Interviews	67
3.3.4 Data Analysis	70
3.3.5 Summary	72
3.4 Quantitative Phase.....	72
3.4.1 Overview.....	72
3.4.2 Rationale	73
3.4.3 Survey Methodology	75
3.4.4 Questionnaire.....	76

3.4.5 Sample	80
3.4.6 Data Analysis	81
3.4.7 Summary	83
CHAPTER 4	84
QUALITATIVE FINDINGS	84
4.1 Introduction	84
4.2 Emerging Themes and Categories.....	84
4.2.1 Convenience.....	85
4.2.2 Type of Transaction	90
4.2.3 Transaction Aids	95
4.2.4 Security	99
4.2.4.1 Physical Risk.....	99
4.2.4.2 Psychological Risk.....	100
4.2.5 Summary.....	101
4.3 Paradoxes of Technology Adoption.....	102
4.3.1 Control/Chaos	103
4.3.2 Freedom/Enslavement	104
4.3.3 New/Obsolete.....	106
4.3.4 Competence/Incompetence	106
4.3.5 Efficiency/Inefficiency.....	107
4.3.6 Fulfils/Creates	109
4.3.7 Assimilation/Isolation.....	110
4.3.8 Engaging/Disengaging.....	111
4.3.9 Summary.....	112
4.4 Discussion.....	113
4.5 Conclusion.....	114
4.6 Methodological Limitations.....	115
CHAPTER 5	116
RESEARCH PROPOSITIONS	116
5.1 Introduction	116
5.2 Research propositions	116

5.2.1 Convenience.....	117
5.2.2 Transaction aids	118
5.2.3 Perceived Risk	120
5.2.4 Demographics	121
5.2.5 Paradoxes	122
5.3 Summary.....	126
CHAPTER 6	128
RESULTS	128
6.1 Introduction	128
6.2 Descriptive Statistics	128
6.2.1 Demographic Characteristics	128
6.2.1.1 Gender.....	128
6.2.1.2 Age.....	129
6.2.1.3 Educational Qualifications.....	130
6.2.1.4 Annual Income.....	131
6.2.1.5 Occupation	132
6.2.1.6 Summary	133
6.2.2 Modes of electronic banking.....	134
6.2.3 Electronic banking transactions	134
6.3 Tests of the propositions	136
6.3.1 Convenience.....	136
6.3.2 Transaction aids	147
6.3.3 Perceived Risk	150
6.3.4 Demographics	153
6.3.5 Paradoxes	162
6.3.5.1 Control/Chaos paradox	162
6.3.5.2 Freedom/Enslavement Paradox	167
6.3.5.3 Competence/Incompetence paradox	173
6.3.5.4 Efficiency/Inefficiency paradox	177
6.3.5.5 Fulfils/Creates needs paradox	180
6.3.5.6 Engaging/Disengaging paradox	184
6.4 Summary	187

6.4.5 Conclusion	194
CHAPTER 7	196
DISCUSSION	196
7.1 Introduction	196
7.2 Demographics.....	196
7.2.1 Age.....	197
7.2.2 Gender.....	197
7.2.3 Income.....	198
7.2.4 Education	199
7.2.5 Occupation	199
7.3 Convenience	200
7.3.1 Ease Of Use	201
7.3.2 Transactions Are Fast	203
7.3.3 Location	206
7.3.4 Any time.....	208
7.4 Transactions Aids	209
7.4.1 Voice Response Units.....	210
7.4.2 Visual Cues.....	211
7.5 Perceived Risk.....	213
7.5.1 Physical Risk.....	213
7.5.2 Psychological Risk.....	215
7.5.3 Performance Risk.....	217
7.5.4 Financial Risk	220
7.6 Paradoxes Of Technology Adoption.....	223
7.6.1 Control/Chaos	224
7.6.2 Freedom/Enslavement	226
7.6.3 Competence/Incompetence	228
7.6.4 Efficiency/Inefficiency.....	231
7.6.5 Fulfils/Creates Needs.....	232
7.6.6 Engaging/Disengaging.....	233
7.7 Summary.....	236
CHAPTER 8	238

CONCLUSIONS.....	238
8.1 Introduction	238
8.2 Implications for existing theories, instruments, and techniques	238
8.2.1 Disconfirmation theory	239
8.2.2 Script theory.....	239
8.2.3 Holistic theory.....	240
8.2.4 Nordic school theory.....	241
8.2.5 Customer value determination theory	242
8.2.6 SERVQUAL and SERVPERF.....	243
8.2.7 SYSTRA-SQ.....	244
8.2.8 TRI.....	245
8.2.9 CIT and SOPI.....	246
8.3 Proposed items for a (TASE) model	246
8.3.1 TASE model	248
8.4 Implications for existing literature on how consumers evaluate electronic banking transactions	249
8.5 Implications for practitioners and organisations that use technology-assisted service delivery modes	251
8.6 Limitations of this study.....	252
8.7 Recommendations for future research	253
8.8 Conclusions	254
REFERENCES	258
APPENDICES	289
Appendix A: Summary of Existing Studies of Electronic Banking	289
Appendix B: In-depth Interview Questions	299
Appendix C: In-depth Interview Codes	300
Appendix D: Survey Cover Letter and Questionnaire.....	325

List of Tables

Table 1: Qualitative sample characteristics	67
Table 2: Summary of criteria relevant to each mode of electronic banking	102
Table 3: Age distribution of the survey sample	129
Table 4: Summary - Respondents' educational qualifications	131
Table 5: Summary - Respondents' annual income	132
Table 6: Summary - Respondents' occupations	133
Table 7: Percentage of sample for each mode of electronic banking	134
Table 8: Summary – Electronic banking transactions conducted	135
Table 9: Summary – Frequency of using the four modes of electronic banking	136
Table 10: Cross tabulation - Frequency of use and perceived ease of use.....	137
Table 11: Correlation - Perceived ease and usage rate	138
Table 12: Correlation - Accessibility and usage rate of EFTPOS and ATMs	139
Table 13: Summary - Accessibility and usage rate of ATMs	140
Table 14: Summary - Time of day and telephone and Online banking	141

Table 15: Association - Time of day and frequency of use	142
Table 16: Summary – Online banking times and usage rate.....	143
Table 17: Summary - Perceptions regarding the financial cost of transactions.....	144
Table 18: Correlation - Perceived financial cost and use of electronic banking.....	144
Table 19: Summary – Perceptions of the speed of transactions	145
Table 20: Correlation – Perceived speed of transactions and usage rate.	146
Table 21: Summary – Speed of Online banking transactions and usage rate	146
Table 22: Summary – Perceived likelihood of making mistakes.....	151
Table 23: Association – Demographics and use/non use of EFTPOS.....	154
Table 24: Association – Demographics and use/non use of ATMs.....	155
Table 25: Association – Demographics and use/non use of telephone banking.....	156
Table 26: Association – Demographics and use/non use of Online banking.....	158
Table 27: Association – Demographics and usage rate of EFTPOS.....	159
Table 28: Association – Demographics and usage rate of ATMs.....	160
Table 29: Association – Demographics and usage rate of Online banking	161
Table 30: Association – Money management variable and control/chaos.....	164

Table 31: Ensure transactions are correct variable and control/chaos.	164
Table 32: Correlation – Control variables and use of electronic banking	165
Table 33: Summary - Variables measuring competence/incompetence	174
Table 34: Correlation- Variables measuring competence and usage rate	175
Table 35: Correlation – Additional competence variables and usage rate.....	176
Table 36: Summary - Variables measuring the efficiency/inefficiency paradox	178
Table 37: Correlation – Efficiency/inefficiency variables and usage rate	179
Table 38: Sample respondents who did not use each mode of electronic banking..	182
Table 39: Reasons for not using ATM, telephone, and Online banking modes	183
Table 40: Summary - Variables measuring engaging/disengaging paradox	185
Table 41: Correlation - Engaging/disengaging variables and usage rate	186
Table 42: Summary – Relevant criteria	189
Table 43: Summary – Demographics and use/non use of electronic banking	190
Table 44: Summary - Demographic characteristics and relevant criteria	191
Table 45: Summary – Paradoxes and the four modes of electronic banking.....	192
Table 46: Summary – Paradoxes and usage rates	193

CHAPTER 1

INTRODUCTION

1.1 Background

When examining how consumers evaluate services it is essential for organisations to understand the factors that affect their behaviour and the dimensions they are likely to use when evaluating service delivery processes (Lovelock & Young, 1979; Brogowicz, Delene, & Lyth, 1990; Rubino, 2000). The dimensions can be used to develop service quality initiatives, which if managed effectively can influence consumers' overall perceptions of the quality of services provided by organisations (Brogowicz et al. 1990; Hoffman & Bateson, 1997). Some researchers suggest that service quality initiatives are significant to organisations because if successful they are likely to result in satisfied customers who are likely to provide referrals, willing to pay high prices for products/services, and who present opportunities for cross selling additional services (Biere, 1997; Hoffman & Bateson, 1997; Winstantley, 1997). Their assertions have been supported by an empirical study examining the effects of service quality on organisations' performance (Rapert & Wren, 1998). The study found that service quality has a positive effect on the "organisations' financial performance, market share, and growth in net resources" (Rapert & Wren, 1998, p2). There has been an increase in research exploring how consumers form satisfaction and service quality judgements. This research has found that consumers form overall judgements of an organisation's service quality based on how they evaluate their service encounters and in particular how they evaluate the service delivery process (Lehtinen & Lehtinen, 1982; Siehl, Bowen, & Pearson, 1991). In addition, consumers' perceptions of the service delivery process have been found to have a greater effect on their overall views of service quality and satisfaction than on their views on the service outcome (Lehtinen & Lehtinen, 1982; Brogowicz et al., 1990; Danaher & Mattsson, 1994; Danaher & Mattsson, 1998; Gronroos, 1998; Swartz, 1998).

Numerous studies have explored the dimensions consumers rely on when evaluating their service encounters, particularly service delivery processes. As a result, various theories, instruments and techniques (discussed in the literature review in chapter 2) have been developed to measure customer satisfaction and perceived service quality. The general consensus in the literature is that the personal contact between consumers and organisations' employees is the most significant determinant of customer satisfaction (Schneider & Bowen, 1985; LeBlanc & Nguyen, 1988; Parasuraman, Zeithaml, & Berry, 1988; Howcroft, 1993; Donner & Dudley 1997; Nicholls, Gilbert, & Roslow, 1998; Tan, Beaumont, & Freeman, 1999; Gabbott & Hogg, 2000). As a result, satisfaction measures have focused on the customer-employee relationship.

In recent years, technological innovations have begun to influence how organisations deliver their services to consumers. Many services that were primarily delivered through personal contact between an organisation's employees and its consumers can now be delivered using technology and with minimal contact between both parties (Dabholkar, 1996; Grove, Fisk, & Dorsh, 1998; Meuter, Ostrom, Roundtree, & Bitner, 2000; Webb, 2000; Bitner, 2001; Dabholkar & Bagozzi, 2002). The technology-assisted service delivery options provide organisations with benefits such as: cost minimisation, opportunities to expand geographically, opportunities to increase their market shares and opportunities to increase the value they provide to their customers (Daniel, 1999; Bitner, 2001; Al-Ashban & Burney, 2001; Ruyter, Wetzels, Lemmink, & Mattsson, 2001; Zhu, Wymer, & Chen, 2002). As such, organisations are increasingly adopting technology-assisted service delivery options (Grove et al., 1998; Webb, 2000). However, researchers suggest that these benefits can only be realised by organisations if more than half of their consumers adopt the technologies they introduce (Willcocks & Lester, 1999). This represents a significant challenge to organisations because research shows that consumers are usually slow to adopt technologies that facilitate commercial transactions (Gow, 1997). The challenge is for organisations to understand how their consumers adopt commercial technologies and how they evaluate technology-based service encounters.

Some researchers state that changes in the series of actions necessary to deliver services to consumers are likely to result in changes in how consumers

evaluate those services (Lovelock & Young, 1979; Gronroos, 1984; Zeithaml, Parasuraman, & Berry, 1990). Therefore, a change from service delivery processes characterised by high personal contact to technology-assisted service delivery processes is likely to affect how consumers evaluate their service encounters. Consequently, researchers have begun to explore how consumers adopt technologies used for service delivery (Jayawardhena & Foley, 2000; Parasuraman, 2000; Dabholkar & Bagozzi, 2002) and the dimensions they use to evaluate their technology-assisted service encounters (Meuter, Ostrom, & Roundtree, 2000; Aldaigan & Buttle, 2002; Jamal & Naser, 2002). However, researchers acknowledge that there is a need for more studies examining technology-assisted service encounters (Bitner, Brown, & Meuter, 2000; Parasuraman, 2000; Karlaajuoto, Mattila, & Pento, 2002).

1.2 Aim of the study

The current body of knowledge on technology-assisted service encounters (TASE) mainly addresses factors that motivate and/or dissuade consumers to adopt technology-based service delivery modes (Dover, 1988; Barczak, Ellen, & Pilling, 1997; Sathye, 1999; Jayawardhena & Foley, 2000; Parasuraman, 2000; Dabholkar & Bagozzi, 2002; Howcroft, Hamilton, & Hewer, 2002; Mulligan & Gordon, 2002; Walker, Craig-Lees, Hecker, & Francis, 2002). Some studies have specifically sought to identify the decision criteria consumers use when evaluating TASE (Joseph, McClure, & Joseph, 1999; Meuter et al., 2000; Jun & Cai, 2001; Van Riel, Liljander, & Juriens, 2001; Aldaigan & Buttle 2002; Zhu et al., 2002). These studies have identified ease of use, ease of access, quality of information available, fulfilment of a need, the SERVQUAL dimensions, excitement, and perceived security as the primary criteria consumers are likely to use when evaluating TASE.

The aim of this study was to expand on the existing literature in three ways. First, by exploring whether there are criteria beyond those that have been identified in existing literature that consumers are likely to use when evaluating TASE in the Australian banking context. Second, by investigating whether the criteria used to evaluate TASE are likely to differ with the technology in use. The third way was by

exploring whether consumers' opinions towards identified criteria affect their usage rates of the various technologies.

The current study examines service delivery processes that are conducted by consumers, through interactions with banking technology at their homes and/or their places of work. These are service encounters that typically involve minimal contact between an organisation's personnel and its customers because the service delivery processes require that the consumers deliver their own services using the technologies available. These technologies are referred to as self-service technologies or similar in other literature (Prendergast, 1993; Meuter et al., 2000; Lee & Allaway, 2002). Specifically, this study examined transactions conducted using Electronic Funds Transfer at Point of Sale (EFTPOS), Automatic Teller Machines (ATMs), telephone and Online banking modes. The study identified the criteria consumers are likely to use when evaluating TASE carried out using these modes of electronic banking. In particular, it examined whether the dimensions used to evaluate TASE are likely to differ with the mode of electronic banking in use and whether consumers' points of view towards the dimensions affect their usage rates of the four modes of electronic banking. The study also examined whether consumers are likely to experience the paradoxes of technology adoption identified by Mick and Fournier (1998). This was achieved by addressing the following research questions:

1. What criteria do consumers use to evaluate TASE in the Western Australian retail banking industry?
2. Do consumers use the same criteria to evaluate all TASE in the retail banking industry or do the relevant criteria change with the mode of electronic banking in use?
3. Do consumers' characteristics influence the criteria they are likely to use when evaluating TASE in the retail banking industry?
4. Do consumers' opinions of the relevant criteria affect their usage rates of the retail banking technologies they have adopted?

5. Do consumers who conduct technology-assisted banking transactions experience the paradoxes of technology adoption identified by Mick and Fournier (1998)?

The findings of this study contribute to the existing theoretical and practical knowledge of how consumers evaluate TASE. The study contributes to the existing theoretical knowledge in five ways. Firstly, it highlights the criteria that consumers of banking services are likely to use when evaluating TASE. Secondly, it examines whether the criteria are likely to differ with the technology in use. Thirdly, it explores whether consumers' views of the relevant criteria affect their usage levels of the various retail banking technologies. Fourthly, it examines the applicability of existing theories, instruments, and techniques previously used to explain consumers' evaluations of customer satisfaction and service quality to technology-based services. Finally, it proposes a model with items for measuring consumers' evaluations of TASE. The findings of this study contribute to practical knowledge by identifying the dimensions that financial institutions and organisations using similar commercial technologies need to address when developing initiatives to encourage consumers to adopt their technology-based service delivery modes. In particular, marketing practitioners may then use the service delivery dimensions that are perceived to be important determinants of customer satisfaction and service quality in TASE as the basis for their customer satisfaction and/or service quality programs and evaluations. In addition, it is hoped that the findings will initiate additional research aimed at developing the proposed TASE model further so that it can be used to measure consumers' levels of dis/satisfaction with TASE in various industries. The following section explains the rationale behind the study's focus on retail-banking technologies.

1.3 Study Context

Australia's financial services industry consists of banks, building societies, credit unions and cooperatives, finance companies, merchant banks and friendly societies (Australian Bankers' Association, 2000). Of these institutions, banks are the largest deposit taking and lending institutions (Australian Bankers' Association, 2000). There are 55 banks currently operating in Australia, four of which (Australia

and New Zealand Banking Group [ANZ], Commonwealth Bank of Australia [CBA], National Australia Bank [NAB], and Westpac Banking Group) own more than half of the total bank assets (ABS, 2000).

A major driving force of the Australian financial services industry is the technological innovations that provide consumers with electronic access to their transaction accounts (Asher, 1997; Fels, 1998). This move towards electronic banking has resulted in making bank branches less relevant than they were before the introduction of retail banking technologies. The specific retail banking technologies include: EFTPOS, ATMs, telephone, Internet/Online banking and E-mail billing (Saunders, 2000). These technologies have had a significant impact on the retail-banking sector. Approximately 95% of banking transactions can now be conducted electronically through EFTPOS, ATMs, telephone call centres and check imaging (Financial System Inquiry, 1997; Wilson, 1997). Consequently, the retail banking sector has been characterised by branch closures and staff reductions as consumers are encouraged to use the technology-based service delivery modes available (Abernethy, 1999; Callaghan, 2000).

The use of electronic banking has also resulted in blurring the differences between the services provided by different banks, making differentiation difficult (Asher, 1997). Consequently, banks are now attempting to differentiate themselves on the basis of service quality and customer satisfaction (Essingher, 1999). In spite of the growing focus on customer satisfaction, previous research indicates that banks can measure elements such as loans, past dues, debits, credits, and interest rates but they cannot precisely measure what their consumers think about their services (Gerson, 1988; Drew, 1995; McAdam, 2000). Existing literature suggests that when evaluating service encounters that have taken place in brick and mortar branches and/or banks' agents, consumers are likely to form their perceptions of service quality or satisfaction on the basis of their personal contact with bank employees (LeBlanc & Nguyen, 1988; Parasuraman et al., 1988; Donner & Dudley, 1997; Nicholls et al., 1998). However, the introduction of technology-based modes of service delivery means that consumers can now carry out some of their retail banking transactions with minimal direct contact with the banks' employees. Consequently, there is a need for research exploring how consumers are likely to evaluate TASE.

The existing literature explores the demographic characteristics of consumers who are likely to adopt the various modes of electronic banking (Bednar, Reeves, & Lawrence, 1995; Goode & Mountinho, 1996; Stafford, 1996; Tan et al., 1999). It outlines the usage rates of consumers who have already adopted some modes of electronic banking (Prendergast, 1993; Bednar et al., 1995) and the factors that are likely to motivate and/or dissuade consumers from the use of some or all modes of electronic banking (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Barczak et al., 1997; Liao, Shao, Wang, & Chen, 1999; Sathye, 1999). Some researchers have begun to explore the evaluative criteria consumers are likely to use when evaluating technology-assisted banking transactions (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Filotto, Tanza, & Saita, 1997; Joseph et al., 1999; Liao et al., 1999; Sathye, 1999; Tan et al., 1999; Jayawardhena & Foley, 2000; Merrick, 2000; Humphrey, Kim, & Vale, 2001; Jun & Cai, 2001; Polatoglu & Ekin, 2001; Van Riel et al., 2001; Aldaigan & Buttle, 2002; Howcroft, Hamilton, & Hewer, 2002; Jamal & Naser, 2002; Karjaluoto, Mattila, & Pento, 2002; Mulligan & Gordon, 2002; Zhu, et al. 2002; Rexha, Kingshot, & Au, 2003). They have found that when evaluating electronic banking transactions consumers are likely to use the following criteria: ease of use, duration of the transaction, type of transaction, convenience, accessibility, security of transaction, responsiveness, and reliability (see Appendix A, p 289). As noted previously, the findings of the current study contribute to the findings of previous research in different ways. Existing studies have mainly examined consumers' demographics, usage rates, and attitudes towards banking technology pre-adoption. The present study adds to the literature on consumers' behaviours and attitudes post-adoption of technology. It mainly explores consumers' thoughts on the technologies they have adopted, how their opinions translate into usage, and affect their resulting levels of dis/satisfaction.

In spite of these findings, researchers acknowledge the necessity for more studies exploring how consumers determine their levels of satisfaction and/or dissatisfaction with TASE in the retail banking industry (Drew, 1995; McAdam, 2000; Nelson, 2000; Rubino, 2000; Karjaluoto et al., 2002). Some researchers suggest that there is a need for more studies on consumers' use of electronic banking because consumers are not loyal (Nelson, 2000; Rubino, 2000; Karjaluoto et al., 2002). Some consumers adopt retail banking technologies for short periods of time

while others expect the quality of electronic banking services to be similar or superior to services provided in bank branches (Nelson, 2000; Rubino, 2000). Furthermore, very few organisations have developed ways of measuring consumers' levels of dis/satisfaction with TASE (McAdam, 2000). Therefore, additional research is needed to explore these issues.

This study aims to identify the criteria Western Australian consumers use to evaluate service delivery processes that are based on the available modes of electronic banking. It examines whether these criteria affect consumers' usage rates of the various modes of electronic banking and whether they differ with modes of electronic banking in use.

1.4 Methodology

Data for this study were collected and analysed using both qualitative and quantitative research methods. Researchers recommend the use of qualitative research methods when exploring consumers' behaviours and attitudes (Moran, 1986; Robson & Foster, 1989). In order to identify the factors that consumers are likely to use when evaluating TASE in the retail banking industry qualitative data were collected through 20 in-depth interviews with Western Australian consumers who use at least one of the four modes of electronic banking. The interviews were tape-recorded and the transcripts imported into the Non-Numerical Unstructured Data Information Searching, Indexing and Theorising (NUD*IST) program, which facilitates easy analysis of data (QSR, 1997). The themes that were identified in the qualitative phase were used to develop a survey questionnaire to determine consumers' opinions of the relevant factors and the effects these opinions may have on the usage rate of the four modes of electronic banking. The questionnaire was mailed out to 1700 Western Australians, and 453 useable questionnaires were returned. The data were imported into SPSS v.10 and analysed using nonparametric statistical tests.

1.5 Thesis Outline

Chapter one introduced this study by outlining the background and the purpose of the study. The chapter also explained the rationale behind examining TASE in the Western Australian retail-banking sector.

Chapter two presents the literature review. It discusses the various theories, instruments and techniques that have been proposed to assess how consumers evaluate service encounters. It also includes a brief discussion of the relevant technology adoption and post adoption literature.

Chapter three describes the research design. It explains the qualitative and quantitative data collection and analysis methods used in the study.

Chapter four is a discussion of the themes that were identified during the qualitative phase of the study and the implications of those findings.

Chapter five outlines the research propositions that form the basis of the quantitative phase of this study.

Chapter six presents the quantitative results. It includes a description of the resulting sample and the results/outcomes relating to each of the research propositions.

Chapter seven is a discussion of the qualitative findings and quantitative results. It examines the criteria and paradoxes of technology adoption found to be pertinent to TASE in the retail-banking sector in relation to existing literature.

Chapter eight outlines the implications of the study's findings. Implications are discussed for theories and instruments that have been traditionally used to determine consumers' perceptions of service quality and their levels of satisfaction and/or dissatisfaction with various service encounters. It also discusses the implications for practitioners and organisations that use technology-based service delivery modes. Chapter eight also presents and justifies the elements of the proposed TASE model. Finally, the conclusions, limitations and the resulting recommendations for further research are presented.

CHAPTER 2

LITERATURE REVIEW

2.1 Introduction

This chapter discusses the existing literature on how consumers evaluate service encounters, how they adopt technologies, and how they evaluate TASE. It begins by discussing the nature of the service delivery process and the consumer's role during the process. Then it explores the literature which suggests that the service delivery process is the most significant part of the service encounter (Lehtinen & Lehtinen, 1982), and the literature showing that consumers evaluate service encounters by comparing their expectations of the service encounter with their perceptions of the service they actually receive (Oliver, 1980; Cooper, Cooper, & Duhan, 1989). This process is the basis of the disconfirmation theory, which is discussed later in this chapter.

The existing literature on technology adoption is also outlined in this chapter. It shows that factors such as perceived ease of use, accessibility, and perceived convenience are likely to motivate consumers to adopt technology, whereas elements such as perceived risk and lack of information may dissuade consumers from adopting a new technology (Ram & Sheth, 1989; Rogers, 1995). This chapter also discusses findings from previous studies which suggest that consumers are likely to evaluate TASE using the same criteria that motivate them or dissuade them from the adoption of the relevant service technologies (Barczak et al., 1997; Sathye, 1999; Jayawardhena & Foley, 2000; Parasuraman, 2000; Dabholkar & Bagozzi, 2002; Howcroft et al., 2002).

2.2 The Service Delivery Process

The service encounter is defined as “the time during which consumers are directly interacting with service providers. It includes elements such as the physical facilities, waiting times, and contact personnel” (Walker, 1995, p 5). In order to

discuss how consumers evaluate the service encounter it is imperative to understand their role during the service delivery process and the nature of the service delivery process. Lovelock (1996, p53) notes that the service delivery process “is concerned with where, when, and how the service product is delivered to the customer.”

Understanding the service delivery process is fundamental because “service consumption is basically process consumption” (Gronroos, 1998, p2). Furthermore, consumers’ perceptions of the service delivery process have a significant effect on how they regard the quality of services provided by an organisation and their satisfaction/dissatisfaction with those services (Lehtinen & Lehtinen, 1982; Brogowicz et al., 1990; Danaher & Mattsson, 1994; Ghobadian, Speller, & Jones, 1994; Gronroos, 1998; Swartz, 1998).

2.2.1 Consumer’s Role

Service encounters and service delivery processes typically involve interactions between organisations’ employees and their customers (Lovelock & Young, 1979). Therefore, organisations that want to improve the quality of the services that they provide cannot ignore their customers (Lovelock & Young, 1979). The organisations need to familiarise themselves with the needs, attitudes, and actions of their consumers because these elements can affect consumers’ levels of participation during the service delivery process and their perceptions regarding the quality of services organisations provide (Lovelock & Young, 1979; Mills, Chase, & Margulies, 1983; Bateson, 1985; Cermak, File, & Prince, 1994; Lengnick-Hall, 1996; Ennew, 1996; Bendapudi & Leone, 2003).

Consumers participate during the service delivery process in three main ways. Firstly, they participate by providing the service providers with the information that is necessary to complete the service delivery process (Mills et al., 1983; Lengnick-Hall, 1996; Bitner, Farada, Hubbert, & Zeithaml, 1997; Kellogg, Youngdahl, & Bowen, 1997; Claycomb, Lengnick-Hall, & Inks, 2001). In the traditional banking scenario, consumers would do this by providing the bank’s customer service employees with their personal and account details so that the requested banking transactions can be completed. Secondly, consumers participate during the service

delivery process just by being present at the service provider's facilities (Bitner et al., 1997; Claycomb et al., 2001). Claycomb et al., (2001) add that during the service encounter consumers can participate in more than one way, however, that depends on the nature of the service offering. In the traditional banking scenario, participation would involve visiting one of the bank's brick and mortar branches. Finally, consumers participate during the service encounter by performing some of the actions necessary to complete the service delivery process (Lengnick-Hall, 1996; Bitner et al., 1997; Claycomb et al., 2001; Keh & Teo, 2001). In the traditional banking scenario, this would occur when consumers complete the withdrawal and/or cash deposit forms by filling in all the necessary personal and account details before giving them to the customer service employees who would then complete the banking transactions.

Consumers are more likely to participate during the service delivery process when they are confident about their roles during the service encounter and when they feel that they have the information required to contribute to the service delivery process (Mills & Morris, 1986; Claycomb et al., 2001). Generally, as noted earlier, consumers' participation levels during the service delivery process depend on the type of service being provided and the service situation (Mills & Morris, 1986). There are three levels of participation. The low level occurs when consumers participate minimally during the service delivery process, such as when they only have to be physically present at the service provider's premises (Chase, 1978; Bitner et al., 1997). A medium level of participation occurs when consumers have to give the service providers the information necessary for the service delivery process to occur (Bitner et al., 1997). Finally, consumers can have a high level of participation when they are physically present, provide the required information, and perform some of the actions necessary to complete the service delivery process (Chase, 1978; Bitner et al., 1997). Despite the nature or level of participation it is important to note that consumers of service organisations have two roles, "that of the traditional service consumer and the partial employee" (Kelley, Donnelly Jr, & Skinner, 1990, p329).

Researchers suggest that organisations should encourage their consumers to participate more during the service delivery process (Mills et al., 1983; Lengnick-Hall, 1996). Consumers who participate during the service delivery process are

generally more satisfied with the service encounters and they report higher perceptions of service quality because they develop practical expectations and perceptions of the service delivery process (Chase, 1978; Mills et al., 1983; Bateson, 1985; Kelley et al., 1990; Cermak et al., 1994; Ennew, 1996; Kellogg et al., 1997; Claycomb et al., 2001; Bendapudi & Leone, 2003). When consumers participate during the service delivery process organisations benefit because the financial costs of their human resources decrease and the length of time taken to deliver their services to consumers decreases (Mills et al., 1983; Mills & Morris, 1986). Researchers suggest that to accrue the benefits of consumer participation organisations need to understand their consumers' perceptions thoroughly so that they can encourage higher levels of participation during the service delivery process (Lovelock & Young, 1979; Bateson, 1985; Bendapudi & Leone, 2003). The following section illustrates the stages of the service delivery process.

2.2.2 Stages of The Service Delivery Process

To effectively assess how consumers are likely to evaluate these processes researchers argue that the service delivery process should be broken down into different stages (Dube-Rioux, Schmitt, & LecLerc, 1989; Singh, 1991; Armstrong, 1992; Bitran & Lojo, 1993; Danaher & Mattsson, 1994; Walker, 1995). They contend that it is important to examine each of these stages because consumers' perceptions of service quality may change at the various stages (Hui, Thakor, & Gill, 1998). It is assumed that a consumer's satisfaction or dissatisfaction with a service encounter will result from summing the degree of the satisfaction or dissatisfaction experienced at each stage of the service delivery process (Singh, 1991; Danaher & Mattsson, 1994). Dube-Rioux et al. (1989) classified the service delivery process into three stages: the pre-process stage, the in-process stage, and the post-process stage. However, Bitran and Lojo (1993, p387-389) provide a more comprehensive classification of the service delivery process, categorising it into five stages: access, check in, diagnosis, service delivery, and disengagement. Thus, using Bitran and Lojo's (1993, p387-389) stages:

1) In an electronic banking scenario, the initial stage which is also known as the access phase occurs when consumers access their transaction accounts by putting their key cards into EFTPOS or ATM equipment, or when they access their financial institutions through telephone banking or Online banking.

2) This is followed by the check-in phase where consumers identify themselves to the service organisation. This occurs when consumers key their personal identification numbers (PINs).

3) The next stage is the diagnosis stage during which consumers identify their needs. In an electronic banking scenario, this stage occurs when consumers select the banking transaction they would like to conduct. For example: to withdraw cash using EFTPOS or ATMs, to pay a bill through telephone banking, or to transfer funds using Online banking.

4) During the fourth stage, the requested service is delivered. Therefore, the EFTPOS or ATM provides the consumer with cash, the bill is paid through telephone banking or the funds transferred using Online banking.

5) The final stage of the service delivery process is the check out or disengagement phase, which ends the service encounter. During this stage, consumers who use electronic banking services receive their receipts, which may be in the form of paper receipts or receipt numbers.

Traditionally, most banking transactions were conducted in brick and mortar branches with the help of contact personnel who would interact with consumers from the access phase to the disengagement phase of the service delivery process. For example, consumers would visit their bank's branch (access phase) provide the bank's customer service employees with their personal and account details (check in phase) and request a transaction (diagnosis stage). The bank's employees would then facilitate the desired banking transaction (service delivery) and then present the consumer with a paper receipt indicating the end of the service delivery process (disengagement phase). In these scenarios, the consumers' level of participation would be classified as medium. Consumers participated by being physically present at the bank branch and by providing the information required for facilitating the required banking transactions. The bank's contact personnel would then carry out the

required transactions, so that contact personnel were perceived as the most important element of the service delivery process (Howcroft, 1993) .

When service organisations use technology instead of employees during the service delivery process, they change the nature of the service encounter (Chase, 1978). Technologies used by service providers have two main effects on the service delivery process; firstly, they change how consumers access organisations' services and secondly they change the consumers' levels of participation during the service delivery processes (Bancel-Charensol, 1999). Indeed technological innovations have significantly altered the service delivery processes of banking institutions making consumers more active during the service delivery process (Grove et al., 1998; Webb, 2000). In the electronic banking scenario, the consumers' role is more significant than that of the banks' contact personnel as the consumers interact with the various banking technologies to deliver their own retail banking services. The increased level of activity would indicate a high level of participation because consumers essentially deliver services for themselves.

Researchers note that changes in an organisation's service delivery process affect consumers' perceptions of the service encounter because changes in the nature of the service delivery process require changes in the information, the actions and the level of participation of the consumers during the service encounter (Chase, 1978; Lovelock & Young, 1979; Bancel-Charensol, 1999). Consumers who participate more during the service delivery process are thought to evaluate service encounters differently because their participation has a direct impact on the service outcome (Broderick & Vachirapornpuk, 2002). Thus, the change to TASE in the retail banking industry may have resulted in a change in consumers' opinions and evaluations of their service encounters.

Various theories, instruments and techniques have been proposed to explain how consumers evaluate the service delivery process. The following section discusses these and examines whether they are applicable to TASE as they occur in the retail banking industry.

2.3 Evaluation of the service encounter

This section shows that the basis of all the theories, instruments, and techniques that have been used to explain how consumers evaluate the service encounter is the premise that consumers assess the difference between their expectations of a service encounter and their perceptions of the service that is actually delivered. It also illustrates the importance of personal contact between consumers and service employees in traditional service encounters that are characterised by high levels of contact between the parties. Finally, the section will show that though the theories, instruments, and techniques were not designed specifically for TASE, if adapted some of them may still be applicable.

2.3.1 Service quality and customer satisfaction

The following discussion attempts to differentiate service quality and customer satisfaction. Though both concepts appear to be similar there are subtle differences between them. Service quality and customer satisfaction are both based on the disconfirmation model (discussed in the following section) which asserts that consumers evaluate their service encounters by assessing the differences between their expectations and perceptions (Oliver, 1980; Cooper et al., 1989). However, there are two main differences between service quality and customer satisfaction measurements. Firstly, customer satisfaction results from consumers' evaluations of particular service encounters whereas service quality judgements result from consumers' general perceptions of an organisation and the services it provides (Oliver & Westbrook, 1982; Swan, 1983; Gronroos, 1984; Berry et al., 1988; Parasuraman et al., 1988; Sherden, 1988; Bitner, 1990; Lewis, 1993; Johnston, 1995). The second difference relates to the definitions of the expectations measure used during the comparison process. When measuring consumers' perceptions of service quality researchers require consumers to compare the service they would like to receive with the service that they actually receive, whereas when measuring customer satisfaction researchers require consumers to compare the service they

expect with the service they actually receive (Parasuraman et al., 1988; Cooper et al., 1989; Parasuraman et al., 1991; Oliver, 1993).

There has been continuing debate in the literature regarding which one precedes the other, service quality or customer satisfaction. Some researchers suggest that customer satisfaction precedes service quality because consumers' levels of satisfaction and/or dissatisfaction are better indicators of their purchasing behaviour (Cronin & Taylor, 1992; Oliver, 1997; Lee et al., 2000). Other researchers assert that service quality precedes customer satisfaction because as an organisation's service quality increases so does the level of service it provides and that then influences consumers' levels of satisfaction/dissatisfaction (Woodside et al., 1989; Rust, Zahorik, & Keiningham, 1995; Asuboteng, McCleary, & Swan, 1996; Gunther, Ludwig, & Woodside, 1996; Spreng & Mackoy, 1996; Gorst, Kanji, & Wallace, 1998; Robinson, 1999; Jones & Suh, 2000; Lee, Lee, & Yoo, 2000; Sivadas & Baker-Prewitt, 2000; Caruana, 2002).

Bitner (1994) argues that service quality and customer satisfaction are different and researchers and practitioners should treat them as such. Iacobucci, Ostrom, Braig, and Bezjian-Avery (1996) agree that service quality and customer satisfaction are different. They suggest however, that instead of studying them as separate constructs, researchers should explore them together. In fact, researchers studying consumers' perceptions of banking in India found that service quality and customer satisfaction were dependent on each other and have a positive association (Sureschandar, Rajendran, & Anantharaman, 2002). As such, the present study does not attempt to make a distinction between service quality and customer satisfaction. Instead this study investigates the factors that affect consumers' perceptions of the quality of services provided using technology and how these perceptions affect their levels of dis/satisfaction. The following section discusses the disconfirmation theory.

2.3.2 Disconfirmation theory

Disconfirmation theory forms the basis of most theories of customer satisfaction and service quality. This theory asserts that prior to receiving service consumers form predictions of what is likely to occur (Oliver, 1980; Woodruff, Cadotte, & Jenkins, 1983; Cooper et al., 1989). These predictions are formed as a

result of their desires and any information obtained prior to the service experience (Spreng, MacKenzie, & Olshalvsky, 1996). Once consumers receive the services they evaluate them by comparing the services they receive with their own predictions (Oliver, 1980; Cooper et al., 1989; Woodruff & Gardial, 1996; Alford, 1998).

The comparison process is likely to result in one of three states: confirmation, when the service performance matches expectations; positive disconfirmation, when the service experience is better than what was expected; and negative disconfirmation, when the service experience is below what was expected (Oliver, 1980; Oliver & Desarbo, 1988; Woodruff & Gardial, 1996; Alford, 1998). Thus, satisfaction is likely to occur when the comparison process results in confirmation and/or positive disconfirmation; whereas dissatisfaction is likely to occur when the service encounter results in negative disconfirmation (Oliver, 1980).

Disconfirmation theory has been criticised for the assertion that consumers deliberately go through a comparison process when evaluating service encounters and especially for its consideration of expectations. Some researchers argue that the use of the expectations construct is flawed because consumers' expectations are likely to change with time and experience with a service (Boulding, Kalia, Staelin, & Zeithaml, 1993). Other researchers state that consumers' expectations do not have an absolute effect on their levels of satisfaction with a service encounter (Anderson & Sullivan, 1993). Furthermore, existing studies show that for some services the comparison between expectations and performance is unnecessary (Halstead et al., 1994). This is because when consumers receive a particular service regularly they do not intentionally ponder the disparity between their expectations and their perceptions of the service they actually receive (Woodruff et al., 1983; Walker, 1995). They will focus on the disparity only if there is a significant change in the service or the service delivery process (Halstead et al., 1994).

Studies also show that the association between expectations and perceptions of a service may depend on the service elements that are significant to the consumer (Kennedy & Thirkell, 1988). Compensatory models suggest that some service attributes may be more important to consumers than others and these attributes may have greater influences on consumers' choices compared to other attributes perceived to be less significant (Johnson, Meyer, & Ghose, 1989). Thus, consumers are likely

to form higher expectations for service elements that are important to them, and it is these elements are likely to affect their satisfaction with a service (Kennedy & Thirkell, 1988; Diaz-Martin, Iglesias, Vazquez, & Ruz, 2000). Satisfaction may still result if performance exceeds expectations for elements that are perceived to be significant, even when performance falls short of expectations on other service elements that are not perceived to be as significant (Kennedy & Thirkell, 1988). Measuring expectations is also problematic because it is not clear which expectations are being measured; those of the minimum or the ideal service encounter or expectations relating to what will happen during the service encounter versus what ought to happen (Llosa, Chandon, & Orsingher, 1998; Dasu & Rao, 1999).

According to some researchers, the disconfirmation theory is limited because it does not consider consumers' emotions when evaluating perceptions of the service encounter (Woodruff et al., 1983; Dube, 1990; Edwardson, 1998; Wirtz & Bateson, 1999). They argue that it is the feelings and emotions that result from the confirmation or disconfirmation process that result in a consumers' satisfaction or dissatisfaction with a particular service encounter.

Despite these concerns, it appears to be that the disconfirmation theory has relevance to the way consumers experience and assess services because it forms the basis of other measures and theories of service encounter and service quality evaluation such as SERVQUAL and role, script, holistic, and nordic theories which are discussed later in this chapter (Smith & Houston, 1983; Solomon, Suprenant, Czepiel, & Gutman, 1985; Gerson, 1988; Leblanc & Nguyen, 1988; Parasuraman et al., 1988; Kelley, Donnelly, & Skinner, 1990; Mills, 1990; Danaher & Mattson, 1994).

The disconfirmation theory may thus be applicable to the electronic banking scenario. According to disconfirmation theory, consumers who use the various modes of electronic banking would evaluate their TASE by comparing their expectations and their perceptions of the technology-based service encounter. Satisfaction is likely to occur if their expectations are met and exceeded, whereas dissatisfaction is likely to occur if the performance of the various modes of electronic banking falls short of expectations. According to Kennedy and Thirkell (1988) and Diaz-Martin et al., (2000), consumers who conduct electronic banking will compare

their expectations and perceptions of those service elements that are important to them. If performance exceeds expectations for these elements satisfaction is likely to result, even if performance falls short of expectations relating to other elements. In addition, the feelings and emotions that result from the comparison process may influence consumers' overall perceptions regarding the use of various modes of electronic banking (Woodruff et al., 1983). The following sections outline theories that have been previously used to illustrate consumers' evaluations of their service encounters.

2.3.3 Theories

2.3.3.1 Script theory

A script is defined as the “coherent sequence of events expected by an individual involving him either as a participant or observer” (Abelson, 1976, p33). It forms the foundation for expectations formed by a consumer regarding the service delivery process (Alford, 1998). Consumers are said to form cognitive scripts because events that constitute service encounters are typically repetitive, leading to the formation of expectations (Abelson, 1976; Smith & Houston, 1983; Alford, 1998).

Thus, according to this theory consumers evaluate service encounters by comparing expectations that they form in their cognitive scripts and relating them to their perceptions of the service encounter (Smith & Houston, 1983; Danaher & Mattsson, 1994; Alford, 1998). Satisfaction is likely to result when consumers' expectations are met whilst dissatisfaction is likely to result when there are deviations from the script (Smith & Houston, 1983; Danaher & Mattsson, 1994; Alford, 1998).

Like the preceding theories, script theory is based on the process of comparing expectations and perceptions of the service encounter. However, a flaw in this theory is the assertion that all deviations from the script are likely to result in customer dissatisfaction (Alford, 1998). Deviations from the script that lead to better

services are positive and are likely to lead to customer satisfaction as opposed to dissatisfaction (Alford, 1998).

Nonetheless, this theory may be applicable to TASE. It suggests that consumers who conduct electronic banking transactions are likely to form cognitive scripts that represent their expectations of the service encounters. The difference is that the script typically involves interaction with the electronic equipment rather than human actors. When consumers' expectations are met, satisfaction is likely to result, and if expectations are not met, dissatisfaction may result.

2.3.3.2 Role theory

The role theory perspective argues that consumers evaluate a service encounter on the basis of their interactions with the service provider (Solomon et al., 1985; Mills, 1990). Proponents of this theory perceive the service encounter as theatrical in nature, consisting of actors (service providers) and the audience (consumers) (Grove et al., 1998). During the service encounter both parties seek to maximise their gains and minimise their losses (Solomon et al., 1985; Alford, 1998). Satisfaction results when the standard of service that the audience expects is met, whereas dissatisfaction results when the expected standards of service are not met (Solomon et al., 1985; Mills, 1990).

The basis of role theory is similar to that of disconfirmation theory. Like disconfirmation theory, it suggests that when evaluating service encounters consumers compare their expectations and perceptions of the service they receive. However, role theory differs slightly from disconfirmation theory. According to disconfirmation theory, the consumer's comparison process is likely to result in one of three states: confirmation, positive disconfirmation, or negative disconfirmation. According to role theory the consumer's comparison process is likely to result in one of two states - either satisfaction or dissatisfaction with the service encounter. Role theory thus does not appear to acknowledge that some service performances can exceed the consumer's expectations and result in positive disconfirmation.

Role theory appears to be more applicable to service encounters that are characterised by high levels of personal contact between service providers and

consumers (Mills, 1990; Grove et al., 1998). This is because actors are perceived to play a large role in determining customer satisfaction (Grove et al., 1998), which makes it applicable to service encounters that involve personal contact between consumers and banks' personnel. During service encounters banks' personnel would have a significant effect on consumers' perceptions of the service. This theory may be applicable to electronic banking transactions conducted using EFTPOS. This is because EFTPOS transactions are conducted during retail settings and they typically involve three parties: the consumer, the retailer/cashier, and the financial institution (Mitchell, 1988; Ho & Ng, 1994; Tan et al., 1999). During EFTPOS transactions the role of the actor is performed by the retailer/cashier, the consumer represents the audience, and the EFTPOS equipment facilitates the service delivery process. Thus, according to role theory satisfaction is likely to result when the retailer/cashier using the EFTPOS equipment provides the standard of service that the consumer expects. However, this theory is unlikely to be appropriate for TASE that are conducted using ATMs, telephone, and Online banking modes because they typically involve minimal contact between consumers and employees.

2.3.3.3 Holistic theory

The holistic school's perspective is that when evaluating a service consumers consider all the aspects of the service encounter and the service offering organisation (Gerson, 1988; LeBlanc & Nguyen, 1988; Howcroft & Anthony, 1993; Johnson, Tsiros, & Lancioni, 1995; Halachmi, 1997). These aspects include: the perceptions of the service organisation and its activities; perceptions regarding the organisation's employees; technology and equipment used during the service delivery process; consumers' relationships with customer service personnel, and consumers' degree of satisfaction with the service (Halachmi, 1997).

The holistic theory is similar to the previously discussed theories in that service quality and/or satisfaction is determined through a comparison process. However, unlike the preceding theories that only illustrate the general process consumers are likely to go through when evaluating service encounters, the holistic theory identifies the specific criteria (aspects outlined above) which consumers are

likely to use during the evaluation process. In addition, customer satisfaction is viewed as a criterion for evaluating service encounters, as opposed to an outcome of the service encounter.

Some elements of holistic theory appear to be applicable to TASE in the retail banking industry. In particular, elements pertaining to consumers' perceptions of their financial institutions and their perceptions regarding the technology and equipment used during the service delivery process are applicable. However, this theory's emphasis on customer/staff interactions and the organisations' employees makes it inappropriate in its current form for most technology-assisted transactions because consumers who provide their own services are not likely to be in contact with banks' employees.

2.3.3.4 Nordic school theory

The Nordic school theory argues that consumers evaluate service quality and satisfaction by assessing the technical and functional aspects of the service encounter. The technical (intrinsic) elements relate to the end result of the service encounter and include aspects such as the employee's knowledge and the equipment that facilitates the service delivery process (Kelley, Donnelly, & Skinner, 1990; Gronroos, 1993; Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994; Mels, Boshoff, & Nel, 1997). The functional aspects of the service relate to how the service is actually delivered by the employees and includes elements such as their responsiveness, empathy and/or reliability (Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994).

The Nordic school theory suggests that consumers evaluate service encounters by forming expectations of employees' performance on the technical and functional dimensions of the service encounter and then comparing them with their perceptions of employees' performance on both dimensions (Kelley et al., 1990). The functional aspects, which relate to elements such as the service personnel's expertise, performance and dependability, have been found to have a greater influence than the technical aspects on consumers' perceptions of the service quality (Gronroos, 1988). This finding is consistent with other studies that show that

customer service personnel have a significant effect on consumers' perceptions of service quality (Schneider & Bowen, 1985; Parasuraman et al., 1988; Gabbott & Hogg, 2000). For instance, a study of private banking customers in the U.S.A and South America compared the Nordic theory and SERVQUAL (discussed in the next section) measures in order to determine which was a better predictor of customer satisfaction (Lassar, Manolis, & Winsor, 2000). The researchers found that technical and functional dimensions of the Nordic theory were more reliable than SERVQUAL in predicting customer satisfaction (Lassar et al., 2000).

The Nordic school theory is similar to the aforementioned theories in two ways; it requires consumers to evaluate the difference between their expectations and perceptions of the service encounter and it acknowledges the significance of the customer-employee interaction. Similar to the holistic theory, only some aspects of the Nordic school theory seem to be applicable to TASE. Technical dimensions requiring consumers to evaluate the equipment that facilitate the service delivery process appear to be applicable. In an electronic banking scenario, this may include evaluating hardware such as EFTPOS and ATM equipment, the voice response units that facilitate telephone banking, and the visual cues that facilitate Online banking. Elements relating to customer service personnel are largely inapplicable to TASE.

2.3.3.5 Customer value theory

According to customer value theory consumers are likely to evaluate service encounters based on the perceived value they receive from the services (Dawes & Brown, 2000). Consumers form value judgements by comparing the services provided by various organisations and the costs of those services (Mills, 1990; Iacobucci, Grayson, & Ostrom, 1994). This is done through the customer value determination (CVD) process (Woodruff & Gardial, 1996). During the CVD process consumers evaluate their level of satisfaction and/or dissatisfaction with a service on the basis of three value dimensions: emotional, practical, and logical dimensions (Woodruff & Gardial, 1996; Ruyter, Wetzels, Lemmink, & Mattsson, 1997; Hartman, 1998). The emotional dimension relates to consumers' feelings during the service encounter (Ruyter et al., 1997). The practical dimension includes all the

events that occur during the service delivery process (Ruyter et al., 1997). The logical component consists of other components of the service encounter such as the cost of the service (Ruyter et al., 1997). According to Dawes and Brown (2000), consumers can also form value judgements by evaluating the contact personnel's responsiveness, assurance, competence and credibility.

Woodruff and Gardial (1996) add that when evaluating services using the CVD process consumers develop a value hierarchy. The hierarchy has three levels that indicate consumers' levels of satisfaction with the quality of service provided. The first level is the basic or expected level, it relates to the minimum requirements that the service encounter has to adhere to in order for consumers to be satisfied (Goodstein & Butz, 1996; Woodruff & Gardial, 1996). The second level of the hierarchy relates to desired value, this is realised when the level of service that the consumers receive exceeds their minimum expectations and the likely result is customer satisfaction (Goodstein & Butz, 1996; Woodruff & Gardial, 1996). The final level is the unanticipated/unexpected value which results when consumers receive a service that was unimaginable yet desirable (Goodstein & Butz, 1996; Woodruff & Gardial, 1996). So, according to the CVD process, when evaluating the practical dimension of a particular service encounter (for example interactions with banks' personnel) consumers are likely to assess whether the service provided meets their basic expectations or exceeds their expectations by providing unimaginable yet desirable levels of service.

Like the foregoing theories, customer value theory suggests that consumers evaluate service encounters by comparing the standards of service they expect with the standards that they receive. The preceding theories suggest that contact personnel are a critical element of the service delivery process. In a like manner the CVD process acknowledges the significance of consumers' interactions with an organisation's personnel. However, the proponents of the CVD theory seem to suggest that the cost of the service encounter and the quality of service provided by competing organisations are the most critical elements of the service evaluation process.

Customer value theory may be at least partially applicable to the evaluation of technology-assisted banking transactions. According to the CVD process, consumers

would evaluate technology-based service encounters in the banking industry on the basis of emotional, practical, and logical dimensions. In addition, using the value hierarchy consumers would indicate those elements of TASE that are important determinants of their level of satisfaction with the encounters. The sub-dimension relating to staff interaction is likely to be inapplicable to an electronic banking scenario because of the minimal direct contact between consumers and an organisation's employees.

The preceding section discussed the theories that have been used to illustrate how consumers evaluate service encounters. The following section discusses the instruments that have been designed to measure service quality.

2.3.4 Instruments

2.3.4.1 SERVQUAL

Parasuraman et al., (1988) developed the SERVQUAL instrument to measure service quality. The instrument is based on consumers' perceptions and expectations of their service encounters. They began their research by collecting qualitative data through twelve focus groups, which included customers of retail banking, credit card, securities, brokerage, product repair and maintenance companies (Parasuraman et al., 1988, p18). They found that when making service quality judgements consumers use similar standards regardless of the industry (Parasuraman et al., 1988, p30). They also found that the standards that consumers use to evaluate services could be categorised into ten dimensions, namely tangibles, reliability, responsiveness, communication, credibility, security, competence, courtesy, understanding/knowing consumers and access (Parasuraman et al., 1988, p21).

These findings were then used to develop an initial SERVQUAL instrument that consisted of 97 items (Parasuraman et al., 1988, p19). Each item in the initial instrument was represented by two statements; one relating to consumers' expectations of the service encounter and another measuring the consumers' perceptions of the service encounter (Parasuraman et al., 1988, p22). Half of the items were positively worded whilst the other half were negatively worded and the

respondents were required to indicate their level of agreement with the various items on a seven-point Likert scale (Parasuraman et al., 1988, p22). The initial instrument was administered to a sample of 200 respondents from various industries (Parasuraman et al., 1988, p22).

During the initial data analysis phase Parasuraman et al., (1988, p20) consolidated the original items and were left with 54 items. Further analysis of their findings resulted in a SERVQUAL scale with 22 items relating to five dimensions: tangibility, reliability, responsiveness, assurance and empathy (Parasuraman et al., 1988, p33). The SERVQUAL scale is used to assess service quality by assessing the difference between consumers' perceptions and expectations on each of the 22 items. The instrument has been widely used because of its applicability to various organisations and industries (Pitt, Watson, & Karan, 1995).

Despite the general applicability of the SERVQUAL scale, researchers have criticised its use on a number of grounds. Like the disconfirmation theory researchers have been particularly critical of the expectations measure. They contend that the expectations measure is redundant because when consumers are asked about their perceptions of a particular service encounter they are in effect being asked to compare mentally the difference between their expectations and perceptions (Cronin & Taylor, 1994; Llosa, Chandon, & Orsingher, 1998). Use of the expectations measure has also been criticised because the instrument does not specify which expectations are being measured (those of the minimum or ideal service encounter) and because expectations change with consumers' experience of the service (Carman, 1990; Boulding et al., 1993; Lewis, 1993; Teas, 1994; Llosa et al., 1998).

Another criticism of the SERVQUAL scale is that the five dimensions used (tangibility, empathy, reliability, responsiveness and assurance) lack independence, and consequently consumers cannot effectively differentiate between them (Parasuraman et al., 1994; Triplett, Oliver, & Neal, 1994; Llosa et al., 1998). In addition, the SERVQUAL instrument does not include other dimensions associated with the service encounter that may influence consumers' perceptions of service quality (Sureshchandar, Rajendran, & Anantharaman, 2002). According to Sureshchandar et al. (2002), an example of a relevant additional dimension is the organisation's social responsibility initiatives. According to other researchers, other

dimensions that may affect consumers' perceptions of service quality are the relational benefits that consumers accrue as a result of their increased patronage to particular service organisations (Gwinner, Gremier, & Bitner, 1998; Hennig-Thurau, Gwinner, & Gremier, 2002; Yen & Gwinner, 2003). There are three types of relational benefits. These include: confidence benefits that consumers receive when they trust the quality of services provided by organisations, social benefits that result from the friendships that form between organisations' employees and their customers, and special treatment benefits that accrue when organisations give loyal customers incentives such as price discounts and preferential treatment (Gwinner et al., 1998; Hennig-Thurau et al., 2002; Yen & Gwinner, 2003). Such dimensions can have an effect on consumers' perceptions of the quality of services provided by an organisation and the organisations' service delivery processes (Johnson et al., 1995; Sureshchandar et al., 2002).

Researchers have also questioned the reliability of the SERVQUAL scale because measuring the difference between consumers' perceptions and expectations results in a gap score. Gap scores are always positively correlated so that a decrease in the reliabilities of expectations and perceptions scores will always result in a decrease in the reliabilities of the gap scores (Goodman, Marlech, Bargatze, & Ledbetter, 1988; Brown, Churchill, & Peter, 1993; Hemmasi, Strong, & Taylor, 1994; Vandyke, Kappelman, & Prybutok 1997). In addition, the gap scores have low validity because the measures associated with one variable do not assist in estimating the measures associated with other variables (Goodman et al., 1988; Vandyke et al., 1997).

Finally, Lewis (1993) questions the use of negatively worded and seven-point Likert scale items used in the SERVQUAL scale. Lewis argues that negatively worded items always tend to elicit negative responses from consumers. Furthermore, the use of Likert-scale items that do not have verbal names from point '2 to 6' makes it difficult for consumers to indicate subtle variations in their responses so they report extremes (Lewis, 1993). For example, when presented with points '2 to 6' consumers may provide responses such as 5 or 6 when the exact rating of their response is 5.26 (Lewis, 1993).

The SERVQUAL instrument deals with elements of the service encounter that are primarily applicable to service encounters that involve personal contact between consumers and organisations' employees (Van Riel et al., 2001). Many items are therefore not suitable for evaluating TASE, although the items relating to the tangibles dimension may still be applicable. As a result, the instrument needs to be re-developed and adapted to be relevant to TASE.

2.3.4.2 SERVPERF

The SERVPERF instrument was developed to rectify the deficiencies of the SERVQUAL instrument, particularly the use of the expectations measure (Cronin & Taylor, 1994). When reporting their perceptions of service quality using SERVQUAL, consumers rate their expectations and perceptions after they have experienced the service encounter. Researchers argue that accurate measures of consumers' expectations can only be obtained prior to the service experience (Cronin & Taylor, 1994; Llosa et al., 1998). In addition, they state that an expectations measure is inappropriate because consumers' expectations may change as they experience the service (Carman, 1990; Boulding et al., 1993; Clow & Vorhies, 1993; Lewis, 1993; Cronin & Taylor, 1994; McAlexander, Kaldenburg, & Koenig, 1994). Furthermore, the use of an expectations measure reduces the content and discriminant validity of SERVQUAL (Carman, 1990; Boulding et al., 1993; Clow & Vorhies, 1993; Lewis, 1993; Cronin & Taylor, 1994; McAlexander, Kaldenburg, & Koenig, 1994).

The SERVPERF instrument relies on the five dimensions of service quality proposed by Parasuraman et al. (1988), but it eliminates the gap score by requiring consumers to report only their perceptions of the service encounter. This is said to result in higher reliability and validity scores (Cronin & Taylor, 1994). A study comparing SERVQUAL and SERVPERF found that SERVPERF is likely to give better measures of service quality because it does not rely on the gap score (Lee et al., 2000).

As it is based on the SERVQUAL items, the SERVPERF instrument is also more appropriate for service encounters that are characterised by personal contact

with an organisation's employees than it is for technology-based service encounters. The SERVPERF instrument requires consumers to report their perceptions of the service encounter by reporting their thoughts on the employees' knowledge, responsiveness, empathy and general behaviour, amongst other things (Cronin & Taylor, 1994). Technology-based service encounters are characterised by minimal contact between consumers and employees because consumers deliver their own services with the assistance of technology. Therefore, the SERVPERF instrument also needs to be adapted to be applicable to TASE.

2.3.4.3 SYSTRA-SQ

The SYStem and TRAnSACTIONAL (SYSTRA-SQ) quality instrument is a 21 item scale which was developed to measure consumers' perceptions of service quality as a result of study done in the U.K retail banking sector (Aldaigan & Buttle, 2002). SYSTRA-SQ is founded on the Nordic school theory's assertion that consumers evaluate service quality and satisfaction based on the technical and functional aspects of the service encounter (Gronroos, 1993; Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994).

Aldaigan and Buttle (2002) began their research by collecting data on consumers' positive and negative experiences with retail banking in the U.K. through in-depth interviews and focus group discussions. The qualitative data were analysed on the basis of the technical and functional dimensions of service quality identified by Gronroos (1993). The findings were used to develop an initial survey instrument that was pre-tested on a sample of 294 banking consumers (Aldaigan & Buttle, 2002). The findings from of the initial survey instrument were used to refine the questionnaire. The resulting survey instrument was then administered to a sample of 3292 banking consumers. The study had a 29.6% response rate and a resulting sample of 975 respondents. Their results suggest that consumers evaluate retail banking service encounters using four dimensions; service system quality, behavioural service quality, machine service quality, and service transactional accuracy (Aldaigan & Buttle, 2002, p376).

According to Aldaigan and Buttle (2002, p372), service system quality refers to how the service is delivered, including elements such as the facilities that are available, the quality of information available, and the handling of customers' problems. The behavioural service quality dimension involves evaluating the bank's personnel on criteria such as politeness, courtesy, and helpfulness. Machine service quality refers to the quality of the equipment the bank uses during the service delivery process and the ability of this equipment to provide customers with their desired service. Finally, the service transaction accuracy dimension measures the likelihood of the bank's employees making mistakes and the consumer's ability to tolerate the mistakes.

Although the dimensions of the SYSTRA-SQ scale were initially developed on the basis of the Nordic school theory, it appears that the resulting dimensions of the SYSTRA-SQ are similar to those of holistic theory. According to holistic theory (discussed earlier), when evaluating the quality of service provided by an organisation consumers are likely to evaluate every aspect of the service offering (Gerson, 1988; LeBlanc & Nguyen, 1988; Howcroft, 1993; Johnson et al., 1995). The service system quality dimension of the SYSTRA-SQ refers to the same elements as the corporate image dimension of holistic theory, and the behavioural service quality elements are similar to the internal organisation element in holistic theory. In a like manner the machine service quality element parallels the physical support of the service producing system element, whereas transactional accuracy relates to the degree of customer satisfaction element of holistic theory.

According to holistic theory and the SYSTRA-SQ, consumers are likely to evaluate service encounters using all the identified dimensions. As such, some of the aspects of the SYSTRA-SQ are applicable to TASE whereas others need to be modified to be applicable. Service system quality and machine quality dimensions are applicable to the electronic banking scenario; these elements would require consumers to evaluate technologies such as the ATM and EFTPOS equipment that facilitate electronic banking transactions. By contrast, the behavioural service quality and service transactional dimensions, which involve evaluating the bank's personnel, are largely inapplicable to TASE.

2.3.4.4 TRI

Parasuraman (2000) developed the technology readiness index (TRI) on the basis of the paradoxes of technology adoption identified by Mick and Fournier (1998) (discussed later in this chapter). The TRI is a measure designed to assess consumers' likelihood of adopting various technologies on the basis of four dimensions: optimism, innovativeness, discomfort, and insecurity (Parasuraman, 2000). According to Parasuraman (2000), consumers who are optimistic have positive perceptions of technology because it provides them with flexibility and efficiency whilst facilitating control over their activities. The innovativeness dimension alludes to consumers who adopt technologies during the early stages of the product life cycle in order to be perceived as pioneers or opinion leaders (Parasuraman, 2000). Discomfort is described as a likely outcome when consumers feel they have no control over the technology and insecurity is likely when consumers are uncertain about the capabilities of the technology (Parasuraman, 2000).

A significant shortcoming of the TRI index is that it attempts to measure consumers' likelihood of adopting technology yet it is based on Mick and Fournier's (1998) paradoxes of technology adoption which relate to consumers' perceptions after the adoption of technologies. Therefore, the TRI may not be pertinent to this study because it focuses on consumers' perceptions pre-adoption of new technologies while the current study explores consumers' opinions post-adoption of new technologies.

2.3.5 Techniques

The critical incident and sequence oriented problem identification techniques have also been used to determine how consumers evaluate their levels of satisfaction and/or dissatisfaction with service encounters in various industries. These techniques are discussed below.

2.3.5.1 Critical incident technique

This technique is used to identify the elements of a service encounter that lead to customer satisfaction or dissatisfaction (Bitner, Booms, & Tetreault, 1990). This

technique involves collecting data through the stories that consumers tell about their service encounters (Bitner et al., 1990; Nick & Tyas, 1997). To qualify as critical incidents consumers' stories must satisfy four criteria; they must involve customer-employee interaction, the consumer must perceive them as very satisfying or dissatisfying, each incident must be distinct, and the incidents must be detailed enough to be imagined by the interviewers (Bitner et al., 1990, p 73). The incidents that consumers discuss are then analysed to determine the criteria that are critical to the service encounter (Bitner et al., 1990; Nick & Tyas, 1997).

A significant limitation of the critical incident technique is the requirement that the incidents should be either very satisfying or dissatisfying (Matzler & Sauerwein, 2002). According to researchers if consumers report dissatisfying incidents it is difficult to establish whether the whole service encounter was dissatisfying and had no positive incidents or whether the positive incidents were apparent but not reported by consumers because they form part of their basic expectations of the service encounter (Matzler & Sauerwein, 2002).

The critical incident technique in its current form would not be applicable to TASE because these service encounters do not satisfy the condition of customer-employee interaction. However, if this condition is eliminated the technique may be applicable as consumers could report satisfying or dissatisfying incidents relating to their electronic banking transactions.

2.3.5.2 SOPI

The sequence-oriented problem identification (SOPI) technique is based on the critical incident technique (Gunther et al., 1996). Thus, factors that result in consumers' satisfaction or dissatisfaction with a service encounter are identified from the satisfying and dissatisfying incidents that consumers report (Bitner et al., 1990; Nick & Tyas, 1997). As it is based on the critical incidents technique the stories consumers tell must involve customer-employee interaction, they must be distinct, and they must be detailed enough to be imagined by the interviewers (Bitner et al., 1990).

However, there are two main differences between the SOPI technique and the critical incident technique. Firstly, whereas the critical incident technique requires consumers to report only incidents that are very satisfying or dissatisfying the SOPI technique requires consumers to identify all incidents of the service encounter including those that they perceive to be neutral or minor (Bitner et al., 1990; Gunther et al., 1996). Secondly, the SOPI technique acknowledges that there are various stages of the service delivery process and that consumers' perceptions of satisfaction and/or dissatisfaction may differ at the various stages (Hui, Thakor, & Gill, 1998). Consequently, consumers are required to report distinct incidents relating to all stages of the service delivery process (Gunther et al., 1996).

Like the critical incident technique, the SOPI technique in its current form is largely inapplicable to TASE because the incidents that consumers relate are required to involve personal contact with employees. However, if this condition is not necessary the SOPI technique may be applicable because it would require consumers to report incidents relating to each of the stages of their electronic banking transactions, from the access phase of the service delivery process to the disengagement phase when they complete their transactions. This would highlight the factors and the stages of the service delivery process that have an effect on consumers' levels of satisfaction and/or dissatisfaction.

2.3.6 Summary

The preceding discussion has shown that the theories, instruments, and techniques used to examine consumers' evaluations of their service encounters are similar. The theories and some of the instruments (SERVQUAL and SYSTRA-SQ) are based on disconfirmation theory, which assumes that consumers form service quality and satisfaction judgements by explicitly comparing their expectations and perceptions of the service encounter. In addition, all the theories, instruments, and techniques acknowledge the significance of contact personnel during the service encounter and they mainly require consumers to evaluate their interactions with organisations' contact personnel.

Therefore it seems that these theories, instruments, and techniques may have to be adapted in order to be applicable to service encounters that are technology-based and involve minimal contact with employees. For example, dimensions that require consumers to evaluate the employees' performance on various criteria may need to be replaced with dimensions that require consumers to evaluate the equipment used to facilitate TASE.

In order to examine how consumers evaluate TASE it is essential to understand how consumers adopt technology. Thus, the following section of the literature review explores the technology adoption process.

2.4 Technology Adoption

In order to understand consumers' perceptions post-adoption of new technologies it is important to understand how they adopt the new technologies (Mahajan, Muller, & Bass, 1990). Therefore, this section begins by briefly outlining the categories of theories that have examined the processes consumers are likely to go through when adopting new technologies. This is followed by a discussion of some of the factors that researchers have identified as significant motivators of consumers' adoption of various technologies. The third part of this section discusses studies that have explored consumers' perceptions and behaviours after the adoption of technology. The final section includes a discussion of the studies specifically relating to the adoption of TASE.

2.4.1 The technology adoption process

Various studies have specifically explored consumers' technology adoption behaviours (Dover, 1988; Wilkie, 1994; Barczak et al., 1997; Swanson, Kopecky, & Tucker, 1997; Wiefels, 1997; Aggarwal, Cha, & Wilemon, 1998). These studies can be classified into four categories on the basis of their overall perspectives on the technology-adoption process. The categories are discussed below.

The first category includes studies that focus on the stages consumers are likely to go through from when they become aware of a new technology to when they adopt the technology (Rogers, 1983; Aggarwal et al., 1998; Evaristo & Karahana, 1998; Williams & Tao, 1998). According to this group of studies, consumers are likely to go through a five-stage process of adoption. During the initial stage, consumers become aware of the new technology's existence. In the second stage, consumers collect information about the new technology and they begin to form positive and/or negative opinions towards the different characteristics of the technology. This is followed by a decision to either adopt or reject the new technology. In the final stage of the adoption process consumers make decisions on whether the technology's performance met, exceeded, and/or fell short of their expectations.

The second category of studies explores the length of time that elapses between the introduction of a new technology and consumers' adoption of the technology (Bass, 1969; Edquist & Jacobson, 1988; Wilkie, 1994; Wiefels, 1997). These studies suggest that the diffusion rate of new technologies is a result of how soon consumers adopt technological innovations when they are available in the market. Bass (1969) classified consumers into two categories on the basis of how soon they adopt new technologies. These are innovators and imitators (Bass, 1969). The innovators adopt new technologies as soon as they are available. On the other hand, the imitators adopt new technologies because of positive verbal communication from the innovators and advertising from organisations. Additional studies have classified consumers into five categories on the basis of how soon they adopt new technologies when they are available (Rogers, 1983; Edquist & Jacobson, 1988; Wilkie, 1994). These categories include the innovators who adopt new technologies as soon as they are made available. The early adopters who adopt new technologies and then begin to inform other consumers about the advantages of the technologies follow them. The third category is the early majority who adopt the new technologies because of influence from others. The fourth category is the late majority whose awareness and adoption of new technologies depends on advertising and promotion. The final category is the laggards who are always the last to adopt new technologies because of the risks they associate with the technologies.

The third category of technology adoption theories consists of studies exploring the effects of consumers' demographic characteristics and stage in life cycle on the adoption process (Barczak et al., 1997; Swanson et al., 1997). Swanson et al. (1997) argue that the consumer's technology adoption rate is not dependent on the length of time that the technology has been in the market but the stage in the consumer's lifecycle when the technology is introduced. Swanson et al. (1997) state that there are four stages in the consumer's lifecycle. The first stage is the schooling age during which consumers are likely to spend a lot of time and money trying the new technologies that are made available. The second stage is the career stage during which consumers spend more time on developing their careers and less time trying new technologies. During the third stage, consumers are less inclined to adopt new technologies because they are getting older and they are planning for retirement. The final stage is the retirement stage during which consumers hardly adopt new technologies.

Finally, there are theories of technology adoption that address the nature of the technology being adopted (Dover, 1988; Wiefels, 1997). According to Wiefels (1997), the adoption of new technologies is not dependent on the stage in lifecycle of the technology or the consumer but on whether the technology is a continuous or discontinuous innovation. Continuous innovations have faster adoption rates than discontinuous innovations. Discontinuous innovations have slower adoption rates because they require consumers to learn new behaviours to use them (Wiefels, 1997).

All these studies on the technology adoption process illustrate Roger's (1983) assertion that there are four main elements that affect the diffusion of a new technology: the technology/innovation, the communication process, the consumer, and the length of time that the technology has been in the market. Thus, in an electronic banking scenario, in order to understand how consumers are likely to adopt the various modes of electronic banking, it is essential to examine four elements. They include; the modes of electronic banking available, the demographic and behavioural characteristics of electronic banking consumers, the length of time the various modes of electronic banking have been available, and how they are marketed to consumers.

According to Mahajan et al. (1990), technology adoption models that assume that consumers either adopt or reject new technologies are simplistic; they state that organisations need to acknowledge that there are six other factors that can affect the diffusion of new technologies. They are discussed below.

Firstly, other technologies that are present in the market can affect consumers' adoption of a new technology. For example, the availability of the telephone banking mode may adversely affect the adoption of the Online banking mode. This can occur if some consumers perceive the Online banking mode as unnecessary because they can conduct all the transactions that they require using the telephone banking mode. Secondly, the diffusion of one technology may be affected by the diffusion of another primary technology. For example, in an electronic banking scenario, a consumer's adoption of the Online banking mode depends on their adoption of computer and Internet technologies. Thirdly, the introduction of one technology may cannibalise the target market for an existing technology. For example, some consumers may reject telephone banking because they prefer Online banking perceiving it as easier to use and access. In so doing, the introduction of Online banking may have adverse effects on the adoption of telephone banking, by cannibalising its potential target market. Fourthly, the advertising of various technologies can affect their diffusion rates. Thus, the advertising of the existing modes of electronic banking can increase awareness and increase their rates of diffusion. Fifth, the price of a technology can affect its rate of diffusion. Accordingly, consumers' perceptions of the financial cost of conducting electronic banking transactions using the various modes available may affect their decisions to adopt or reject the technologies. Finally, consumers' perceptions of a new technology can affect its rate of diffusion. Thus, consumers who have positive views of the various modes of electronic banking are more likely to conduct technology-based banking transactions.

The preceding section briefly discussed the existing literature on consumers' technology adoption processes. In addition to the processes consumers are likely to go through researchers have also identified the factors that are likely to encourage

and/or discourage consumers from adopting new technologies. These factors are outlined in the following section.

2.4.2 Factors that motivate or dissuade technology adoption

In addition to exploring the processes consumers are likely to go through from awareness to the adoption of new technologies, some researchers have attempted to identify the specific factors that can motivate or dissuade consumers from adopting new technologies. They have found that some consumers have concerns regarding their ability to use various technologies; consequently they are more likely to adopt technologies they perceive as easy to use (Tornatzky & Klein, 1982; Davis, 1989; Rogers, 1995; Au & Enderwick, 2000; Meuter et al., 2000; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002).

Studies also show that consumers are dissuaded from adopting technologies that challenge their values and necessitate a change of behaviour; they prefer technologies that suite their existing lifestyles (Tornatzky & Klein, 1982; Ram & Sheth, 1989; Rogers, 1995; Au & Enderwick, 2000; Walker et al., 2002). For instance, a study exploring consumers' adoption of electronic banking in the U.S.A found that consumers who work with information technologies are more likely to adopt Internet banking because it suits their lifestyle and it does not require significant changes in their behaviour (Zhu et al., 2002).

Consumers' perceptions of risk and the financial cost may also inhibit their likelihood of adopting new technologies (Mansfield, 1968; Tornatzky & Klein, 1982; Ram & Sheth, 1989; Niederman, 1998; Bobbit & Dabholkar, 2001). In addition, consumers are likely to adopt technologies they can try out and technologies they perceive to be reliable (Tornatzky & Klein, 1982; Moore & Benbasat, 1991; Rogers, 1995; Meuter et al., 2000; Dabholkar & Bagozzi, 2002; Walker et al., 2002). Finally consumers are likely to adopt a technology if the advantages of the technology are apparent and can be communicated easily (Tornatzky & Klein, 1982; Rogers, 1995; Gow, 1997; Sathye, 1999; Au & Enderwick, 2000; Meuter et al., 2000). Some researchers argue that in some instances the consumers' social groups may influence their likelihood of adopting technology (Tornatzky & Klein, 1982; Moore &

Benbasat, 1991; Fisher & Price, 1992; Segrest, Domke-Damonte, Miles, & Anthony, 1998). A study exploring factors that influence consumers' adoption of microcomputers in Nigeria found that social influence in this context was a more significant motivator of technology adoption than perceived ease of use and enjoyment of the new technology (Anandarajan, Igarria, Anakwe, 2000).

This section discussed the processes consumers are likely to go through when adopting new technologies. It outlined factors that may affect consumers' adoption of new technologies. The following section explores consumers' perceptions after they have adopted the technologies.

2.4.3 Post-adoption

As noted in the previous section Mahajan et al., (1990) suggest that studies on consumers' technology adoption are limited because they do not explore situations where consumers adopt new technologies and then reject them. In fact, researchers exploring the adoption of electronic banking have found that some consumers adopt the Online banking mode and then reject it (Nelson, 2000; Rubino, 2000). Therefore, it is essential to explore consumers' views and behaviours after they have adopted new technologies because these views and behaviours may affect their levels of dis/satisfaction and their continued use of technologies they have adopted. To date, few researchers have that focused on consumers' perceptions and behaviours after they have adopted a new technology (Mick & Fournier, 1998; Meuter et al., 2000; Harfield, Driver, & Beukman, 2001; Van Riel et al., 2001; Jamal & Naser, 2002; Zhu et al., 2002). The studies have found that consumers develop positive views towards the technologies they have adopted if they perceive them to be easy to use, convenient, cost and time efficient, and intriguing. On the other hand, consumers can develop negative opinions if the technologies do not perform the required tasks.

Mick and Fournier (1998) studied the development of consumers' attitudes once they had adopted new technologies. They found that post adoption consumers are likely to experience eight paradoxes; control/chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfils/creates

needs, assimilation/isolation, and engaging/disengaging (Mick & Fournier, 1998, p126). These paradoxes are briefly described below.

Technology evokes feelings of control when consumers can use it to direct their activities, while chaos results when the technology inhibits their activities and causes turmoil. Consumers are likely to experience feelings of freedom when their use of the technology overcomes some restrictions and increases their independence; on the other hand, they are likely to experience enslavement when they become dependent on the technology and it limits their activities. Consumers may experience the new/obsolete paradox when new technological innovations outmode existing technologies with which consumers are familiar.

New technologies result in feelings of competence when consumers can use them successfully, whereas they can result in feelings of incompetence when consumers cannot use them successfully. The use of technology may result in efficiency when activities take less time or inefficiency when the activities require more time and effort. Consumers can also experience the fulfils/creates needs paradox. This can occur when technology helps to fulfil some needs and at the same time it highlights other needs. Assimilation is likely when technology results in human togetherness, whereas isolation is likely when it results in human separation. Finally, technology is engaging when consumers enjoy its use and it facilitates activities. It can be disengaging when it results in distraction and inhibits activities. The following section discusses the existing literature on TASE.

2.4.4 TASE

Findings from the existing literature suggest that the factors that can motivate or dissuade consumers from adopting various technologies are the same factors consumers are likely to rely on when evaluating TASE (Au & Enderwick, 2000; Meuter et al., 2000; Bobbit & Dabholkar, 2001; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002). These factors include: perceived ease of use, compatibility with values and lifestyle, perceptions of risk, perceptions of financial cost, trialability, reliability, social influence, perceived advantages, and communicability (Ram & Sheth, 1989; Tornatzky & Klein, 1982; Davis, 1989;

Moore & Benbasat, 1991; Fisher & Price, 1992; Rogers, 1995; Gow, 1997; Segrest et al., 1998; Au & Enderwick, 2000; Meuter et al., 2000; Bobbit & Dabholkar, 2001; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002).

To date, however, some studies have specifically sought to identify the criteria consumers are likely to use when evaluating the technologies they have already adopted (Davis, Bagozzi, & Warsaw, 1989; Dabholkar, 1996; Segrest et al., 1998; Joseph et al., 1999; Anandarajan, Igbaria, & Anakwe, 2000; Meuter et al., 2000; Parasuraman, 2000; Al-Ashban & Burney, 2001; Van Riel et al., 2001; Aldaigan & Buttle, 2002; Dabholkar & Bagozzi, 2002; Walker, Craig-Lees, Hecker, & Francis, 2002; Zhu et al., 2002; Hutchinson & Warren, 2003). These studies have found that consumers are likely to evaluate the technologies that they adopt on the basis of the following criteria: perceived ease of use, usefulness of the technologies, convenience, time savings, cost savings, accessibility, perceived security, reliability, enjoyment, control, social influence, and innovativeness. The studies have also shown that consumers' level of confidence and self-consciousness when using the new technologies can affect how they evaluate them (Dabholkar & Bagozzi, 2000).

2.4.5 Banking technology

Researchers contend that financial institutions adopt technologies that facilitate service delivery processes because these technologies lower the cost of providing consumers with account management services like checking their transaction statements and account balances (Al-Ashban & Burney, 2001; Mulligan & Gordon, 2002). In addition, these technologies facilitate effective market segmentation allowing the institutions to adapt the financial services they provide to their particular consumers (Dawes & Brown, 2000; Al-Ashban & Burney, 2001). These service delivery technologies can have positive or negative effects on the services provided to consumers. For example, according to Joseph et al. (1999, p188), retail-banking technologies can have a positive effect on the “convenience/accuracy of transactions, feedback and complaint management, efficiency, queue management, customisation, and accessibility”.

Consequently, researchers have begun to explore how consumers adopt and evaluate service encounters that involve the use of retail-banking technologies.

Earlier studies explored consumers' adoption rates/patterns and evaluations of EFTPOS and ATM transactions. The studies have shown that consumers are motivated to use EFTPOS and ATMs if they are accessible, easy to use and convenient (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Filotto, Tanzi, & Saita, 1997; Liao et al., 1999; Merrick, 2000; Al-Ashban & Burney, 2001; Reid, 2001). On the other hand, consumers are less likely to use both modes of electronic banking when they think that the transaction costs are high, when the transactions are time consuming, when they have concerns regarding security, when they cannot remember their personal identification numbers (PIN), when they do not know how to use the equipment and/or when they do not know where to find the facilities (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Filotto et al., 1997; Liao et al., 1999; Tan et al., 1999; Merrick, 2000; Reid, 2001). Similarly, findings from a study of ATM and EFTPOS users in Norway shows that consumers are more likely to adopt these banking technologies if they perceive them as easy to use, easy to access, and convenient (Humphrey et al., 2001).

Al-Ashban & Burney (2001) studied consumers' use of telephone banking in Saudi Arabia and Howcroft et al. (2002) examined the use of telephone banking in the U.K. Both studies found that consumers are motivated to use telephone banking if they think that it is easy to use, ease to access, convenient, transactions take less time, and the service charges are reasonable.

Researchers have also explored how banking consumers in Turkey, the UK, and the USA evaluate Internet/Online banking transactions (Jayawardhena & Foley, 2000; Mellor, 2000; Rubino, 2000; Anonymous, 2001; Jun & Cai, 2001; Polatoglu & Ekin, 2001; Howcroft et al., 2002; Karjaluoto et al., 2002; Sparta, 2002; Zhu et al., 2002). They have found that consumers are likely to evaluate Internet/Online banking transactions using the following criteria: perceived ease of use, speed of transaction, quality of the Internet site, quality of information available, perceived security of transactions, easy accessibility (in terms of connection to bank's Internet site), responsiveness, reliability, convenience, cost, and the ability to personalise their transactions. A study of Internet banking consumers in Australia found that Australian consumers are slow to adopt Internet banking because of security

concerns, lack of adequate information on the services available and inadequate information on the benefits of Internet banking (Sathye, 1999).

As noted in section 2.4.3, some consumers adopt Internet banking and then reject it (Rubino, 2000; Merrick, 2000; Nelson, 2000). Studies of Internet banking consumers in the USA have found that some consumers who have already adopted Internet banking reject it after a while for the following reasons; the Internet banking transactions are too difficult, they have to complete too many forms making the transactions time consuming, they want to transfer funds to other financial institutions but they are unable to, the Internet services are not personalised, and the financial institutions take too long to handle e-mail queries (Merrick, 2000; Rubino, 2000).

2.4.6 Summary

The preceding sections outlined the technology adoption processes, factors that can affect consumers' adoption of new technologies, and consumers' perceptions post adoption of technologies. The sections have also presented the existing studies on consumers' adoption and evaluation of retail banking technologies. These sections have shown that the diffusion rate of new technologies depends on the following factors; the type of technology, consumers' characteristics, communication process, length of time the technology has been available, other technologies that are available, and the financial cost of the technology (Rogers, 1983; Mahajan et al., 1990). The previous sections have also showed that consumers' adoption of new technologies can be affected by elements such as perceived ease of use, financial cost of the technology, social group influence, and compatibility with consumers' existing lifestyles (Mansfield, 1968; Ram & Sheth, 1989; Rogers 1995; Fisher & Price, 1992; Meuter et al., 2000).

Consumers' views post-adoption of new technologies are also significant. Consumers can form positive and/or negative opinions towards technologies they have adopted and these opinions can affect their levels of dis/satisfaction and/or their continued use of the technologies (Mick & Fournier, 1998; Nelson, 2000; Rubino, 2000). Consequently, some researchers have begun to explore how consumers evaluate TASE (Davis et al., 1989; Dabholkar, 1996; Anandarajan et al., 2000;

Meuter et al., 2000; Walker et al., 2002). They have found elements such as perceived ease of use, accessibility, cost, and enjoyment can affect consumers' levels of dis/satisfaction with TASE. Other studies have focused on consumers' evaluations of TASE that are facilitated by the available retail banking technologies (Ram & Sheth, 1989; Rogers, 1995; Segrest et al., 1998; Dabholkar & Bagozzi, 2002). These studies have found that consumers are likely to evaluate TASE facilitated by the modes of electronic banking using decision criteria such as the ease of using the modes, perceptions of risk, perceptions regarding the benefits of the modes, and compatibility with their lifestyles.

2.5 Conclusion

The literature review chapter has illustrated the significance of the service delivery process to consumers' overall perceptions of the quality of service provided by organisations (Lehtinen & Lehtinen, 1982; Danaher & Mattsson, 1994; Gronroos, 1998). Traditionally services have been delivered through personal contact between an organisation's employees and its consumers. The literature review has outlined the theories that have been proposed to explain how consumers evaluate their service encounters and the instruments and techniques that have been used to measure consumers' perceptions of service quality and their evaluations of satisfaction and/or dissatisfaction. The theories, instruments, and techniques that have been reviewed suggest that personal contact is the most significant element of the service delivery process (LeBlanc & Nguyen, 1988; Howcroft & Anthony, 1993; Nicholls et al., 1998; Gabbott & Hogg, 2000).

Recent technological innovations have changed the way some services are delivered. Technology-based service delivery modes have made consumers a significant part of the service delivery process because consumers can now deliver their own services and have minimal contact with an organisation's personnel (Grove et al., 1998; Webb, 2000). Changes in the way services are delivered to consumers is likely to result in changes in how consumers evaluate the services (Lovelock & Young, 1979; Gronroos, 1984; Zeithaml, et al. 1990).

Therefore, researchers have begun to explore how consumers adopt and evaluate TASE, and their findings suggest that consumers are likely to evaluate TASE using decision criteria such as perceived ease of use, compatibility with values and lifestyle, perceptions of costs, trialability, convenience, accessibility, enjoyment, reliability, risk and security (Ram & Sheth, 1989; Davis, 1989; Moore & Benbasat, 1991; Rogers, 1995; Segrest et al., 1998; Au & Enderwick, 2000; Meuter et al., 2000; Bobbit & Dabholkar, 2001; Van Riel et al., 2001; Dabholkar & Bagozzi, 2002; Walker et al., 2002).

Some researchers have begun to explore how consumers evaluate TASE in the retail banking industry in particular (see Appendix A, p 289). Most of these studies have explored consumers' adoption and evaluation of EFTPOS and ATM banking modes (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Filotto et al., 1997; Liao et al., 1999; Merrick, 2000; Al-Ashban & Burney, 2001; Reid, 2001). Few studies have focused on consumers' adoption and evaluations of telephone banking (exceptions include Barczak et al., 1997; Al-Ashban & Burney, 2001; Black, Lockett, Winklhofer, & Enew, 2001; Howcroft et al., 2002) and Internet/Online banking (exceptions include Jayawardhena & Foley, 2000; Mellor, 2000; Rubino, 2000; Anonymous, 2001; Jun & Cai, 2001; Polatoglu & Ekin, 2001; Howcroft et al., 2002; Karjaluoto et al., 2002; Sparta, 2002; Zhu et al., 2002). Even fewer studies have examined Australian consumers' adoption and evaluation of Internet/Online banking (exceptions include Slowikowski & Jarratt, 1997; Sathye, 1999). To date, no known study has sought to examine whether consumers are likely to use the same criteria when evaluating the four modes of electronic banking or whether consumers who use the various modes of electronic banking are likely to experience the paradoxes of technology adoption identified by Mick and Fournier (1998). This study aims to expand on the existing literature by addressing these gaps. The following chapter discusses the research methodologies applied.

CHAPTER 3

METHODOLOGY

3.1 Introduction

This chapter describes the research methodologies used to address the research question. Both qualitative and quantitative research methods were used to examine how consumers evaluate TASE in the retail banking industry. Researchers recommend the use of qualitative methods of research when detailed insights into consumers' behaviours and attitudes are necessary (Jick, 1979; Bryman, 1984; Bartos, 1986; Moran, 1986; McCracken, 1988; Robson & Foster, 1989; Gilmore & Carson, 1996; Hammersley, 2000). Furthermore, when used as a prelude to quantitative research, qualitative methods aid in the development of the quantitative phase of a study (Hoinville & Jowell, 1978). For instance, they help identify terminology used by the population of interest, which is later used to develop survey questionnaires (Hoinville & Jowell, 1978; Jick, 1979; Deshpande, 1983; Bryman, 1984; Bartos, 1986; Goldman & McDonald, 1987; Robson & Foster, 1989). Therefore, the qualitative phase of this study preceded the quantitative phase. Prior to discussing the qualitative and quantitative methodologies it is imperative to reiterate the research questions guiding this study.

3.2 Research Questions

The research questions guiding the initial stage of this study are:

1. What criteria do consumers use to evaluate TASE in the Western Australian retail banking industry?
2. Do consumers use the same criteria to evaluate all TASE in the retail banking industry or do the relevant criteria change with the mode of electronic banking in use?

3. Do consumers' characteristics influence the criteria they are likely to use when evaluating TASE in the retail banking industry?
4. Do consumers' opinions of the relevant criteria affect their usage rates of the retail banking technologies they have adopted?
5. Do consumers who conduct technology-assisted banking transactions experience the paradoxes of technology adoption identified by Mick and Fournier (1998)?

3.3 Qualitative Phase

3.3.1 Overview

The qualitative data were collected through in-depth interviews. The interviews facilitated the collection of detailed information regarding consumers' TASE in the retail banking industry. Interviews were used because they are flexible (Bryman, 1984) and the type of data collected was modified as new information became apparent. Finally, the qualitative data facilitated the identification of variables and the development of research propositions for the quantitative phase of the study.

It is important to note that the use of qualitative data has two main disadvantages: firstly, data collection involves the use of small samples, which may not be representative of the target population (Bartos, 1986; Baxter & Eyles, 1999). Secondly, data collection relies on the memories and perceptions of respondents and both are subjective (Kadushin & Kadushin, 1997; Baxter & Eyles, 1999). However, for the purposes of this study, the advantages of using qualitative data outweighed the disadvantages due to the ability of interviewees to provide detailed information regarding their perceptions and usage patterns of the four modes of electronic banking. The next section discusses the sample selection method that was used and describes the resulting qualitative sample.

3.3.2 Sample

The target population for this data collection phase was current users of electronic banking in Western Australia. This is because current users are able to provide information on the different electronic banking modes they use, the factors that influence their choice of mode, and their opinions of the modes. The population was limited to those in Western Australia because of the higher costs of collecting data Australia-wide.

The snowballing technique was used to select a sample of 20 interviewees from the population. The snowballing technique involves asking potential respondents to introduce the researcher to other potential informants (Churchill, 1991; Neuman, 1994; Minichiello, Aroni, Timewell, & Alexander, 1995; Sarantakos, 1998). Researchers advocate the use of snowballing when sampling frames and information on the target population are unavailable (Stangor, 1998; Bouma, 2000). In this study, snowballing was used to overcome the difficulty of obtaining sampling frames or specific information on consumers who use the various modes of electronic banking in Western Australia. According to the Australian Bureau of Statistics (2001), by May 2000, 67% of Australians carried out electronic banking transactions using EFTPOS, 74% used ATMs, 51% used telephone banking, and 8% used Online banking. So, it was assumed that potential interviewees who use Online banking would be fewer and more difficult to access than interviewees who use the other modes of electronic banking (EFTPOS, ATM, and telephone banking). Therefore, the sampling process began by asking colleagues to introduce the researcher to consumers who use Online banking. These interviewees were then asked to introduce the researcher to other potential interviewees who use any of the four modes of electronic banking.

A significant limitation of the snowballing technique is that it increases the risk of obtaining a non-representative sample because the characteristics of the resulting sample may differ from the characteristics of the target population (Sarantakos, 1998; Stangor, 1998). Some researchers suggest that unrepresentative samples are typical in qualitative studies because they generally rely on small samples (Bartos, 1986; Pope, Ziebland, & Mays, 2000). Others indicate that aiming to get a sample with a good spread of demographic characteristics may significantly

reduce the risk of having a non-representative sample (Oppenheim, 1992). Thus, when selecting a sample for this study, interviewees were asked to introduce the researcher to potential respondents with particular demographic characteristics. However, emphasis in recruitment was on the modes of electronic banking used by potential interviewees. Thus, the researcher ensured that several interviewees represented each of the four modes of electronic banking; seven respondents reported that they used EFTPOS, 17 respondents used ATMs, 14 respondents used telephone banking and seven respondents used Online banking. Table 1 illustrates the age and gender distribution of the resulting sample along with the electronic banking modes used.

Table 1 : Qualitative sample characteristics

Respondent*	Gender	Age	EFTPOS	ATM	Phone	Online
Nancy	Female	18-24	Yes	Yes	Yes	Yes
Anna	Female	18-24	No	Yes	Yes	Yes
Esther	Female	25-34	No	Yes	Yes	Yes
Mathew	Male	25-34	No	Yes	Yes	Yes
Ronnie	Male	25-34	No	Yes	Yes	Yes
Louise	Female	25-34	Yes	Yes	No	No
Judy	Female	25-34	Yes	No	Yes	No
George	Male	35-49	No	Yes	Yes	No
Sarah	Female	35-49	Yes	Yes	Yes	No
John	Male	35-49	No	Yes	No	No
Lucy	Female	35-49	No	Yes	No	No
Simon	Male	35-49	Yes	Yes	Yes	Yes
Brenda	Female	35-49	Yes	Yes	Yes	No
Kevin	Male	35-49	No	Yes	Yes	Yes
June	Female	35-49	No	Yes	Yes	No
Andrew	Male	50-64	No	Yes	No	No
Timothy	Male	50-64	No	No	Yes	No
Terence	Male	50-64	Yes	Yes	Yes	No
Craig	Male	50-64	No	Yes	No	No
Angela	Female	65+	No	No	No	No

* These are pseudonyms

3.3.3 In-depth Interviews

Semi-structured in-depth interviews were used to collect the qualitative data. These are interviews during which researchers use question guides to ask informants

similar questions regarding their thoughts, beliefs, and feelings towards a particular subject (Kinneer, Taylor, Johnson, & Armstrong, 1993; Neuman, 1994). Researchers recommend the use of in-depth interviews during the initial stages of research and/or when there is limited information regarding respondents' attitudes and opinions towards a particular phenomenon (Oppenheim, 1992; Denzin & Lincoln, 1994; Fontana & Frey, 1994; Minichiello, et al. 1995; Chisnall, 1997; Berg, 1998; Bouma, 2000). Semi-structured in-depth interviews were appropriate for this study because the available information on how consumers are likely to evaluate technology-assisted banking transactions is limited. Therefore, while interviewees were allowed to openly discuss their opinions towards the various modes of electronic banking a question guide was used to ensure that the interviewees gave their perceptions on additional topics of interest.

Potential interviewees received a telephone call during which they were asked to participate in the in-depth interviews. Those who agreed to participate were then asked to nominate a place and time for the interview, so that they could select comfortable and familiar surroundings. The interviewees were asked to nominate the time and place for the interviews because studies show that the location of the interview may have significant effects on the rapport between the interviewer and the interviewee (Smith, Harrel, & Langerhouse, 1995; Limerick, Burgess-Limerick, & Grace, 1996; Kadushin & Kadushin, 1997; Elwood & Martin, 2000). The freedom to nominate the location for the interview may shift control of the interview from the interviewer to the interviewee during various points of their discussion (Smith, et al. 1995; Limerick et al., 1996; Kadushin & Kadushin, 1997; Elwood & Martin, 2000). This may have a positive effect because interviewees who feel that they are in control of the interview are more likely to discuss issues from a more personal level and to answer questions in detail, thus providing richer and more valuable information (Elwood & Martin, 2000). Conversely, it may have a negative effect if it results in the reduction of the power and the lessening of the control of the interviewer (Limerick et al., 1996). In order to overcome this potential loss of control during the interview, the researcher used a question guide to keep the interview focused on the use of the various modes of electronic banking. Three interviewees chose their places of work while 14 respondents chose to have their interviews in their homes (in three of these interview sessions two interviewees were interviewed simultaneously).

The in-depth interviews were conducted using the funnel approach. This involves establishing rapport between the interviewer and the interviewee by talking about broad issues during the initial stages of the interview and then progressing on to more specific issues (Kidder, Judd, & Smith, 1986; McCracken, 1988; Fontana & Frey, 1994; Minichiello et al., 1995; Chisnall, 1997; Berg, 1998). Thus, each in-depth interview began with a general discussion on the interviewee's overall opinions of Western Australian banks, which was followed by questions that were more specific to the electronic banking modes used. Most of the questions used during the in-depth interviews were open-ended (see Appendix B, page 299). This is because studies show that using open-ended questions allow interviewees to voluntarily initialise discussions on particular issues by addressing those issues that they consider to be important (Kadushin & Kadushin, 1997).

Open-ended questions are also advantageous because they give the interviewer the flexibility to change the order of questions during the interview discussion. However, a significant limitation of open-ended questions is that they can elicit indistinct responses (Kadushin & Kadushin, 1997). Therefore, the interviewees were probed for more detail and further explanations of unclear responses. Researchers recommend the use of probing, particularly when the meaning/use of phrases and words used by respondents is unclear to the interviewer (Minichiello et al., 1995; Baxter & Eyles, 1999). Probing may also be used as a validity check for responses provided by the interviewees (Kidder et al., 1986; McCracken, 1988). Probing is also valuable because it results in detailed responses that may be useful for identifying and developing response categories for survey questionnaires (Kidder et al., 1986; Goldman & McDonald, 1987; McCracken, 1988; Churchill, 1991; Minichiello et al., 1995; Smith et al., 1995; Berg, 1998; Sarantakos, 1998). The most innocuous probes usually involve asking respondents to describe ideal situations (Kidder et al., 1986). In this study, probing involved asking interviewees to expand on the terms they use to describe their electronic banking transactions, terms such as 'convenience'. The interviewees were also asked to describe the characteristics of ideal electronic banking transactions.

Though in-depth interviews have significant advantages, they also have some shortcomings. Firstly, the informants may provide inaccurate responses. This may

occur when informants want to present an intellectual image and in so doing they provide incorrect responses to the questions (Durgee, 1986). It may also occur when informants are embarrassed about telling the truth (Breakwell, 1995). Some informants may provide inaccurate responses when they have limited information on the discussion issue or when they cannot recall the required information (Breakwell, 1995). Some informants may also “have their own agenda” (Limerick et al., 1996, p455), such as when the interviewees use the interview as a forum for expressing their concerns regarding particular issues. A second disadvantage of in-depth interviews is that it is difficult to preclude interviewer bias (Churchill, 1991; Sarantakos, 1998). In order to avoid inaccurate responses the initial stages of the interviews were aimed at establishing rapport in order to encourage the honest disclosure of opinions from the interviewees. The interviewer also avoided inaccurate responses by asking the interviewees to discuss the modes of electronic banking they reported using and by ensuring that the questions did not deal with potentially embarrassing issues. Furthermore, repeating significant questions differently at later stages of the interview checked the accuracy of the responses provided by the interviewees. Notwithstanding their limitations, semi-structured interviews were used to collect data for this study because they allowed the collection of detailed information regarding interviewees’ perceptions of electronic banking and the factors that they use to evaluate TASE that are facilitated by the modes they reported using.

3.3.4 Data Analysis

Researchers recommend that in-depth interviews be tape recorded in order to maintain a precise record of discussions (Smith et al., 1995). Weitzman & Miles (1995) and Crouch & Housden (1996) recommend the use of N.U.D.I.S.T (Non-Numerical Unstructured Data Information Searching, Indexing, and Theorizing) software to analyse and categorise data collected during interviews. N.U.D.I.S.T. facilitates analysis through easy identification and classification of different categories of data (QSR, 1997). The in-depth interviews were tape-recorded and transcribed and the transcripts were then imported into N.U.D.I.S.T. for coding.

Coding is a fundamental step in qualitative data analysis as it aids the identification of themes and categories that emerge from the data and helps the researcher recognise the main issues of concern to interviewees (Miles & Huberman, 1984; Strauss, 1990; Strauss & Corbin, 1998; Pope et al., 2000). Researchers advocate the use of line unit coding during the initial stages of data analysis (Strauss, 1990; Morse, 1994; Creswell, 1998; Flick, 1998). The code categories can be derived inductively and/or deductively (Strauss, 1990; Strauss & Corbin, 1998; Pope et al., 2000). Codes that are derived inductively emerge from the data as a result of words, phrases and statements used by interviewees (Strauss, 1990; Strauss & Corbin, 1998; Pope et al., 2000). Deductive coding involves analysing data using ‘a priori’ codes, which are themes that are identified in previous research (Miles & Huberman, 1984; Weitzman, 1999; Pope et al., 2000).

The qualitative data were analysed in two stages. During the first stage the interview data were coded inductively using line unit coding. This entailed analysing the data line-by-line and identifying the words, terms, and phrases the interviewees used to discuss the modes of electronic banking they reported using. Saturation was reached when all the lines in each of the interview transcripts had been coded and additional themes did not seem to emerge from the data. The resulting line unit codes were then collapsed into fewer codes on the basis of the key issues, patterns, and themes that became apparent. The resulting themes and categories are discussed later in chapter 4, section 4.2. As noted previously, one of the aims of this study was to examine whether consumers who use electronic banking can experience the paradoxes of technology adoption identified by Mick and Fournier (1998). As such, the paradoxes of technology adoption (discussed in the literature review chapter 2) were used to develop ‘a priori codes’. These codes were used during the second stage of the qualitative data analysis where the interview data were analysed and coded deductively, the findings of which are discussed in chapter 4, section 4.3. A summary of the resulting inductive and deductive codes is provided in Appendix C (page 300).

3.3.5 Summary

The preceding sections have shown that the qualitative data were collected through 20 semi-structured interviews with Western Australians who reported that they used at least one of the various modes of electronic banking. These interviewees were able to discuss their perceptions of technology-based service encounters in the retail banking industry. The findings of the qualitative study are presented and discussed in chapter 4. These findings were used to develop the instrument used in the quantitative phase of this study. The following sections describe the rationale of the quantitative research methodology that was used.

3.4 Quantitative Phase

3.4.1 Overview

A significant limitation of the qualitative findings was their lack of generalisability because they were obtained from a small sample of 20 interviewees. In such situations, researchers propose the use of survey research to explore the generalisability of findings (Jick, 1979; Deshpande, 1983). They also suggest that the words, terms and phrases from the interviews should be used to develop questionnaires in order to assist consumers in communicating their views towards the phenomena being studied (Jick, 1979; Goldman & McDonald, 1987). Therefore, the aim of the quantitative phase of this study was to examine consumers' opinions of the relevant criteria identified in the qualitative stage and to determine the effect these criteria have on their usage rates of the adopted modes of electronic banking. Consequently, the findings from the qualitative stage of this study were used to develop a survey questionnaire.

3.4.2 Rationale

As noted in chapter 1, the aim of the current study is to identify the criteria that active users of electronic banking in Western Australia are likely to use when evaluating their TASE and to determine if the criteria affect consumers' usage patterns. Findings from the qualitative stage of this study identified these criteria. Therefore, the purpose of the quantitative phase was to explore Western Australian consumers' general perceptions on the identified criteria and to explore how their opinions of these criteria affect their usage rates of the four modes of electronic banking.

The principle assumption of this approach was that consumers' attitudes guide their behaviour. Studies by various researchers demonstrate that consumers' attitudes influence their behaviour (Ajzen & Fishbein, 1980; Fazio, Powell, & Williams, 1989). In particular, studies show that positive attitudes have a positive effect on consumers' levels of satisfaction with an organisation's services and they result in higher usage rates and repurchase intentions (Gabarino & Johnson, 2001; Bolton & Lemon, 1999).

The theory of reasoned action posits that consumers' attitudes influence their behaviour by influencing their intentions to behave in a particular manner (Ajzen & Fishbein, 1980, p 8). The theory suggests that consumers' thoughts and opinions towards certain behaviours and their perceptions of society's expectations regarding the same behaviour have a direct impact on their intentions to engage in the behaviour (Ajzen & Fishbein, 1980, p 8). The intentions are more likely to lead to and/or influence behaviour when they are unwavering and intense (Ajzen & Fishbein, 1980; Fazio et al., 1989; Bagozzi, Davis, & Warshaw, 1992). Researchers have used the theory of reasoned action to predict consumers' behaviour in various settings. For example, Becker and Gibson (1998) applied the theory when examining whether respiratory care practitioners intended to complete a baccalaureate degree through distance education and Athiyaman (2002) explored consumers' intentions to purchase airline tickets through the Internet instead of using travel agents. In both studies, the researchers' findings were that consumers' attitudes were predictors of their behavioural intentions (Becker & Gibson, 1998; Athiyaman, 2002). Thus, the underlying assumption for the quantitative stage of this study was that consumers'

intentions to use electronic banking are influenced by their attitudes towards the four modes of electronic banking. These intentions will then lead to the use of electronic banking if they are strong and consistent. However, Bagozzi et al., (1992) note that the attitudes that influence consumers' intent to use technology may be different from attitudes that lead to consumers' actual use of technology, particularly if the consumers associate the use of technology with negative outcomes. As such, this current study explored the attitudes that led to consumers' actual use of the four modes of electronic banking as opposed to attitudes that lead to consumers' intentions of using the modes of electronic banking.

Studies also show that consumers who have positive attitudes towards an organisation's services tend to be more satisfied with the services and they tend to have higher repurchase intentions and/or usage rates for the services. For example, studies on consumers' attendance of a theatre company (Gabarino & Johnson, 2001), use of interactive television and cellular network services (Bolton & Lemon, 1999), evaluations of hairstylists and barbers (Jones & Suh, 2000), attendance at fast-food restaurants (Brady & Robertson, 2001), and use of household moving services (Spreng, Harrell, & Mackoy, 1995) all show that consumers who are more satisfied with the organisations' services have higher usage rates. In these studies, consumers' attitudes were seen to have an indirect effect on usage rates by directly affecting consumers' levels of satisfaction/dissatisfaction with the service encounter. In a similar manner, the assumption guiding this study is that consumers' opinions towards the use of the various modes of electronic banking are likely to have an effect on their levels of satisfaction/dissatisfaction and consequently their continual use and usage rate of the various modes of electronic banking. The quantitative phase of this study examines consumers' views on the factors that can affect their levels of use of the various modes of electronic banking. Based on the findings of these previous studies positive thoughts are expected to result in higher usage levels indicating satisfaction, while negative views are expected to result in lower usage levels indicating sources of dissatisfaction.

3.4.3 Survey Methodology

A survey was used to determine Western Australian consumers' opinions towards technology-based service encounters in the retail banking industry and the effects these opinions have on their use of the available modes of electronic banking. A self-administered mail questionnaire was used to collect data.

Mail questionnaires are advantageous in studies such as this for a number of reasons. Firstly, mail questionnaires provide access to respondents who are geographically dispersed at a lower cost per unit compared to other survey methods (Hoinville & Jowell, 1978; Miller, 1983; Schuman & Kalton, 1985; Donsbach, 1997). In this study, a mail survey facilitated the collection of data from respondents in the four regions of Western Australia - Great Northern, Central, Eastern and South Western regions. Secondly, it was necessary to ask respondents similar questions in order to examine the pervasiveness of the criteria identified in the qualitative study, so mail questionnaires were used because they allow the use of standardised questions (Donsbach, 1997). Thirdly, mail questionnaires can be used to screen respondents (Hoinville & Jowell, 1978). The questionnaire was used to screen respondents who use electronic banking from those who do not use electronic banking. Finally, the mail questionnaire was used because respondents were asked to provide sensitive demographic data, which they were more likely to provide if guaranteed anonymity (Sarantakos, 1998).

The use of mail questionnaires has significant limitations. The questionnaires rely on respondents' ability to recall and report their views and the criteria they use to evaluate electronic banking transactions. This may not always be easy. Some respondents may provide inaccurate responses to surveys because they cannot recall their views and/or they cannot communicate their perceptions due to lower education and literacy levels (Dillman, 1978; Dillman, 1983; Schuman & Kalton, 1985; Frankfort-Nachmias & Nachmias, 1992; Aaker, Kumar, & Davy, 1995). The absence of interviewers means that respondents cannot seek clarification of ambiguous questions or that they cannot be probed for clarification of given responses (Hoinville & Jowell, 1978; Dillman, 1983; Frankfort-Nachmias & Nachmias, 1992; Kinnear et al., 1993; Sarantakos, 1998). For instance, the absence of an interviewer made it

difficult to ascertain whether respondents' overall attitudes towards banks influence their perceptions of the modes of electronic banking they reported using.

Finally, the principle limitation of using a mail questionnaire is the item and mail response rates. Some respondents may not answer some items in the questionnaire due to lack of knowledge or understanding of the items (Dillman, 1983; Schuman & Kalton, 1985; Kinnear et al., 1993; Sarantakos, 1998). The existing literature shows that researchers have different perceptions of the mail response rate. Some researchers argue that the mail response rate can be as high as 80-90% (Hoinville & Jowell, 1978) while others state that the mail response rates are gradually declining and that they are usually below 50% (Miller, 1983; Schuman & Kalton, 1985; Kinnear et al., 1993). Even so, respondents typically answer the questionnaires at their convenience and this makes the response rates slow (Hoinville & Jowell, 1978; Kinnear et al., 1993; Aaker et al., 1995; Mavis & Brocato, 1998; Sarantakos, 1998). Most of the responses are usually received within the first three weeks of mailing the questionnaire (Hoinville & Jowell, 1978; Kinnear et al., 1993; Aaker et al., 1995; Mavis & Brocato, 1998; Sarantakos, 1998). The response rate for this study was 28.9%. According to Schuman & Kalton (1985), this response rate is typical because mail response rates are normally between 20-40%.

3.4.4 Questionnaire

The questionnaire included questions regarding the relevant criteria identified from the qualitative phase of this study, respondents' use of the various modes of electronic banking, and respondents' demographic characteristics (see Appendix D, page 325). Some researchers note that the words and phrases used in questionnaires should be familiar to the potential respondents because different words and their positions in sentences can affect how respondents interpret and answer the questions (Schuman & Duncan, 1973; Pedhazur & Schnielkin, 1991; Krosnick, 1999). The words and phrases of the statements used to measure respondents' opinions of the various modes of electronic banking in the questionnaire were thus developed on the basis of the qualitative research findings. This entailed developing items for the evaluative criteria and paradoxes of technology adoption. Attitudinal statements that were phrased negatively during the in-depth interviews were also phrased negatively

in the questionnaire while those that were phrased positively resulted in positively worded questionnaire items. The questionnaire also included items relating to the respondents' demographic characteristics and their use/non-use and usage rates for the four modes of electronic banking. The initial questionnaire had 21 pages. Subsequent analysis showed that some items were duplicated because they were applicable to the evaluative criteria section and the section on the paradoxes of technology adoption. For example, items associated with the perceived speed of transactions were relevant to the convenience items (transactions are fast) and the efficiency/inefficiency paradox. The duplicated items were removed resulting in a shorter questionnaire.

Question ordering may have an effect on the answers provided by potential respondents. Consequently, researchers suggest that to encourage potential respondents to participate easy questions should be put at the beginning of the questionnaire, whereas difficult and personal questions should be included at the end (Dillman, 1978; Hoinville & Jowell, 1978; Kidder et al., 1986; Miller, 1991; Churchill, 1995; Sarantakos, 1998). In addition, questions relating to particular subjects should be grouped together in order to avoid confusing respondents (Kidder et al., 1986). Therefore, in this study, the questions were grouped into six categories. The first four categories had questions relating to each of the four modes of electronic banking. Each of these four categories began with easy questions about the respondent's use/non-use and usage patterns of the particular modes of electronic banking. These were followed by questions on the respondent's views of the various attributes of the nominated mode of electronic banking. Data from these sections were used to answer research questions 1, 2, and 4 (outlined in section 3.2). While some questions were relevant to exploring respondents' likelihood of experiencing the paradoxes of technology adoption they did not relate directly to the four modes of electronic banking. These questions were used to develop the fifth category which included questions pertaining to the respondent's general views towards electronic banking. The responses to these questions were used to answer research question 5. The last group of questions gathered the respondent's demographic characteristics and were used to answer research question 3. These groups of questions also began with simple questions in order to motivate potential respondents to complete the survey.

The questionnaire had closed and open-ended questions. Research indicates that open-ended questions are suitable when it is not possible for the interviewer to know or to list all the available alternatives and where reviewers think that the respondents may provide unique responses to questions (Dillman, 1978; Schuman & Presser, 1981; Aaker et al., 1995; Krosnick, 1999). On the other hand, closed-ended questions can allow respondents to think about the different alternatives that have been nominated and they indicate the type of responses required for the different questions (Krosnick, 1999). However, by indicating the type of responses required, closed-ended questions can solicit biased responses (Schuman & Presser, 1981; Hippler & Schwartz, 1987; Krosnick, 1999). This can occur when respondents select options that appear to represent the norm instead of selecting options that accurately represent their perceptions (Schuman & Presser, 1981; Hippler & Schwartz, 1987; Krosnick, 1999). Closed-ended questions were used to indicate the type of responses respondents were required to provide when reporting their use of the various modes of electronic banking. The questionnaire also had open-ended response categories that were used to solicit respondents' reasons for not using some modes of electronic banking. Open-ended response categories were also provided with questions where it was anticipated that respondents may provide answers that were not included in the list of alternatives.

It is important to note that after the administration of the final questionnaire it became apparent that the response categories that were provided for questions relating to the respondents' usage rates of the various modes of electronic banking were not mutually exclusive. It seems that this did not have an adverse effect on the quality of data that were collected from these items. This is because respondents who completed the questionnaire and could not distinguish between the provided categories reported their usage rates in the 'other' category, which was an open-ended response category. The data were used to revise the response categories for the questions pertaining to the usage rates of the four modes of electronic banking. The revised categories were used during data analysis and they are outlined in Appendix D, page 325.

A six point likert scale was used to determine whether respondents had positive or negative views towards the relevant factors associated with the different

modes of electronic banking. Researchers recommend the use of a likert scales when it is important to determine the intensity of respondents' opinions (Kinnear et al., 1993; Chang, 1997). When a middle point is provided in attitudinal scales, most respondents tend to choose it and this may bias the results (Schuman & Presser, 1981; Hippler & Schwartz, 1987; Ayidiya & McClendon, 1990). As one of the aims of the quantitative phase of this study was to establish whether respondents generally held positive or negative views towards the criteria identified in the qualitative phase, an even numbered Likert scale was used to compel respondents to indicate agreement or disagreement with the various attitudinal statements. In this study, both ends of the scales were labelled, 1 (strongly disagree) and 6 (strongly agree) in order to clarify their meaning and to illustrate the positive and negative ends of the scales to respondents (Anderson, Basilevsky, & Hum, 1983; Krosnick, 1999).

The resulting questionnaire was pre-tested twice on a sample of conveniently selected university students who indicated they use electronic banking. The pre-testing was conventional in that it involved identifying unclear questions and instructions and changing them (Hoinville & Jowell, 1978; Churchill, 1995). The pre-testing was also behavioural as it involved observing the respondents as they attempted to complete the questionnaire to determine whether they read through the entire questionnaire prior to completion and to identify the questions they responded to first and the questions that needed clarification (Presser & Blair, 1994; Krosnick, 1999). Problematic questions and sections were changed before the administration of the final questionnaire.

Researchers state that cover letters that provide information on the objectives and purpose of the study and identify the sponsors of the study should accompany questionnaires (Hoinville & Jowell, 1978; Miller, 1983). The cover letters should also assure potential respondents of the confidentiality and anonymity of their responses while stating how and by when the questionnaire should be returned (Hoinville & Jowell, 1978; Miller, 1983). In addition to adhering to these principles, the cover letters in this study were personalised. They were addressed to particular respondents in the different households and were signed off with handwritten signatures (see Appendix D, page 325). Respondents' identification information was obtained from the sampling frame, white pages telephone directory on CD-ROM.

Researchers state that personified cover letters are more likely to appeal to respondents' benevolence (Dillman, 1978; Miller, 1983).

A reward for completing the questionnaire was not offered to potential respondents. Instead, the letter appealed to the respondent's philanthropic nature by emphasising the significance of both the study and the respondent's participation. Researchers argue that appeals to the respondent's kindness and explanations of the value of the study sometimes result in better response rates than offers for rewards (Dillman, 1978; Miller, 1983; Warren, 1998; Krosnick, 1999). Thus, respondents may be motivated to complete the questionnaire based on the retribution theory that if they perform good actions they will receive good actions in return (Dillman, 1978).

Three weeks after the initial questionnaire was mailed out 340 useable questionnaires were received. Reminder letters with replacement questionnaires and postage paid envelopes were mailed out to all the potential respondents. Replacement questionnaires sent to the entire sample serve two functions; they indicate the seriousness of the study to respondents who may have thought otherwise and they also suggest that confidentiality has been maintained because the researcher cannot distinguish respondents from non-respondents (Hoinville & Jowell, 1978; Frankfort-Nachmias & Nachmias, 1992). Researchers also advocate the use of reminder letters and replacement questionnaires to improve low response rates (Hoinville & Jowell, 1978; Frankfort-Nachmias & Nachmias, 1992). The second mail out resulted in 113 useable questionnaires.

3.4.5 Sample

The target population was Western Australians who use at least one of the four modes of electronic banking: EFTPOS, ATMs, telephone and Online banking. The sampling frame used was the White Pages telephone directory on CD-ROM. The telephone directory provided listings of respondents in the four regions in Western Australia - Great Northern, Central, Eastern and South Western Regions.

The sample was selected using a non-probability method similar to random digit dialling (Hoinville & Jowell, 1978; Schuman & Kalton, 1985). This involved

doing a random search of names and addresses of potential respondents in the different geographic regions in W.A. Hoinville and Jowell (1978) state that non-probability sampling methods are problematic because the likelihood of selecting different respondents is unknown and this may have a critical effect on the sample selected. Data from the Australian Bureau of Statistics (2001, p16) suggests, “73.3% of the people in W.A. reside in Perth and 26.7% reside in the other regions”. Thus, 73.3% (1250 potential respondents) of the sample was drawn from the names and addresses of persons residing in Perth and 8.9% (150 potential respondents) was drawn from each of the other three regions.

Existing research shows that there are significant drawbacks to the use of telephone directories as sampling frames when selecting samples from the general population (Hoinville & Jowell, 1978). It is difficult to get a representative sample from telephone directories because some of the elements may be missing from the sampling frame (Dillman, 1978; Hoinville & Jowell, 1978; Frankel, 1983; Schuman & Kalton, 1985). This includes respondents whose numbers are not listed, those who have changed their numbers, changed locations and/or are deceased and their numbers still appear in the directory (Dillman, 1978; Hoinville & Jowell, 1978; Frankel, 1983; Schuman & Kalton, 1985). For this study sixty-five questionnaires (out of 1700 questionnaires mailed out) were returned to sender either because respondents had changed locations or were deceased. Missing elements are disadvantageous because they significantly increase the sampling error as the respondents may have particular perceptions and /or demographic characteristics (Dillman, 1978; Hoinville & Jowell, 1978; Schuman & Kalton, 1985). Nonetheless, the telephone directory was used because as Hoinville and Jowell (1978) and Dillman (1978) state, it is not possible to generate representative samples especially when the target population is the general public.

3.4.6 Data Analysis

The survey data were analysed using nonparametric statistical tests. Nonparametric statistical methods are appropriate in situations such as this where the distribution of the target population from which the sample was drawn is unknown

(Gibbons, 1976; Siegel & Castellan, 1988, Gibbons, 1993; Hucks, 2000).

Researchers recommend the use of nonparametric tests when analysing nominal and ordinal data (Gibbons, 1976; Siegel & Castellan, 1988, Gibbons, 1993; Hucks, 2000). Other researchers note that interval data can also be transformed into nominal and ordinal data and then analysed using nonparametric statistics (Luck & Rubin, 1987; Gibbons, 1993). In this study the likert scaled items were used to establish whether respondents generally held positive or negative views towards the relevant evaluative factors. The resulting data were transformed and treated as ordinal data because the distance between each of the points was unknown and it was more important to determine whether respondents generally held positive or negative views towards the factors represented by the Likert scaled items. These data were then analysed using the following nonparametric tests: Spearman's rank order correlation, the Mann-Whitney test, and the Kruskal-Wallis test.

The Spearman's rank order correlation is typically used to examine the direction and degree of association between two ordinal variables (Wrigley, 1985; Siegel & Castellan, 1988; Noether, 1991; Gibbons, 1993; Huck, 2000). The Mann-Whitney U test was used because it is the recommended alternative to the parametric t test and it can be used to compare ordinal data relating to two independent samples (Neave & Worthington, 1988; Siegel & Castellan, 1988; Gibbons, 1993; Huck, 2000). When the aim of the analysis is to compare ordinal data from two or more samples researchers recommend use of the Kruskal-Wallis test, which is the nonparametric alternative to the one-way ANOVA or the F test (Siegel & Castellan, 1988; Huck, 2000).

Some descriptive statistics are also presented in the quantitative results section. Huck (2000) states that descriptive statistics should be included when presenting the results of the nonparametric tests because the tests only indicate that there is a difference between the samples, they do not show how the samples actually differ.

3.4.7 Summary

Chapter 3 has outlined the data collection and analysis methods for the qualitative and quantitative phases of this study. It has shown that snowballing was used to identify a sample of 20 interviewees from whom the qualitative data were collected using semi-structured in-depth interviews. The interviews were tape-recorded and the tapes were subsequently transcribed. The transcripts were imported into and analysed using N.U.D.I.S.T. software. Quantitative data were collected using a mail questionnaire that was administered to a conveniently selected sample of 1700 Western Australians. This resulted in 453 useable questionnaires. The data were imported into SPSS v.10 and analysed using nonparametric statistical methods. The next chapter presents the findings from the qualitative phase of this study.

CHAPTER 4

QUALITATIVE FINDINGS

4.1 Introduction

As noted previously, qualitative data were collected through 20 in-depth interviews. Although 20 interviews were conducted, data saturation was achieved after 10 interviews. Previous studies show that consumers can hold inconsistent views towards particular objects (Kidder et al., 1986; Minichiello et al., 1995). This is likely to occur when consumers hold different views towards the different characteristics of a particular object (Kidder et al., 1986; Minichiello et al., 1995). The findings of the in-depth interviews appear to support this assertion. This section will show that some of the interviewees reported having contradictory views towards the technology-based modes of service delivery in the retail banking industry. For instance, some interviewees reported thinking that telephone-banking transactions are expeditious and that they are also time consuming.

The chapter begins with a discussion of the inductively derived themes and categories relating to the interviewees' use of electronic banking. This is followed by a discussion of themes relating to the paradoxes of technology adoption that were derived deductively. Verbatim responses will be used to illustrate the interviewees' opinions. The implications of these findings are outlined in the following discussion and conclusion.

4.2 Emerging Themes and Categories

During the in-depth discussions interviewees were asked to outline their perceptions of and opinions towards the different modes of electronic banking they reported using. Analysis of their responses indicated that their use of electronic banking depends on four main criteria. These include perceived convenience, the

types of transactions they wish to conduct, the transaction aids available and the perceived security of transactions. The following section discusses these criteria.

4.2.1 Convenience

The qualitative findings suggest that convenience is the most significant evaluative criterion for TASE in the retail banking industry. The attributes of convenience were found to include; ease of use, time savings, financial cost savings, accessibility to their transaction accounts from various locations at any time of the day. Each of these five characteristics is discussed below.

4.2.1.1 Easy to use

As noted in Chapter 2, previous research shows that the perceived ease of using various technologies is likely to influence consumers' rates of adoption (Tornatzky & Klein, 1982; Davis, 1989; Rogers, 1995; Aggarwal et al., 1998; Au & Enderwick, 2000; Meuter et al., 2000; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002). In particular, consumers are less likely to adopt technologies that require significant behavioural changes (Tornatzky & Klein, 1982; Davis, 1989; Rogers, 1995; Aggarwal et al., 1998; Au & Enderwick, 2000; Meuter et al., 2000; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002). Similarly, the interviewees in this study reported that they prefer transactions that are easy to conduct and that they favour electronic banking modes that require minimal effort.

June: I use it a lot to check my account balance and to transfer funds. It's very easy. I can just ring up and find out my account balance ... so it's easy and convenient really (Telephone banking).

Nancy: It's very basic and simple to go through. You basically log on to the web site ... look at what you have in your account and transfer funds through. The process is not hard (Internet banking).

Simon: It is easy in a lot of respects. You get to the end of the day at the pub and you have no money. You have spent all your money. You can just take

out your ATM card, go to a hole in the wall, and withdraw some money and you can use the card in the Taxi to pay for your Taxi (EFTPOS).

Anna: ATMs are easy. When I do my banking, I do it through the ATM and I wait till they process it the next day.

The preceding quotes illustrate some of the interviewees' perceptions regarding the use of the four modes of electronic banking. They indicate that consumers may be more likely to conduct technology-assisted banking transactions using those modes of electronic banking they find easy to use.

4.2.1.2 Fast

Interviewees reported that the length of time required to complete transactions using the various modes of electronic banking is a significant factor when selecting which mode to use. This finding is consistent with existing research that shows that the length of time required to complete a service delivery process can have a significant effect on a consumer's dis/satisfaction with a service (Harvey & Filiatrault, 1991; Dabholkar, 1994). The results from this study indicate that whilst some of the interviewees use all modes of electronic banking, they prefer to use those modes where transactions require less time over those modes where transactions require a relatively longer time to complete. For example, while some interviewees prefer Online and telephone banking transactions because they perceive them to be quicker, other interviewees may use these modes less because they find them to be slow and time consuming. The quotes below illustrate some of their perceptions.

Sarah: ATMs are good. They are very good, you just race down and get some money quickly. They are pretty much the same as EFTPOS.

Esther: It is a lot quicker, that's why I use it (Online banking).

George: It's a quick thing and it happens in an instant (telephone banking).

Kevin: The Internet is slower and the modem speeds are not really great. So, it becomes a very time consuming process.

Simon: You have got to key in numbers all the time, so it can be a roughly longwinded process... typing in your account number, then the Bpay number, the provider and the company's etc (telephone banking).

The quotes illustrate some of the interviewees' perceptions. The findings suggest that consumers' perceptions of the length of time taken to complete transactions may relate to two issues. Firstly, it seems that, consumers' perceptions of the time taken to conduct electronic banking transactions may relate to the duration of the access phase, this is the phase during which consumers access their financial institutions using equipment such as the telephone and the Internet. Secondly, consumers' perceptions of the duration of electronic banking transactions may relate to the length of time taken to conduct transactions, from the check in phase where consumers identify themselves using their PINs to the disengagement phase where they receive paper receipts or receipt numbers. In particular, interviewees who reported that electronic banking transactions can be time consuming were discussing the check in phase (when they key in all their identification numbers) of telephone banking transactions (discussed later in section 4.2.3.1).

4.2.1.3 Financial Cost

The findings suggest that consumers may evaluate the various electronic banking modes based on their perceptions of the costs of transactions conducted using each mode. Some interviewees reported that they are not fully aware of the exact costs of transactions conducted using the various modes. Others noted that electronic banking transactions are cheaper than those conducted using person-to-person methods of banking. Nonetheless, the interviewees indicated that they are more likely to use those modes of electronic banking they perceive to be cheaper. The following quotes exemplify some of their perceptions:

Mathew: The charges are less significant than those of the other services (Online banking).

Esther: Hopefully it's cheaper. I cannot find out how expensive it is, I am still trying to figure out that bit...they told me it's cheaper than writing a cheque (Online banking).

Craig: Little did we realise we were going to be charged for using ATMs, even charged more if you use another agency's ATMs.

Lucy: There are more charges on that (telephone banking) as well. I think the charges have gone up and so I have not tried it. I know the charges are going up.

Researchers assert that the perceived cost of transactions may be a significant incentive or disincentive to use the various modes of electronic banking because consumers are highly responsive to the price of financial services, especially if the services are delivered using technology (Humphrey et al., 2001; Jun & Cai, 2001). Similarly, the interviewees in this study indicated that consumers' perceptions of the financial costs of electronic banking transactions may be a significant motivator or deterrent to their of the various modes.

4.2.1.4 Location

The advent of banking technology has made it possible for consumers to access their transaction accounts from various locations. This may be a significant factor in consumers' choice of electronic banking mode. The interviewees reported that they use EFTPOS and ATMs because they can get access to cash from any location where the facilities are available. Interviewees who use telephone and/or Online banking indicated that they are motivated to use both modes of electronic banking because they can conduct their transactions from their homes or places of work and even from other countries. The interviewees' views are illustrated in the following quotes:

Anna: You can do banking from anywhere in the world. You could even be in America (Online banking).

Nancy: You can do it at work; you don't have to worry about going to the bank (Online banking).

Simon: You don't have to get out of your seat and go down the street. I can do it from home. I can sit here and I don't have to leave the house to do my banking (Online banking).

These findings are similar to those of previous studies, which discuss the significance of location in consumers' choice of banks. For instance, a study of consumers' attitudes towards banks in the United Kingdom found that more than 30% chose their banks because their branches were conveniently located (Howcroft & Anthony, 1993). Similarly, researchers exploring consumers' use and non-use of EFTPOS and ATM facilities found that consumers who do not know where to find the facilities are less likely to adopt both modes of banking (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Liao et al., 1999). The qualitative findings of this study suggest that location has an effect on consumers' level of satisfaction or dissatisfaction with TASE. The findings indicate that consumers may evaluate the various modes of electronic banking on the basis of the perceived ease of access to their facilities. Consumers are thus likely to prefer those modes of electronic banking that provide access to their transaction accounts from various locations.

4.2.1.5 Time of transactions

Traditionally some banking transactions could only be conducted in the bank or at a bank's agent during the business banking hours of 9.00am to 3.30pm. To date, the various modes of electronic banking have provided consumers with greater accessibility to their transaction accounts. However, it is important to note that while consumers can access their transactions using ATMs, telephone, and Online banking at any time, accessibility using EFTPOS is more limited. This is because EFTPOS transactions are typically conducted in retail settings; as a result, access to these facilities is limited to the operating hours of retail establishments (Tan et al., 1999). The interviewees suggested that they are motivated to use the various forms of electronic banking because they can access their transaction accounts and do their

banking at any time of the day. They reported that using ATMs, telephone banking, and Online banking modes they can do their banking at any time they choose:

Andrew: I suppose the only good thing with ATMs is that you can get money outside the normal banking hours.

June: Telephone banking is great. You can ring and get your account balance at any time.

Mathew: Well if I wake up in the middle of the night at 2.00am on a Sunday morning worried about a bill, I can pay it (Online banking).

Simon: I can do it at midnight if I want...I can still do all my paperwork and banking at midnight (Online banking).

To conclude, the qualitative findings show that the interviewees are likely to conduct technology-assisted banking transactions using those forms of electronic banking they perceive to be convenient relative to other modes of electronic banking or non-electronic banking. By convenience they mean that transactions are easy to conduct, take less time to complete, are not costly, and can be conducted at various locations and at anytime of the day. It seems that the transactions that the various modes of electronic banking can facilitate influence their perceptions of the various modes of electronic banking.

4.2.2 Type of Transaction

As noted in chapter 2, proponents of the Nordic school theory assert that consumers evaluate their service encounters on the basis of the technical (outcome) and functional (intrinsic) aspects of the service delivery processes (Gronroos, 1984; Kelley et al., 1990; Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994; Mels et al., 1997). The findings of this study suggest that the interviewees may also evaluate their TASE in the banking industry based on the desired outcome (technical aspects). In an electronic banking scenario, these desired outcomes appear to relate to the transactions consumers wish to conduct.

Due to the inherent nature of the four modes of electronic banking, they can only facilitate some banking transactions. Therefore, interviewees' choice of electronic banking mode is dependent on the desired outcome (transaction). The outcome needs that seemed to be the most influential in the interviewees' choice of electronic banking mode were access to cash, the need to conduct multiple transactions in one sitting, bill payment, and access to their account information and/or access to other financial services. These transactions are discussed below.

4.2.2.1 Cash Withdrawals

Most of the interviewees reported that they use ATMs and some stated that they use both ATMs and EFTPOS. It is worth noting that none of the interviewees reported using EFTPOS only. This may be because their accessibility to EFTPOS facilities is limited. As noted earlier, EFTPOS facilities are predominantly available in retail settings; as a result, their accessibility is limited to the operating hours of the retail establishments (Tan et al., 1999). Therefore, the interviewees who use EFTPOS may also use ATMs to gain access to their transaction accounts when EFTPOS facilities are inaccessible. The interviewees reported that they are motivated to use ATMs and EFTPOS because these modes of electronic banking provide them with easy access to cash:

Nancy: EFTPOS is just easier if you are going shopping and you can get funds out that way.

Terence: You can get cash out in the most unlikely places. You can swipe your card and get some dollars and that is the way I shop now. If I am buying clothes, or going to restaurants, or I am down at the pub and I don't have money I can swipe. Even taxis have swipe cards (EFTPOS).

Brenda: They (ATMs and EFTPOS) are in every street corner and every shop you go in to. They are always there if you need them. If you are not good with money, which I am not, and you go shopping at the supermarket you can always get your cash.

Previous research suggests that consumers cannot always differentiate the functions of these two modes (Tan, et al. 1999). Similarly, some of the interviewees in this study stated that they perceive both modes of electronic banking to be similar or identical:

Simon: They are one and the same aren't they? (EFTPOS and ATM).

Sarah: They are pretty much the same really (EFTPOS and ATM).

The qualitative findings suggest that the perceived ease of accessing cash may influence a consumer's likelihood of using EFTPOS and ATM banking modes.

4.2.2.2 Multiple Transactions

Some of the interviewees implied that they consider the number and nature of transactions that the various modes of electronic banking can facilitate when selecting which mode to use. For instance, some interviewees reported that when they want to conduct transactions such as bill payments, account transfers and/or to check their account balances simultaneously they opt for telephone and/or Online banking modes which can facilitate multiple transactions at a single sitting. For example:

Ronnie: I prefer Internet banking because you have got access to paying bills and doing more transactions.

Nancy: It is very basic (Online banking). It allows you to look at messages, send messages to the bank, and at the same time looking at what you have in the bank and transferring funds. The process is not hard.

Timothy: I can use it (telephone banking) to pay all my bills, the electricity bill, the water authority or whatever bill I want to pay. It's a very easy way of doing it.

Mathew: It's just the convenience when you are on a whim sort of thing. Like on a 5-minute coffee break, you might want to pay 10 bills. You can do that on the computer with Online banking.

Brenda: I can pick up my telephone and pay my gas, electricity, telephone and car insurance, everything I want to pay.

The preceding quotes show that when conducting several transactions some interviewees reported that they prefer to use telephone and Online banking. These modes of electronic banking facilitate more account management transactions than ATM and EFTPOS modes, which are mainly used for cash withdrawals. The findings suggest that the level of satisfaction and/or dissatisfaction with technology-based service delivery modes in the banking industry may be influenced by the consumers' perceptions of the capabilities of the available modes to perform multiple transactions in a single sitting.

4.2.2.3 Account Information

Most of the interviewees also reported that they use ATMs, telephone, and/or Online banking to obtain account status information. This is information regarding their account balances, account statements, and remuneration payments. Most of the interviewees who use telephone and Online banking also noted that when they require detailed information regarding their banking transactions they prefer to use these modes. The following quotes illustrate some of their perceptions:

Anna: ATMs are good. You can just go to an ATM, find out how much you have and leave.

Simon: It's just a matter of dialling the numbers out and pressing the right buttons out and you get the account balance. If you want to know your balance before you do anything, just telephone up.

Esther: You can call up statements, which is good. They go back 12 months, which is very good (Online banking).

These findings are analogous with those of existing studies that show that consumers are likely to use the existing modes of electronic banking to obtain

account status information (Bednar et al., 1995; Donner & Dudley, 1997; Orenstein, 1998; Jayawardhena & Foley, 2000)

4.2.2.4 Financial Services

Interviewees who used Online banking stated that they are motivated to adopt this electronic banking mode because it provides them with easy access to other financial institutions and their services. For instance:

Mathew: You can use total financial planning. Things like share trading, superannuation and other services. You can use these services on the Internet because it's efficient and cheaper.

Esther: Also, you have got Online broking connected to it (Online banking), so you can use their brokerage service.

Kevin: You can physically be on the stock exchange and monitor the progress of your stocks. If you have sufficient amount of time, you can spend your day trading. You can do your business there and not necessarily pay a fee for a broker.

The interviewees who used Online banking to access other financial institutions and their services tended to work in professional occupations or to operate their own businesses. They typically worked with technologies such as computers and regularly accessed the Internet. As such, they are likely to have adopted Internet banking because it corresponds with their lifestyle and they do not have to learn many new behaviours (Dover, 1988).

To conclude this section, the qualitative findings of this study support those of previous studies that have found that consumers are likely to evaluate service delivery processes and service outcomes when evaluating their satisfaction and/or dissatisfaction with service encounters (Kelley et al., 1990; Gronroos, 1993; Mels et al., 1997). The findings have shown that when evaluating their technology-assisted

banking transactions the interviewees consider the transactions they wish to conduct (service outcome). The interviewees indicated that the choice of banking mode may depend on the transactions that they wish to conduct.

4.2.3 Transaction Aids

The literature review in chapter 2 showed that the TASE may be broken down into five stages: the access, check-in, diagnosis, service delivery and check-out phases (Bitran & Lojo, 1993). The four modes of electronic banking have features that assist consumers in completing their transactions through each of these phases. These features include voice prompts for telephone banking, visual cues for EFTPOS, ATM, and Online banking transactions, and receipts and/or receipt numbers for the four modes of electronic banking. This section discusses the interviewees' perceptions of these features and their likely impact on consumers' use and evaluation of the various modes of electronic banking.

4.2.3.1 Voice Prompts

The voice response units available with the telephone banking mode facilitate transactions by guiding consumers through all the steps of telephone banking transactions. The qualitative findings indicate that the interviewees' perceptions regarding these voice prompts may influence their levels of satisfaction and/or dissatisfaction with the telephone-banking mode. Some of the interviewees discussed how they rely on the voice prompts to complete their telephone-banking transactions whereas others indicated that voice prompts might deter their use of telephone-banking.

The interviewees who had positive perceptions of the voice prompts reported being likely to conduct more telephone banking transactions than those who had negative perceptions. Interviewees who appeared to hold positive views indicated

that they listen to all the voice prompts available and that the voice prompts make telephone-banking transactions appear to be easy.

George: You ring up and you probably wait until they give you all the prompts and you then go into your accounts.

*Sarah: It's pretty easy. You ring the bank number and you know you just listen and do as it says. If it says press one to go into one account, or press two to do whatever ... and then press * (star) to get out. It's pretty easy, it's pretty basic.*

Anna: You just ring the bank, put like a user ID number on and then a password. Then, you go through the voice prompts. There is press 1 to find out how much you've got ...etc.

Interviewees who reported having negative perceptions towards the voice prompts indicated that in some instances they preferred to use the other existing modes of electronic banking. Some stated that they had rejected the telephone banking mode because of they found it difficult to follow the voice prompts. For example:

Louise: I tried telephone banking but I mucked it up totally. I don't know how it works so I kept pressing the wrong buttons and mucking it all up. It is not good at all... I don't know how it works and that's why I do not use it.

Some interviewees noted that telephone-banking transactions are convenient because they can be conducted from their homes and their places of work. However, others reported that telephone-banking transactions are time consuming because of the length of time taken to key in all the required details during the check in phase of the transactions:

Brenda: I have a phone near my desk and it has a speaker. So, you can be doing something else and going through the prompts. It can be a waste of time ... sitting there and on the telephone, there is a mechanical voice saying 'press this here, press this after that'. It can be tedious when they go "the number you have entered was blah, blah, blah...because they repeat everything"... Yet, when you think of it, it probably takes a couple of minutes but you do not want to listen to the service.

Simon: The only problem is you have got to key in the numbers all the time. So, it can become a roughly longwinded process... typing in your account number, your Bpay number, the provider number, and the company's number etc (telephone banking).

Esther: It is a bit longwinded (telephone banking). If you forget stuff, you have to go back to the beginning or ring up again which makes it difficult.

4.2.3.2 Visual Cues

EFTPOS, ATM, and Online banking modes have visual cues that facilitate electronic banking transactions. Interviewees who used EFTPOS and ATMs did not refer to the visual cues available with these modes of electronic banking, suggesting that visual cues may not have an effect on how consumers regard these modes. However, interviewees who used Online banking indicated that visual cues are significant when evaluating Online-banking transactions. Some of the interviewees who use Online banking reported that visual cues allow them to 'see' their accounts and their transactions happening as they execute them:

Mathew: When you log onto your account you can see what you have been spending and you can see what bills are coming up. So, financially I think it gives you an idea of where your money is (Online banking).

Nancy: You can look at what you have in your account when transferring funds through (Online banking).

This finding supports previous research that suggests that the visual cues available on computers may encourage consumers to use Online banking, because they feel like they are in direct contact with their financial institutions (Dabholkar, 1994).

4.2.3.3 Receipts

During the checkout phase of the transaction, EFTPOS and ATM banking modes can provide consumers with paper receipts whereas telephone banking provides receipt numbers. Online banking provides consumers with a choice of a receipt number and/or a printed receipt. During the discussions some of the interviewees emphasised the necessity of printing receipts or noting receipt numbers, suggesting that the ability to secure a receipt is important during the checkout phase of technology-assisted banking transactions. For example:

June: People like the security of seeing something physically on paper. You know, like the cheque book or the passbook you know where they stamp it ... With Internet you don't have to memorise it or write it down (receipt number), you can always do a print out.

Esther: I never used it for Bpay or anything like that because I did not have a record of what I had done... I was not writing down, you know bits and pieces (telephone banking).

Judy: There is no hard copy. I'm from the old school, I like my little hard copy, I like my rubber stamp. If it is a just a receipt number it does not seem much to me (telephone banking).

The quotes illustrate some of the interviewees' perceptions regarding paper receipts and receipt numbers provided by the various modes of electronic banking. The interviewees' opinions of the receipt numbers provided by the telephone banking mode indicate that they prefer paper receipts. This is may be because paper receipts provide more tangible evidence of a completed electronic banking transaction alleviating concerns that the transactions may not have been completed successfully (performance concerns). The preference for paper receipts may also explain why interviewees who used EFTPOS and ATMs did not allude to receipts or receipt numbers; both modes can provide consumers with paper receipts.

To conclude this section, the findings suggest that when assessing their perceptions of technology-based banking transactions consumers may consider the

transaction aids available with each mode of electronic banking. The findings indicate that when interviewees hold positive views towards these transaction aids they are likely to use the particular mode of electronic banking more. For example, interviewees who develop positive opinions towards the visual cues available in Online banking are likely to use Online banking because they feel that they can 'see' their transactions. Interviewees who regularly use telephone and Online banking modes felt that the transaction receipts they receive at the checkout stage of the service delivery process provide evidence of a successfully completed banking transaction. The paper receipts and receipt numbers may be important to them because they have concerns regarding the security of their transactions.

4.2.4 Security

The interviewees had different perceptions regarding the safety and security of using the different forms of electronic banking. Their perceptions are discussed in the following sections.

4.2.4.1 Physical Risk

Some interviewees reported having concerns about their personal safety when using ATMs (physical risk). Other interviewees reported that the availability of ATMs increases their personal safety because they carry less money with them. An exception was EFTPOS transactions which interviewees generally considered to be safer than ATM transactions for consumers who have concerns about their personal safety when using electronic banking.

Nancy: Maybe a bit more secure if you get like the elderly who have this phobia about going to ATMs in case they get robbed they can use EFTPOS.

Louise: It is better for the fact that having EFTPOS means you have got less cash on you as well.

George: It (using ATMs) is a way of not having to carry so much money around with you.

The interviewees did not express concerns regarding their personal safety when conducting telephone-banking transactions. Consumers can use this mode of banking from the safety of their homes and/or places of work. Furthermore, telephone banking mode does not provide consumers with cash that can make them susceptible to attacks.

4.2.4.2 Psychological Risk

Perceptions regarding the security of Online banking transactions appeared to differ between interviewees who reported that they use Online banking and those who reported that they do not use Online banking. One of the common concerns amongst interviewees who do not use Online banking was that by conducting Online banking transactions they would make their account details easily accessible to unauthorised people (psychological risk):

Anna: Hacking. Somebody can get into your account, they can transfer money to everywhere, and you wouldn't know where it has gone.

By contrast, interviewees who use Online banking indicated that Online banking transactions are secure. They stated that it is difficult for unauthorised parties to access peoples' account details, suggesting that Online-banking transactions may be considered more secure than transactions performed by a human teller in the bank. The following quotes illustrate some of their perceptions:

Ronnie: I think with banks we are probably safe at the moment. They have put a reasonable amount of technology in so they are probably hard to crack.

Mathew: The face to face are a lot more insecure than Internet transactions ...If you use the Internet banking it's really good and you can see to it that it's done right, which is really good.

To conclude, the interviewees' perceptions regarding their personal safety (physical risk) and the security of their transaction account details (psychological risks) may influence their levels of satisfaction and/or dissatisfaction with a particular mode of electronic banking. The interviewees generally reported feeling that

EFTPOS and telephone banking modes are safe and that their account details are secure when using these modes. However, they reported different perceptions regarding their safety when using ATMs and the security of Online-banking transactions.

4.2.5 Summary

The qualitative findings suggest that consumers are likely to use four main criteria when evaluating technology-assisted banking transactions. These are; the perceived convenience of using the various modes, the transaction aids that facilitate transactions with each mode, their perceptions regarding the safety and security of using electronic banking, and their desired transactions. Thus, these decision criteria may influence their levels of satisfaction or dissatisfaction and their subsequent use of the various modes of electronic banking.

Table 2 provides a summary of the findings. The 'yes' and 'no's indicate the relevance of the identified criteria to each mode. 'Yes' means that consumers may evaluate the particular banking mode using the nominated criterion, whereas 'no' indicates that the particular criterion may not be applicable to the indicated banking mode. The following section discusses the paradoxes of technology adoption that appear to be relevant to TASE in the retail banking industry.

Table 2: Summary of criteria relevant to each mode of electronic banking

Criteria		EFTPOS	ATM	Telephone	Online
Convenience	Easy	Yes	Yes	Yes	Yes
	Fast	Yes	Yes	Yes	Yes
	Financial cost	No	Yes	Yes	Yes
	Location	Yes	Yes	Yes	Yes
	Anytime	Yes	Yes	Yes	Yes
Type of transaction	Cash withdrawal	Yes	Yes	N/A*	N/A
	Account information	No	Yes	Yes	Yes
	Multiple	No	Yes	Yes	Yes
	Bill paying	N/A	No	Yes	Yes
	Financial services	N/A	No	No	Yes
Transaction aids	Voice prompts	N/A	N/A	Yes	N/A
	Visual aids	No	No	N/A	Yes
	Receipts	No	No	Yes	Yes
Security	Secure transaction	No	No	Yes	Yes
	Personal safety	Yes	Yes	No	No

*N/A indicates that the identified criterion is not applicable to the nominated electronic banking mode

4.3 Paradoxes of Technology Adoption

The literature review in chapter 2 outlines the paradoxes of technology adoption identified by Mick and Fournier (1998). Mick and Fournier argue that post adoption of a new technology consumers can develop positive and negative views

that can influence their continual use of the new technology. One of the aims of this study was to explore whether users of electronic banking experience Mick and Fournier's paradoxes and the extent to which these paradoxes influence their evaluation of the modes of electronic banking. The following section discusses the paradoxes that seemed to be apparent in the interviewees' discussions of their technology-assisted banking transactions.

4.3.1 Control/Chaos

According to Mick and Fournier (1998), the use of a particular technology may evoke feelings of control in consumers when it allows them to manage their activities better. The same technology may cause chaos when it creates disarray and disrupts activities. The findings from the in-depth interviews indicate that some consumers may experience this paradox. Some of the interviewees reported that they use electronic banking because they are not restricted to the business banking hours of 9.00am – 3.30pm. They can choose when and how they do their retail banking such as, the time of day and the number of transactions they can conduct at their convenience. The interviewees also reported that on occasion the various electronic banking modes malfunction resulting in disorder and disruption of banking activities. They reported that chaos is a likely outcome when they cannot initiate or successfully complete desired transactions.

Control - Mathew: If you use the Internet banking it's really good and you can see to it that it's done right, which is really good.

Chaos - Mathew: The banks seemed to tell me to install the software and follow the instructions. But, my privileges had been revoked so it couldn't really do what I wanted it to do. I had to go into the bank and re-sign the same forms that I had previously signed to get activated and to have my security. I was unable to pay rent for a week.

These quotes illustrate some of the interviewees' perceptions that electronic banking technologies can evoke feelings of control when they use them to control

their banking activities and when there are fewer restrictions on the number and nature of transactions they can conduct. However, use of electronic banking can also result in chaos when the technologies do not facilitate the required transactions and when the technologies are not available. The findings support those of previous research which shows that consumers' ability to control their own service encounters influences their opinions towards the service (Dabholkar, 1996). The more control they have over the service delivery process the more positive their views (Bateson, 1985; Dabholkar, 1996). Studies also show that consumers are likely to develop negative opinions when technologies that facilitate the service delivery process fail and disrupt their activities (Meuter et al., 2001).

4.3.2 Freedom/Enslavement

Consumers are likely to experience freedom when their use of a technology gives them autonomy over their actions (Mick & Fournier, 1998). The interviewees affirmed that the banking technologies can give them the freedom to do their banking transactions at their convenience. Previously they could only perform transactions such as bill paying and fund transfers during business hours when the banks and/or their agents were open.

Freedom - Mathew: I do not have to go into the bank. Specifically banks opening hours are what? 9.00am – 4.00pm or 9.30am – 4.15pm? I start work at 7.30am and finish at 5.30pm. I am not going to spend lunchtime banking, so I use telephone banking. It has lots of benefits.

The use of technologies can evoke feelings of enslavement when there are limits on what consumers can do (Mick & Fournier, 1998). Though the four modes of electronic banking facilitate most banking transactions there are limits on the number and type of transactions consumers can conduct. According to Mick and Fournier's (1998) study, enslavement is also a likely result when consumers become reliant on various technologies. For instance, their informants reported that they had become dependent on some technologies and that they feel like slaves to those

technologies. Similarly, interviewees in this study indicated that enslavement may result from their dependence on the various forms of electronic banking. Some interviewees reported their reliance on EFTPOS and/or ATMs for cash withdrawals, stating that they are inconvenienced when they cannot access these facilities:

Freedom - Esther: Now with Coles having EFTPOS you can get cash out and pay at the same time. There are so many facilities now. It is not like in earlier days where you could only get cash at ATMs.

Terence: (EFTPOS) you can get cash out in the most unlikely places. You can swipe your card and get some dollars and that is the way I shop now.

Enslavement - Esther: It's frustrating when you go to one (ATM) and it's closed down or broken down or something ... it makes it a bit difficult and you have to hunt down another one that is open.

Terence: In the remotest sites in the Northwest coast we always have a problem with cash ... you have a problem with EFTPOS because the telephone lines in remote areas go down a lot.

Kevin: I mean for simple services it works. But, if you have a particular question, it is not very good because they have limited services on it (Online banking).

Timothy: They say you are allowed eight withdrawals from ATMs without charges. That is what I do.

This section shows that feelings of freedom can result when consumers use the various modes of electronic banking to conduct their banking transactions at their convenience. Feelings of enslavement can result from limitations imposed by the banks on the number of free transactions consumers can conduct, limitations that result from the inherent nature of the electronic banking modes and from reliance on particular modes that may sometimes be unavailable.

4.3.3 New/Obsolete

Consumers are likely to experience the new/obsolete paradox when continuous innovations constantly supersede existing technologies, making them obsolete (Mick & Fournier, 1998). In an electronic banking scenario, this is likely to occur when new electronic banking technologies make existing ones obsolete. Only one interviewee alluded to this paradox:

Ronnie: I started using teller machines and by the time I got accustomed to them I was getting pushed into Internet banking.

Whilst some interviewees reported that the nature of electronic banking is likely to change in the future, this did not appear to be a source of concern for them. This paradox was thus not as significant to them as it was to Mick and Fournier's informants. The difference may result from the types of technologies discussed in the two studies. The interviewees in this study discussed their use of the different types of banking technologies used to facilitate service delivery processes, whereas Mick and Fournier's informants discussed products such as computers, music records, and answering machines. A likely explanation is that banking institutions provide the hardware and software that is required to facilitate electronic banking transactions, thus it is the banks rather than their customers who are more likely to experience the negative consequences of continuous technological innovations.

4.3.4 Competence/Incompetence

Mick and Fournier's (1998) study suggests that consumers are likely to feel competent when they have the knowledge and skills that are necessary to use various technologies. On the other hand, feelings of incompetence may arise when they cannot comprehend how to use some technologies. The interviewees in the present study indicated that they feel competent when they complete their electronic banking transactions successfully. They also reported feelings of incompetence that can result

from a lack of knowledge of how to use some of the modes of electronic banking and from an inability to grasp the full capabilities of the modes they already use.

Competence - Esther: I find Online banking easy to use. I have mastered the bill paying system, which is good. I also use the broking service and I have had no problems with it.

Andrew: I use ATMs to withdraw money. I get money outside of the normal hours; I am never stuck for money. I use ATMs to look at my account statements; they are an easy way of keeping your money and getting your money out.

Incompetence – Esther: The problem of course is if you have a question and if you are trying to work out something ... it took me two hours to figure out what I had done with \$500. I had to speak to a teller.

Andrew: So, I went round to the ATM and I thought, I don't know how to do this. I know that you can put money in the ATM but I don't know how. I do not always trust myself with ATMs because I am not totally familiar with them.

The interviewees thus described feeling competent when they are able to complete their desired transactions using the various modes of electronic banking and feelings of incompetence when they perceive their knowledge of the full capabilities of the electronic banking modes to be inadequate.

4.3.5 Efficiency/Inefficiency

Efficiency results when the use of technology makes some tasks easy and less time consuming, whereas inefficiency results when the tasks require more time and effort (Mick & Fournier, 1998). Some of the interviewees indicated that the four modes of electronic banking can make their banking transactions more efficient, particularly when compared with transactions that are conducted in a bank with human tellers:

Efficiency - Brenda: It's straight forward, straight through. You are not waiting for somebody to pick up the phone and you are not listening to music. It is usually straight through done and over (telephone banking).

Simon: It's really useful. You can pay most of your bills using Bpay. It's just a matter of dialling in the code and keying in the number. It's good if you compare it with how long it would have taken you to go and pay that bill anyway, plus the cost of getting your cheque made (telephone banking).

The interviewees reported that sometimes electronic banking transactions are time consuming and inefficient. Some interviewees stated that inefficiency usually results when an electronic banking mode fails and they have to visit a bank branch to complete their transactions. Other interviewees specifically associated inefficiency with the length of time taken to complete telephone banking transactions. They suggested that listening to the voice prompts made the transactions time consuming:

Inefficiency - Brenda: For me, I just hate to waste my time. It's just aimless sitting there and on the telephone, there is a mechanical voice saying 'press this here, press this after that'. It can be tedious going through 'the number you have just entered is ...' they repeat everything you have done. It would be a lot quicker if, like Telstra lines, they ask you whether you have used the service before and when you press 'yes' you skip through all the routine stuff (telephone banking).

Simon: I mean for what it does it's good, apart from the time frame. It can become a roughly longwinded process typing in your account number, your Bpay number, the provider number and the company's number etc (telephone banking).

Mathew: My privileges had been revoked. So, I couldn't really do what I wanted it to do (Online banking). I had to go into the bank and re-sign the same forms I had previously signed to get activated.

4.3.6 Fulfils/Creates

Mick and Fournier (1998, p 126) found that although technology can fulfil the needs of consumers, it can also result in the identification of previously unrealised needs. In a like manner, some of the interviewees of this study indicated that using the electronic banking modes available leads to the fulfilment of account management needs such as bill paying and access to and transfer of funds.

Fulfils needs- Esther: I am using Internet banking trying to avoid going into the bank ... I've been using it since January... I'm quite pleased and happy with what it can do and I find it quite easy. I have mastered Bpay ... You can call up statements which is good, I think they go back 12 months ...also they have Online broking connected to it so you can use the brokering service, which again I have no problems with (Online banking).

Judy: I have used telephone banking to pay bills. That facility is good. Especially if you are busy and you want to do it at 10.00pm ...when you realise you have not paid a bill that needs paying.

In terms of creating needs, some interviewees reported that the introduction of electronic banking had highlighted a need for them to learn and understand how to use some modes of electronic banking:

Creates needs - Louise: I tried telephone banking but I mucked it up totally. I don't know how it works so I kept pressing the wrong buttons and mucking it all up. I kept going back to the original menu. It's not good at all. I would love to know how to use a computer because if I knew what I was doing I would use the Internet banking. It would be the easiest. You would have all your accounts there and you would transfer money from one account to another.

Banking institutions provide EFTPOS and ATM facilities, and the software necessary for telephone banking and Online banking transactions. While consumers cannot own EFTPOS and ATM facilities they can own the telephones and computers required for telephone and Online banking transactions. Most of the interviewees

who do not currently own computers highlighted the need to own computers in the future in order to be able to conduct Online banking transactions:

Creates needs - Sarah: I would like to do it (Internet banking). But I haven't got a computer at home and I haven't got access to a computer.

Esther: I know there is this whole amazing electronic world out there, you know, which I would just love learning about. It's just making myself do it.

4.3.7 Assimilation/Isolation

According to Mick and Fournier (1998, p126), the use of technology can result in human separation and/or human togetherness. Their informants reported that assimilation is likely when consumers collectively participate in activities such as watching sporting games and movies on television and/or when they communicate using telephones and computers. By comparison, isolation is likely when the time spent participating in those activities alone erodes the time they would otherwise spend socialising.

The interviewees made no direct or indirect references to electronic banking facilitating assimilation, however they indicated that it might lead to isolation. Some interviewees stated that some people may enjoy the personal interaction with banks' customer service personnel and managers. For these customers electronic banking has reduced the number of visits they are likely to make to bank branches. This may increase isolation by doing away with their personal relationships with bank personnel. The following quotes illustrate this isolation:

Isolation - Lucy: The community breaks down because of all those things (electronic banking). It has separated us and made us more private ... it has stopped the traffic at the local shops... People live in a community where they do not recognise each other.

Ronnie: For example, the current push towards Internet banking. I mean a lot of people really enjoy going to chat with the bank teller for 10 minutes. They would like to talk to

somebody. It might be a single pensioner in a house and every chance they have to chat with someone they do. Now if you start taking that sort of stuff away from them, you start alienating people.

Kevin: Personal relationships, like the bank manager was very approachable when you went to the bank. Now he is not there anymore.

4.3.8 Engaging/Disengaging

The use of technology is engaging when consumers enjoy its use and it facilitates the required activities (Mick & Fournier, 1998). On the other hand, the use of technology can be disengaging when it results in distraction and inhibits the required activities. The interviewees reported that the use of electronic banking technologies is engaging when it facilitates banking transactions such as bill payments, funds transfers, and access to financial markets. However, it can be disengaging when the particular modes do not facilitate the required transactions.

For example:

Engaging - Esther: It's actually quite a good system (Online banking). I am quite pleased and happy with what it can do. I find it quite easy; I have mastered bill payments, which is good. I also use the broking service and I have had no problems with it.

Timothy: My wife enjoys using the computer and does the Online banking when she is on the computer checking her e-mails.

Disengaging - Esther: It (Internet banking) was not working for three days. So, you are back to square one. So yeah, it is the frustration and ... the fact that when it's down, it's down.

Timothy: Recently my wife had disastrous results, all the bills she thought she had paid she had not ...she received lots of overdue notices.

This paradox was not as prevalent amongst Mick and Fournier's informants. This difference may result from the nature of technologies being discussed in both studies. Whereas the interviewees in this study were discussing electronic banking technologies used for service delivery purposes, Mick and Fournier's informants discussed technologies that are used for recreational purposes or household activities. Electronic banking technologies are used for account management activities therefore the effects of an unsuccessful service delivery process may be more significant than the effects of unreliable recreational technology.

4.3.9 Summary

The findings illustrate that those consumers who use electronic banking can experience the paradoxes of technology adoption identified by Mick and Fournier (1998). These findings are consistent with previous research, which shows that consumers can develop positive and negative views towards the same item simultaneously (Kidder et al., 1986; Minichiello et al, 1995). The advantages of using a particular mode of electronic banking may generate positive views towards it whereas the disadvantages of using the same mode of electronic banking may result in the development of negative opinions. For example, as illustrated in the preceding sections some interviewees hold positive views towards the use of Online banking because they are in control of when and how they do their retail banking transactions. These interviewees also reported that negative thoughts that result when the Online banking mode fails to facilitate the required banking transactions.

Although the paradoxes experienced were similar in both studies there were differing perceptions with some paradoxes, namely the freedom/enslavement, new/obsolete, and engaging/disengaging paradoxes. The differences in perception may result from the nature of the technologies discussed in both studies. The freedom/enslavement and the engaging/disengaging paradoxes were more prevalent in this study than they were in Mick and Fournier's study. The interviewees indicated that banking technologies provide them with the flexibility to conduct their account management activities at their convenience. However, reliance on these

technologies means that the interviewees have to bear with the limitations of the various technologies and process failures that can result in unsuccessful transactions. The new/obsolete paradox was not as salient amongst the interviewees in this study as it was in Mick and Fournier's study. Financial institutions provide the software necessary to facilitate electronic banking transactions. Thus, these organisations are more likely to experience the effects of new innovations that render their existing softwares obsolete. As noted earlier, Mick and Fournier's (1998) informants discussed technologies that are typically used for household or recreational activities, whereas the interviewees in this study discussed commercial technologies used for service delivery purposes in the retail banking industry. It is likely that the difference in types of technologies explains at least some of the differences found.

4.4 Discussion

The qualitative data appear to support previous research which suggests that a change in the service delivery process is likely to result in a change in how consumers evaluate their service encounters (Lovelock & Young, 1979; Gronroos, 1984; Zeithaml et al., 1990). These findings have significant implications for existing theories (Disconfirmation, Role theory, Holistic theory, Script theory, Nordic school theory, Customer value theory), associated instruments (SERVQUAL, SERVPERF, SYSTRA-SQ, TRI), and the techniques (Critical incident technique and SOPI) that have been used to assess how consumers evaluate their service encounters. Existing theories and instruments emphasise the significance of customer service personnel during the service delivery process (Schneider & Bowen, 1985; LeBlanc & Nguyen, 1988; Parasuraman et al., 1988; Nicholls et al., 1998; Gabbott and Hogg, 2000). Therefore, they require consumers to evaluate their interactions with customer service personnel when evaluating their perceptions of the different service encounters. During TASE, there is minimal direct contact between consumers and organisations' personnel, so elements of the instruments that require the evaluation of personal contact may need to be adapted to be applicable.

Findings from the in-depth interviewees suggest that consumers who conduct technology-based banking transactions are likely to consider the following criteria when determining their levels of dis/satisfaction with transactions conducted using the available modes of electronic banking: perceived convenience, the transactions they wish to conduct, the transaction aids available, their safety, and the security of their transaction account details. In addition, consumers can hold positive and negative views towards the same modes of electronic banking simultaneously. In particular, they can experience six of the eight paradoxes of technology adoption identified by Mick and Fournier (1998).

Therefore, in order to adapt the various elements of existing theories and instruments to suit TASE, it may be necessary to change the instruments to include items or measures that allow consumers to explicitly evaluate TASE on the basis of the criteria that have been identified in the qualitative stage of this study. It may also be appropriate to include criteria that identify the paradoxes of technology adoption that consumers can experience when using various technologies. The likelihood of experiencing these paradoxes may have an effect on consumers' resulting levels of satisfaction and dissatisfaction with TASE.

4.5 Conclusion

The aim of the qualitative component of this study was to explore the criteria that consumers are likely to use when evaluating TASE in the retail banking industry. The data were collected through 20 in-depth interviews with interviewees who used some or all of the four modes of electronic banking. The data were analysed using N.U.D.I.S.T. software and the criteria identified using inductive and deductive coding.

The findings suggest that consumers who conduct technology-assisted banking transactions may evaluate their transactions on the basis of perceived convenience, the transaction aids available with each mode of banking, the type of transactions they wish to conduct, and the perceived security of using the available

modes. The findings also indicate that consumers who use electronic banking can experience the following paradoxes; control/chaos, freedom/enslavement, efficiency/inefficiency, fulfils/creates needs, assimilation/isolation, engaging/disengaging, and competence/incompetence. They may also experience the new/obsolete paradox although to a lesser extent than for other forms of technology.

The findings of the qualitative phase of this study also indicate that existing theories and measures of service encounter evaluation may be inapplicable to TASE in their current form because they emphasise personal contact between organisations' employees and their consumers. Consequently, these theories and instruments may need to be adapted to facilitate service encounter evaluation by allowing consumers to evaluate the technologies in use and their interactions with those technologies on the basis of the criteria identified in this phase. It may also be appropriate to include variables that explore the paradoxes consumers are likely to experience and the resulting impact on how they evaluate their TASE.

4.6 Methodological Limitations

The qualitative findings provide insight into how consumers evaluate technology-assisted banking transactions and the paradoxes that they may experience. The qualitative findings are based on data collected from 20 West Australian interviewees, and as such the findings lack generalisability. To examine the applicability of the qualitative findings they were used to develop the quantitative phase of this study. The aims of the quantitative stage were to explore consumers' opinions towards the evaluative criteria and the paradoxes of technology adoption identified from the qualitative study and to examine the effects that these opinions and paradoxes are likely to have on consumers' use of the four modes of electronic banking. A survey questionnaire based on the qualitative findings was developed and administered to Western Australians who reported that they use at least one of the four modes of electronic banking. The following chapter outlines the results of the research propositions that formed the basis of the second stage of this study.

CHAPTER 5

RESEARCH PROPOSITIONS

5.1 Introduction

As noted previously, this study was conducted in two stages. During the initial stage, qualitative methods were used to explore how bank consumers are likely to evaluate TASE. This involved collecting and analysing data from in-depth interviews with 20 Western Australian consumers who reported that they use one or more of the four modes of electronic banking. The results of the qualitative stage suggest that consumers might evaluate TASE in the retail banking industry using the following criteria: perceived convenience, the transaction aids available, required transactions, and perceived risk. So, in order to examine the applicability of the relevant criteria identified from the in-depth interviews and their effects on consumers' use of the available modes of electronic banking the qualitative findings were used to develop a survey instrument for the quantitative phase of this study.

As noted earlier, the survey data were collected through a mail questionnaire, which was sent to 1700 potential respondents in Western Australia. The survey response rate was 28.9% (n = 453). Chapter 3 provided the rationale behind the quantitative data collection and analysis methods that were used. This chapter outlines the research propositions that formed the basis of the quantitative phase of this study and guided the development of the items that were included in the mail questionnaire. The research propositions for this study were generated from the findings of qualitative phase of this study.

5.2 Research propositions

The propositions relate to three main criteria that were identified from the qualitative findings, namely: perceived convenience, the transaction aids available,

and perceived risk of using available modes of electronic banking. The propositions also relate to consumers' demographic characteristics and the paradoxes of technology adoption that may influence how consumers evaluate TASE in the retail banking industry.

5.2.1 Convenience

As noted in chapter 2, existing research suggests that consumers are likely to adopt new technologies if they perceive them as easy to use, easily accessible, time efficient, cost efficient, and if the technologies are compatible with their lifestyles (Moore & Benbasat, 1991; Rogers, 1995; Meuter et al., 2001; Dabholkar & Bagozzi, 2002). Findings from the in-depth interviews appear to support the findings of previous studies that indicate that consumers evaluate TASE in the retail banking industry based on perceived ease, convenience, and accessibility (El-Haddad and Almahmeed, 1992; Prendergast, 1993; Aggarwal et al., 1998; Liao et al., 1999).

Findings from the qualitative phase of this study show that consumers might assess the perceived convenience of using the four modes of electronic banking using four criteria, namely: perceived ease of use, perceived speed of transactions, perceived financial cost of transactions, and perceptions regarding the availability of electronic banking facilities. In terms of the latter, interviewees who used EFTPOS and ATMs emphasised that they are motivated to use both modes of electronic banking because the facilities are easily available. Similarly, interviewees who used telephone and/or Online banking modes reported that they are motivated to use these modes of electronic banking because they can conduct their banking transactions at any time as they are not restricted to doing their banking during the banks' standard operating hours of 9.00am – 3.30pm. Therefore, respondents' perceptions of the availability of the four modes of electronic banking were measured differently. Respondents who use EFTPOS and ATM banking modes were asked to indicate their perceptions regarding the availability of EFTPOS and ATM facilities, while respondents who use telephone and Online banking were asked to indicate the times of the day when they conduct their electronic banking transactions. Therefore, the following was proposed:

P1. Consumers are more likely to use electronic banking modes they perceive to be convenient.

P1a: There is a positive association between the number of transactions a consumer conducts using EFTPOS, ATM, telephone, and Online banking modes and the perceived ease of using those modes of electronic banking.

P1b. There is a positive association between the number of transactions consumers conduct using EFTPOS and ATMs and their perceptions regarding the availability of electronic banking facilities.

P1c. There is a positive association between the number of transactions consumers conduct using telephone banking and Online banking modes and the use of these modes of electronic banking beyond the banks' standard operating hours.

P1d: There is an inverse association between the number of transactions consumers conduct using EFTPOS, ATM, telephone and Online banking modes and the perceived financial cost of transactions.

P1e: There is a positive association between the number of transactions consumers conduct using EFTPOS, ATM, telephone, and Online banking modes and the perceived speed of the transactions.

5.2.2 Transaction aids

In a study of voice response technologies used by pilots and consumers with disabilities, Geotte (2000) found that these groups are more likely to adopt the voice response technologies when they expect their use of the technologies to be successful. This finding implies that consumers may be more likely to use the various modes of electronic banking if they expect their use of the relevant transaction aids to be successful. In the electronic banking scenario the transactions aids include the visual cues that are available with EFTPOS, ATM, and Online banking modes and the voice prompts that facilitate telephone banking transactions.

According to Cowles and Crosby (1990), visual cues are significant because they make technologies appear easier to use and because they are engaging and are consequently viewed as a form of personal contact with an organisation. It seems that visual cues can have a positive or negative effect on consumers' use of electronic banking. A study of the effect of visual cues on consumers' use of ATMs found that some consumers may be deterred from using ATMs if they are not sure about how to follow the visual cues that facilitate the transactions (Reiffelmacher, 1991). The general consensus however appears to be that visual cues are a significant motivator for consumers' use of the Online banking mode (Rose, 2000; Black et al., 2001). This is because the visual cues that are available with computers represent a form of direct contact with an organisation and make technologies easy to use (Dabholkar, 1994).

The interviewees from the qualitative phase of this study discussed their perceptions of the voice response units and visual cues available with the telephone and Online banking modes. They did not allude to the visual cues available with EFTPOS and ATMs. Therefore, the quantitative phase of this study did not assess respondents' perceptions of the visual cues available with EFTPOS and ATMs. The qualitative findings suggest that consumers who have positive perceptions of the voice prompts that are available during telephone banking and the visual cues that are available during Online banking are more likely to use both modes of electronic banking. Thus:

P2: Consumers are likely to conduct telephone and Online banking transactions more frequently if the transaction aids available with both modes of electronic banking make transactions easy.

P2a: There is a positive association between consumers' tendency to always listen to all the voice prompts available during telephone banking and:

- (i) The perceived ease of telephone banking transactions.
- (ii) The perceived speed of telephone banking transactions.
- (iii) The number of telephone-banking transactions consumers conduct.

P2b: Consumers who have positive perceptions of the visual cues available during Online banking are likely to:

- (i) Perceive Online banking transactions as easy.
- (ii) Perceive Online banking transactions to be fast.
- (iii) Conduct many Online banking transactions.

5.2.3 Perceived Risk

Various elements of perceived risk are explored in the quantitative phase of this study. These elements include: physical risk (concerns regarding personal safety while using ATMs), psychological risk (concerns about making mistakes and unauthorised accessibility of personal account details), and performance risk (concerns regarding whether or not executed transactions are successfully completed).

Studies show that consumers who have concerns regarding their personal safety whilst using ATMs are less likely to use ATMs (Middlemiss, 1992; Stevens, 1992). Similarly, the qualitative findings of this study show that consumers who use ATMs may have concerns regarding their personal safety while conducting ATM transactions and they may have concerns regarding the security of deposit and/or funds transfer transactions that they conduct using ATMs. Previous research also shows that consumers are less likely to adopt the various modes of electronic banking if they have concerns about their account details being accessible to unauthorised parties (Moore & Benbasat, 1991; Voss, Parasuraman, & Grewal, 1998; Sathye, 1999; Bitner et al., 2000; Bobbit & Dabholkar, 2001). In a like manner, findings from the qualitative phase of this study show that consumers who use Online banking may have concerns regarding the security of their personal and account details.

In addition, the qualitative findings show that consumers may have concerns about making mistakes while conducting technology-assisted banking transactions and they may also have concerns about whether or not the electronic banking transactions they initiate will be successfully completed. The ability to note down receipt numbers after telephone-banking transactions and to write receipt numbers or

print paper receipts after Online banking transactions may be significant because paper receipts and/or receipt numbers indicate that the required electronic banking transactions have been completed successfully. Thus:

P3: Consumers who have lower levels of perceived risk are likely to conduct more electronic banking transactions compared to those who have higher levels of perceived risk.

P3a: There is an inverse association between the perceived likelihood of making mistakes (psychological risk) and the number of transactions consumers conduct using EFTPOS, ATM, telephone and Online banking modes.

P3b: There is a positive association between consumers' fear of being attacked (physical risk) while using ATMs and their perceptions regarding the risk of depositing money at ATMs.

P3c: Consumers who have concerns regarding their personal safety (physical risk) while using ATMs are likely to conduct fewer ATM transactions compared to consumers who are not concerned about their personal safety.

P3d: Consumers who perceive Online banking transactions to be secure (psychological risk) are likely to conduct more Online-banking transactions compared to consumers who perceive Online banking to be risky.

P3e: Consumers who always write their receipt numbers (performance risk) after telephone and Online banking transactions conduct more telephone and Online banking transactions compared to consumers who do not.

5.2.4 Demographics

Information on consumers' demographic characteristics is important because it can provide a profile of the consumers who are likely to use various technologies

(Stafford, 1996). Previous research suggests that consumers who conduct technology-assisted banking transactions are likely to be younger, better educated and have higher annual incomes (Moore & Benbasat, 1991; Bednar et al., 1995; Goode & Mountinho, 1996; Stafford, 1996; Voss et al., 1998; Tan et al., 1999). Furthermore, researchers examining the differences in the demographic characteristics of consumers who are likely to use the available modes of electronic banking have found that consumers who use electronic banking are more likely to differ on the basis of their age than on the basis of their education, occupation, and income (Prendergast, 1993; Tan et al., 1999). Machauer and Morgner (2001) and Dabholkar and Bagozzi (2002) assert that personality traits are more significant than demographic variables when examining consumers' likelihood of adopting electronic banking technologies. They add that consumers who have lower education levels and lower incomes can still adopt electronic banking technologies because these technologies are becoming readily available (Machauer & Morgner, 2001; Dabholkar & Bagozzi, 2002). To determine the role of demographic variables on the adoption of electronic banking technologies, the quantitative phase of this study examined whether the Western Australian consumers who use electronic banking have particular demographic profiles. Thus:

P4a: There is an association between consumers' age, gender, occupation, level of education, and income and their use/non use of the various modes of electronic banking.

P4b: There is an association between consumers' age, gender, occupation, level of education, and income and the number of transactions they conduct using the various modes of electronic banking.

5.2.5 Paradoxes

As noted earlier, studies show that consumers can develop positive and negative views towards the same item simultaneously (Kidder et al., 1986; Minichiello et al., 1995). In particular, Mick and Fournier's (1998) study of consumers' views post adoption of particular forms of technology suggests that consumers are likely to develop eight attitudinal paradoxes; control/chaos, freedom/enslavement, competence/incompetence, assimilation/isolation,

engaging/disengaging, fulfils/creates needs, new/obsolete, and efficiency/inefficiency. The findings from the qualitative stage of this study indicate that some of these paradoxes may be more applicable to the electronic banking scenario than others. In particular, the findings indicate that the new/obsolete and the assimilation/isolation paradoxes are largely inapplicable to the electronic banking scenario while the other paradoxes appear to be relevant. So, the new/obsolete and assimilation/isolation paradoxes will not be discussed in the following sections.

P5: Consumers who use electronic banking can experience the paradoxes of technology adoption.

- (i) Consumers' experiences of the paradoxes of technology adoption can affect their usage rates of the various modes of electronic banking.

Control/Chaos Paradox

The qualitative findings suggest that consumers are likely to experience feelings of control when they use electronic banking. Feelings of control appear to relate to consumers' perceived ability to manage their money by conducting the required transactions and ensuring that the transactions are done correctly. On the other hand, consumers can experience chaos when the various modes of electronic banking do not facilitate the required transactions and/or if they make mistakes during transactions. Thus:

P5a: Consumers who use electronic banking can experience the control/chaos paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings of control and an inverse association between the number of transactions consumers conduct and their reported feelings of chaos.

Freedom/Enslavement Paradox

Interviewees in the qualitative phase of this study indicated that they are likely to experience feelings of freedom when the different modes of electronic banking allow them to do their banking transactions from different locations and at different times of the day. The interviewees also indicated that they can experience feelings of enslavement when they feel dependent on the available modes of electronic banking and when there is a limit placed on the number and types of transactions they can conduct using the four modes of electronic banking. Thus:

P5b: Consumers who use electronic banking can experience the freedom/enslavement paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings of freedom and an inverse association between the number of transactions consumers conduct and their reported feelings of enslavement.

Competence/Incompetence Paradox

The qualitative findings suggest that consumers who conduct technology-based banking transactions are likely to feel competent when they perceive the transactions to be easy and when they can complete their transactions successfully. However, the consumers can also feel incompetent when they do not know how to use some modes of electronic banking, when they cannot comprehend the full capabilities of those modes of electronic banking that they already use, when they cannot recall their PINs, and/or when they make mistakes while conducting electronic banking transactions. Thus:

P5c: Consumers who use the four modes of electronic banking can experience the competence/incompetence paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings of competence and an inverse association between the number of

transactions consumers conduct and their reported feelings of incompetence.

Efficiency/Inefficiency Paradox

Findings from the qualitative section show that consumers can consider technology-assisted banking transactions to be more efficient when they take less time to complete compared to banking transactions that they conduct using other modes of electronic banking and/or banking transactions that they conduct with the assistance of human-tellers. On the other hand, consumers' use of electronic banking can result in inefficiency when banking transactions they conduct using some modes of electronic banking take a longer time to complete than when they are conducted using other means. Thus:

P5d: Consumers who use electronic banking can experience the efficiency/inefficiency paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their perceptions that electronic banking transactions are efficient and an inverse association between the number of transactions consumers conduct and their perceptions that electronic banking transactions are inefficient.

Fulfils/Creates Needs Paradox

The interviewees reported that the various modes of electronic banking can fulfil their account management needs such as cash withdrawals, bill payments, funds transfers, and access to other financial institutions. At the same time, the use of electronic banking can result in the identification of previously unrealised needs. This may include the need to learn how to use those modes of electronic banking that they do not currently use and/or the need to own a computer in order to conduct Online-banking transactions. Thus:

P5e: Consumers who use electronic banking can experience the fulfils/creates needs paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings that electronic banking fulfils needs and an inverse association between the number of transactions consumers conduct and their reported feelings that electronic banking creates needs.

Engaging/Disengaging Paradox

Consumers who conduct electronic banking transactions can experience the engaging/disengaging paradox. Findings from the qualitative phase of this study suggest that use of electronic banking is engaging when it facilitates the required transactions and particularly when it provides consumers with access to other financial institutions. On the other hand, use of the available modes of electronic banking can be disengaging when the modes cannot facilitate the required transactions, the transactions are time consuming, and/or the mistakes are difficult to correct. Thus:

P5f: Consumers who use the four modes of electronic banking can experience the engaging/disengaging paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings that electronic banking is engaging and an inverse association between the number of transactions consumers conduct and their reported feelings that electronic banking can be disengaging.

5.3 Summary

Findings from the qualitative stage of this study suggest Western Australian consumers are likely to evaluate TASE on the basis of their perceived convenience, the transaction aids available, and perceived risk. They also indicate that Western

Australian consumers who conduct technology-based retail banking transactions can experience six of the paradoxes of technology adoption identified by Mick and Fournier (1998). These are the control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, engaging/disengaging, and fulfils/creates needs paradoxes. The research propositions that were used to guide the quantitative phase of this study were developed on the basis of these findings and the relevant literature.

This chapter has discussed these research propositions. It has outlined the propositions relating to the relevant criteria that can influence consumers' levels of satisfaction and/or dissatisfaction with TASE in the retail banking industry. These criteria are the perceived convenience, the transaction aids, and perceived risk. The chapter has also outlined propositions relating to the six paradoxes of technology adoption that may be applicable to the electronic banking scenario and propositions regarding the respondents' demographic characteristics. As noted in chapter 3, the quantitative data were analysed using nonparametric statistics. The results of the data analysis are presented in the following chapter and they are discussed in chapter 7.

CHAPTER 6

RESULTS

6.1 Introduction

This chapter provides the results of the data analysis. The chapter is divided into two sections. The first section provides the descriptive statistics while the second section provides the results pertaining to the research propositions. As noted in chapter 3, the data were analysed using SPSS v.10. The statistical tests used were Spearman's rank order correlation, Chi-square tests of association, the Mann-Whitney U test, and the Kruskal-Wallis test.

6.2 Descriptive Statistics

The following section begins by providing a summary of the sample's demographic characteristics. This is followed by a description of the modes of electronic banking respondents indicated they use and the transactions they are likely to conduct using those modes.

6.2.1 Demographic Characteristics

6.2.1.1 Gender

The gender distribution of the sample appeared to be more or less similar to that of Western Australia's population. Of the 453 respondents 49.4% were females, 50.3% were males and there was a non-response for the gender question of 0.3%. By comparison the Western Australian (WA) population consists of 50.2% females and 49.8% males (ABS, 2002).

6.2.1.2 Age

The data presented in Table 3 show that 73.3% of the WA population is 18 years of age or older (ABS, 2002). The remaining 26.7% consists of those aged zero to 17 years (25.7%) and overseas visitors (1%) (ABS, 2002). The data presented in Table 3 show that there were differences between the age distributions of the resulting sample and those of the WA population. For instance, the respondents aged 18 – 25 years comprised 7.3% of the sample, whereas they represent 10.9% of the WA population (ABS, 2002). The respondents aged between 36 – 65 years comprised 64% of the sample, while they account for 37.6% of the WA population (ABS, 2002). These differences may be due to the sampling frame used, the WA telephone directories. Individuals aged 18 – 25 years are more likely to be still living at home and so they may not be listed in the telephone directories, whereas the 36 - 65 year olds are more likely to be living independently and listed in the telephone directories. These differences in the age distribution are important because they may have an effect on some of the results presented later in the chapter.

Table 3: Age distribution of the survey sample

Age	Sample Percentage	WA population percentage
18 - 25 years	7.3	10.9
26 - 35 years	16.3	14.5
36 – 45 years	25.2	15.4
46 – 55 years	23.0	13.5
56 – 65 years	15.8	8.7
66 years and over	12.4	10.3
Total	100.0	73.3

6.2.1.3 Educational Qualifications

The data also show a difference between the respondents' educational qualifications and the educational qualifications of the Western Australian population as reported by the Australian Bureau of Statistics (2003). For instance, according to the ABS (2003), 9.3% of the people in WA have an undergraduate degree and 1.4% have a postgraduate degree. By comparison, 18.5% of the sample respondents reported that they have an undergraduate degree and 13.2% reported that they have a postgraduate qualification. There are two possible reasons for the differences in the educational qualifications of the sample and those of the WA population. Firstly, survey respondents are likely to have above average education. Research shows that consumers with less education and limited literacy levels are less likely to respond to mail surveys because they have more difficulty communicating their attitudes (Dillman, 1978; Dillman, 1983; Schuman & Kalton, 1985; Aaker et al., 1995). Secondly, the sample was drawn from a target population of consumers who use at least one of the four modes of electronic banking. Existing studies show that consumers who use electronic banking are likely to have above average education while consumers who are less educated and unskilled are more likely to lack the confidence to conduct technology-assisted banking transactions (Jayawardhena & Foley, 2000; Thornton & White, 2001; Pereira, 2002). Due to the small cell sizes the respondents' educational categories were collapsed based on the categories used by the ABS during the 2001 census (ABS, 2002). The data on the respondents' educational qualifications are presented in Table 4. The total of the WA population presented in Table 4 is 97.6% because according to the ABS (2002) 2.4% of those over 18 years of age did not report their educational qualifications because they are still in school.

Table 4: Summary - Respondents' educational qualifications

Educational qualification	Sample Percentage	WA population Percentage
Primary school (year 9 or lower)	4.4	10.5
Year 10 - 12 or equivalent	33.1	58.7
Trade certificate	15.5	13.5
Diploma and/or Undergraduate qualification	32.9	13.2
Postgraduate qualification	13.2	1.1
Did not answer	0.9	0.6
Total number of respondents	100.0	97.6

6.2.1.4 Annual Income

The data presented in Table 5 show that 27.7% of the WA population has an annual income of \$10,000 or less, while 3.8% of the population has an annual income of \$60,000 or more. By comparison, 10.6% of the respondents noted that they have annual incomes of \$10,000 or less, while 21.6% of the respondents noted that they have annual incomes of \$60,000 or more. The differences in the annual incomes reported by the sample and those of the WA population may be explained by the differences in occupations and educational qualifications. As noted earlier, consumers who are likely to use the four modes of electronic banking are likely to have higher educational qualifications. These consumers are also likely to be in higher-paid occupations. In addition, the percentage of the WA population with an annual income of \$10,000 or less is higher than that of the sample because the WA population includes younger employed people who are more likely to be in the lowest income bracket, while this study only sampled those over the age of 18 years.

Table 5: Summary - Respondents' annual income

Annual Income	Sample percentage	WA population Percentage
Less than \$10,000	10.6	27.7
\$10,000 - \$19,999	14.1	20.9
\$20,000 - \$29,999	13.5	15.6
\$30,000 - \$39,999	12.1	10.8
\$40,000 - \$49,999	11.9	6.9
\$50,000 - \$59,999	10.9	7.1
\$60,000 and over	21.6	3.8
Did not answer	5.3	7.2
Total respondents	100.0	100.0

6.2.1.5 Occupation

The data also show a difference between the sample respondents' occupations and those of the Western Australian population. In Western Australia 8.7% of people are employed as managers and administrators (ABS, 2003), while 15.7% of the sample respondents belong to this category. In addition, 17.1% of Western Australians are employed as professionals and 12.3% are employed as para-professionals (ABS, 2003). By comparison, 23% of the respondents indicated that they are employed as professionals and 3.5% as para-professionals. While tradespeople represent 5.5% of the sample, they represent 13.3% of the people in Western Australia. Once again, it is likely that respondents in the higher paid occupations are over represented in the sample because they are more likely to use electronic banking than those in lower paid occupations. In order to facilitate data analysis the occupational categories listed in the survey instrument were collapsed and the resulting groups are presented in Table 6.

Table 6: Summary - Respondents' occupations

Occupation	Sample percentage	WA population Percentage
Unemployed or on a Pension	17.8	44.2
Student	3.1	3.0
Clerk, sales and personal services, homemaker, cleaner, or carer	22.9	22.1
Tradesperson, labourer, or machine operator	10.6	7.6
Manager, administrator, or self employed	18.1	5.1
Professional or para-professional	26.5	17.0
Did not answer	0.9	1.0
Total number of respondents	100.0	100.0

6.2.1.6 Summary

In summary, the final sample of 453 respondents consisted of 49.4% females and 50.3% males (0.3% non response). While the gender distribution of the sample was similar to that of the Western Australian population, there were differences between the sample's age, education, income, and occupational distributions and these distributions in the Western Australian population. The differences in the age distribution of the sample and that of the Western Australian population may be a result of the sampling frames used, the Western Australian telephone directories. The data were collected from respondents who use at least one of the four modes of electronic banking. As noted previously, consumers who are likely to use these modes of electronic banking are likely to have above average education (Jayawardhena & Foley, 2000; Thornton & White, 2001; Pereira, 2002). This may explain the differences in education, income, and occupational categories of the sample and the Western Australian population.

6.2.2 Modes of electronic banking

Table 7 presents a summary of the number of respondents who reported using each of the various modes of electronic banking. The results show that ATMs are the most popular mode of electronic banking in WA followed by EFTPOS transactions.

Table 7: Percentage of sample for each mode of electronic banking

Mode	Percentage
ATM	92.1
EFTPOS	81.9
Telephone	55.8
Internet/Online	32.9

Note. Percentage represents the respondents who used the particular mode of electronic banking as a percentage of the whole sample (453 respondents).

6.2.3 Electronic banking transactions

A summary of the results pertaining to the electronic banking transactions respondents reported they conduct is presented in Table 8. Consumers have been found to mainly use EFTPOS for payments for goods and services and/or withdrawals in retail settings (Tan et al., 1999). As a result of the limited transaction types that can be executed by EFTPOS, respondents were not asked to specify the transactions they are more likely to conduct using EFTPOS. Therefore, the results presented in Table 8 only represent the total number of respondents who reported that they use EFTPOS.

The results presented in Table 8 illustrate those transactions that respondents reported they conduct using ATMs, telephone, and Online banking modes. The results show that 98.3% of the respondents who reported that they use ATMs reported that they use them for cash withdrawals. By comparison, respondents who reported that they use telephone and/or Online banking reported using these modes of electronic banking mainly to check their account balances and to facilitate payments via funds transfers.

Table 8: Summary – Electronic banking transactions conducted

Mode	Transaction	Percentage*
EFTPOS (n = 371)	Cash payment/withdrawal	81.9
ATM (n = 417)	Cash withdrawal	98.3
	Account balance	46.2
	Cash deposit	18.4
	Funds transfer	14.6
	Cheque deposit	13.6
	Account statements	2.6
	Bill payment	2.3
Telephone banking (n = 253)	Account balance	74.3
	Funds transfer	63.6
	Credit card payment	60.0
	Bill payment	50.9
	Last 5 transactions	37.5
	Account statement	7.1
	Order a cheque book	2.4
	Change security code	2.4
Online banking (n = 149)	Account balance	91.2
	Funds transfer	73.1
	Credit card payment	54.4
	Bill payment	46.3
	Periodical payments	20.8
	Add frequent biller	18.1
	Account statement	14.7
	Change security code	6.7
	Change address	4.0
	Interest statement	3.3
	Order cheque book	4.0
	Credit card application	2.7
	Stop a cheque	2.0
Order a deposit book	1.3	

Note. *Represents the number of respondents who reported that they conduct the stated transaction as a percentage of the respondents who use the particular mode of electronic banking.

6.3 Tests of the propositions

As noted in chapter 3, non-parametric statistical tests were used to analyse the data. In particular, bivariate (Spearman's rank order) correlations were used to analyse the possible association between two variables, and the Kruskal-Wallis and the Mann-Whitney tests were used to examine whether the criteria used to evaluate technology-based banking modes differ with the consumers' demographic characteristics and the mode of electronic banking in use. The following sections provide tests of the propositions.

6.3.1 Convenience

P1a: There is a positive association between the number of transactions a consumer conducts using EFTPOS, ATM, telephone, and Online banking modes and the perceived ease of using those modes of electronic banking.

The results presented in Table 9 provide a summary of the responses relating to the frequency of using each of the four modes of electronic banking. The table shows that most respondents who conduct EFTPOS, ATM, and telephone banking transactions reported that they conduct five to twelve transactions a month while most respondents who use Online banking reported that they conduct more than twelve transactions a month.

Table 9: Summary – Frequency of using the four modes of electronic banking

Frequency	EFTPOS	ATM	Telephone	Online
1 - 4 times a month	16.2%	21.9%	33.1%	27.6%
5 - 12 times a month	51.4%	51.9%	36.7%	35.8%
More than 12 times	32.4%	26.2%	30.3%	36.6%

Table 10 illustrates the results of a cross tabulation between the responses relating to the respondents' perceptions regarding the ease of using a particular mode of electronic banking and their frequency of using the nominated mode of electronic banking.

Table 10: Cross tabulation - Frequency of use and perceived ease of use

Mode	Frequency	Easy to use					
		Strongly disagree			Strongly agree		
		1	2	3	4	5	6
EFTPOS	1 –4 times a month	3.3%	6.7%	3.3%	16.7%	35%	35%
	5 – 12 times month	0%	1.6%	5.8%	13.8%	32.8%	46.0%
	More than 12 times	0.8%	1.7%	2.5%	9.2%	30.0%	55.8%
ATM	1 –4 times a month	4.4%	3.3%	11.0%	14.3%	35.1%	31.9%
	5 – 12 times month	1.4%	0.9%	5.1%	11.6%	31.5%	49.5%
	More than 12 times	2.8%	1.8%	5.5%	11.0%	26.6%	52.3%
Phone	1 –4 times a month	3.6%	7.2%	13.3%	20.5%	26.5%	28.9%
	5 – 12 times month	2.2%	4.3%	9.8%	15.2%	34.8%	33.7%
	More than 12 times	2.6%	5.3%	6.6%	18.4%	31.6%	35.5%
Online	1 –4 times a month	2.6%	0%	25.6%	23.1%	25.6%	23.1%
	5 – 12 times month	2.0%	2.0%	5.8%	19.6%	43.1%	27.5%
	More than 12 times	1.8%	3.6%	7.3%	18.2%	32.7%	36.4%

The results in Table 10 show that respondents who reported that electronic banking is easy also reported higher usage levels. For instance, 85.8 % of the EFTPOS, 78.9% of ATM, 67.1% of telephone, and 69.1% of Online banking users who reported that they perceive transactions to be easy also reported conducting more than 12 transactions a month.

Bivariate correlations were used to examine whether there is a statistically significant association between the respondents' perceived ease of using each of the four modes of electronic banking and the number of transactions they are likely to conduct monthly. The results presented in Table 11 show the resulting Spearman's rank order correlation coefficients.

Table 11: Correlation - Perceived ease and usage rate

Transactions are easy	Spearman's rho	Significance
EFTPOS	0.160	0.002*
ATM	0.140	0.005*
Telephone banking	0.100	0.129
Online banking	0.160	0.050*

Note. * Indicates that results are significant, where $P < 0.05$

The results for EFTPOS, ATM, and Online banking modes show a weak but statistically significant positive correlation between perceived ease and frequency of use. The literature review in chapter 2 showed that consumers are likely to adopt technologies that they find easy to use (Tornatzky & Klein, 1982; Davis, 1989; Rogers, 1995; Au & Enderwick, 2000; Meuter et al., 2000; Dabholkar & Bagozzi, 2002; Walker et al., 2002; Zhu et al., 2002). In particular, they are more likely to conduct technology-based banking transactions if they perceive them to be easy (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Filotto, Tanzi, & Saita, 1997; Liao et al., 1999; Merrick, 2000; Al-Ashban & Burney, 2001; Reid, 2001). Therefore, it is interesting to note that the results of the bivariate correlations show a weak association between perceived ease and the respondents' frequency of using EFTPOS, ATM, and Online banking modes yet the data indicate that most respondents perceive these modes of electronic banking to be easy to use. The likely explanation is that there are factors other than perceived ease of use that affect the number of transactions respondents are likely to conduct each month using the different modes of electronic banking.

Summary

The results of the preceding section provide partial support for the research proposition. They show a positive association between the number of transactions consumers are likely to conduct and the perceived ease of using EFTPOS, ATM, and Online banking modes. This suggests that consumers who think that EFTPOS, ATM, and Online banking modes are easy to use are likely to conduct numerous banking transactions using these modes. However, results pertaining to respondents' use of the telephone banking mode do not support the research proposition.

P1b. There is a positive association between the number of transactions consumers conduct using EFTPOS and ATMs and their perceptions regarding the availability of electronic banking facilities.

The following section examines whether consumers who perceive EFTPOS and ATM facilities to be easily available are likely to conduct more electronic banking transactions than those who do not find the facilities easily available. Respondents' perceptions regarding the availability of EFTPOS and ATM facilities were measured using Likert scaled items ranging from 'strongly disagree' (1) to 'strongly agree' (6). The survey data show that 69.8% of the respondents who used EFTPOS think that EFTPOS facilities are readily available while 30.2% do not. In a like manner, 66.3% of the respondents who reported that they use ATMs also reported that they perceive them to be readily available while 33.7% do not. The association between accessibility and usage rate of these modes was examined using nonparametric bivariate correlations.

Table 12: Correlation - Accessibility and usage rate of EFTPOS and ATMs

Facilities are easily available	Spearman's rho	Significance
EFTPOS	0.031	0.548
ATM	0.109	0.027*

Note. * Indicates results are significant, where $P < 0.05$

The results presented in Table 12 show that there is no statistically significant association between respondents' perceptions regarding the availability of EFTPOS facilities and the number of EFTPOS transactions they reported conducting. The results pertaining to respondents' use of ATMs show a statistically significant positive association between the number of transactions respondents are likely to conduct and their perceptions regarding the availability of ATMs. A summary of the results pertaining to the respondents' perceptions regarding the availability of ATMs and the number of ATM transactions they reported conducting is presented in Table 13. It shows that 26% of the respondents who perceived ATMs to be readily available and 27% of those who did not think ATMs are easy to find reported conducting more than 12 transactions a month. Most of the respondents reported conducting five to 12 ATM transactions a month. Table 13 also shows that nearly one-third of the respondents who perceived ATMs as difficult to find stated they conduct one to four transactions a month. By contrast, 18% of those who think ATMs are easy to find conduct less than five transactions a month.

Table 13: Summary - Accessibility and usage rate of ATMs

ATMs	Respondents	Transactions monthly
ATMs are easy to find	26%	More than 12 transactions
	56%	5 – 12 transactions
	18%	1 – 4 transactions
ATMs are not easy to find	27%	More than 12 transactions
	44%	5 – 12 transactions
	29%	1 – 4 transactions

Summary

The results on respondents' use of ATMs support the research proposition. They show a statistically significant association between the respondents' perceptions regarding the availability of ATMs and the number of ATM transactions respondents reported conducting. This suggests that consumers who perceive ATM facilities to be readily available are likely to conduct more ATM transactions than those who do

not think ATM facilities are readily available. However, the results pertaining to respondents' use of EFTPOS were not statistically significant so they do not support the research proposition.

P1c. There is a positive association between the number of transactions consumers conduct using telephone banking and Online banking modes and the use of these modes of electronic banking outside of the banks' standard operating hours.

Table 14 provides a summary of the times when respondents indicated they are likely to do their telephone banking and Online banking transactions. Most of the respondents who use telephone banking and Online banking reported that they are likely to conduct their transactions between 8.00am-11.59am and 5.00pm – 8.59pm.

Table 14: Summary - Time of day and telephone and Online banking

Banking mode	Response	12.00-7.59am	8.00am – 11.59am	12.00pm – 4.59pm	5.00pm – 8.59pm	9.00pm – 11.59pm
Telephone	Yes	11.9%	48.0%	36.5%	44.0%	15.5%
	No	88.1%	52.0%	63.5%	56.0%	84.5%
Online	Yes	9.5%	47.6%	35.4%	49.7%	26.5%
	No	90.5%	52.4%	64.6%	50.3%	73.5%

Chi-square tests of association were done to examine whether there is a statistically significant association between the usage times and the number of telephone banking and Online banking transactions respondents reported conducting. The results are presented in Table 15.

Table 15: Association - Time of day and frequency of use

Mode	Time	Chi-square Statistic	Degrees of freedom	Significance
Telephone banking	12.00am - 7.59 am	3.432	2	0.180
	8.00am – 11.59am	2.643	2	0.267
	12.00pm – 4.59pm	4.003	2	0.135
	5.00pm – 8.59pm	1.867	2	0.393
	9.00pm – 11.59pm	3.364	2	0.186
Online banking	12.00am - 7.59 am	1.810	2	0.404
	8.00am – 11.59am	4.148	2	0.126
	12.00pm – 4.59pm	7.367	2	0.025*
	5.00pm – 8.59pm	1.609	2	0.447
	9.00pm – 11.59pm	6.070	2	0.048*

Note. * Indicates results are significant, where $P < 0.05$

The results presented in Table 15 show no statistically significant association between the respondents' use of telephone banking at particular times of the day and the number of transactions they reported conducting. However, the results relating to respondents' use of Online banking partially support the research proposition. The results show a statistically significant association between respondents' use of Online banking between 12.00pm to 4.59pm and 9.00pm to 11.59pm. Table 16 shows the number of transactions respondents reported conducting using Online banking between the hours of 12.00pm to 4.59pm and 9.00pm to 11.59pm. The results in Table 16 show that a majority of those who conduct their Online banking transactions between these hours are also likely to conduct more than 12 Online banking transactions a month.

Table 16: Summary – Online banking times and usage rate

Time	Respondents	Transactions monthly
12.00pm to 4.59pm	46.2%	More than 12 transactions
	40.4%	5 – 12 transactions
	13.4%	1 – 4 transactions
9.00pm to 11.59pm	51.3%	More than 12 transactions
	20.5%	5 – 12 transactions
	28.2%	1 – 4 transactions

Summary

The results partially support the research proposition. They show that there is no statistically significant association between the usage times and the number of telephone banking transactions that respondents who use telephone banking reported conducting, so they do not support the research proposition. However, the results pertaining to the respondents' use of Online banking partially support the research proposition. The results suggest that most of consumers who use Online banking beyond the banks' standard operating hours are likely to conduct numerous Online banking transactions. These consumers are likely to conduct their Online banking transactions during some of the afternoon hours (after 3.30pm when bank branches are closed) and during the evening times of 9.00pm to 11.59pm.

P1d: There is an inverse association between the number of transactions consumers conduct using EFTPOS, ATM, telephone and Online banking modes and the perceived financial cost of transactions.

Respondents were asked to report their perceptions of the cost of technology-assisted banking transactions on Likert scaled items anchored 1 (strongly disagree) to 6 (strongly agree). The results in Table 17 provide a summary of the respondents'

perceptions. The results show that most respondents who used EFTPOS and ATM banking modes reported that they perceive the cost of transactions to be high. By contrast, less than half of the telephone banking and Online banking users reported thinking that the cost of transactions is high.

Table 17: Summary - Perceptions regarding the financial cost of transactions

Cost of transactions is high	Agree	Disagree
EFTPOS	70%	30%
ATM	76%	24%
Telephone banking	44%	56%
Online banking	44%	56%

Spearman’s rank order correlations were used to examine whether there is an association between perceived financial cost of electronic banking transactions and the number of transactions respondents reported that they are likely to conduct. The results are presented in Table 18.

Table 18: Correlation - Perceived financial cost and use of electronic banking

The cost of transactions is high	Spearman’s rho	Significance
EFTPOS	-0.014	0.788
ATM	0.015	0.762
Telephone banking	-0.034	0.591
Online banking	-0.146	0.081

Note. * Indicates results are significant, where $P < 0.05$

The results presented in Table 18 show that there is no statistically significant association between the perceived cost of electronic banking transactions conducted using the four modes of electronic banking and the number of electronic banking transactions that respondents reported conducting.

Summary

The results were not statistically significant so they do not support the research proposition. They suggest that the number of electronic banking transactions that consumers are likely to conduct may not be associated with their perceptions regarding the cost of transactions.

P1e: There is a positive association between the number of transactions consumers conduct using EFTPOS, ATM, telephone, and Online banking modes and the perceived speed of the transactions.

The respondents' perceptions of the speed of electronic banking transactions were measured on Likert scaled items anchored 1 (strongly disagree) to 6 (strongly agree). Table 19 provides a summary of the respondents' views on the length of time taken to complete electronic banking transactions. The results in Table 19 show that while most respondents perceive EFTPOS, ATM, and Online banking transactions to be expeditious, most of the respondents who use telephone banking find telephone banking transactions time consuming.

Table 19: Summary – Perceptions of the speed of transactions

Transactions are fast	Agree	Disagree
EFTPOS	87%	13%
ATM	86%	14%
Telephone banking	31%	69%
Online banking	70%	30%

The association between the perceived speed of transactions and the number of electronic banking transactions consumers are likely to conduct was then examined using bivariate correlations. The results are presented in Table 20. The results in Table 20 show that there is no statistically significant association between the perceived speed of EFTPOS, ATM, and telephone banking transactions and the respondents' usage rate of these three modes of electronic banking. However, the results show that there is a statistically significant positive association between the

perceived speed of Online banking transactions and the number of Online banking transactions that the respondents reported conducting.

Table 20: Correlation – Perceived speed of transactions and usage rate.

Transactions are fast	Spearman's rho	Significance
EFTPOS	0.089	0.086
ATM	0.009	0.855
Telephone banking	0.075	0.235
Online banking	0.193	0.020*

Note. * Indicates results are significant, where $P < 0.05$

A summary of the respondents' perceptions towards the speed of Online banking transactions and the number of Online banking transactions they reported conducting is presented in Table 21. The results in Table 21 show that most of the respondents who reported that Online banking transactions are fast also reported conducting more than 12 Online banking transactions a month, while those who reported that Online banking transactions are not fast reported conducting fewer Online banking transactions.

Table 21: Summary – Speed of Online banking transactions and usage rate

Online banking	Respondents	Transactions monthly
Transactions are fast	43%	More than 12 transactions
	37%	5 – 12 transactions
	20%	1 – 4 transactions
Transactions are not fast	27%	More than 12 transactions
	30%	5 – 12 transactions
	43%	1 – 4 transactions

Summary

The results pertaining to the respondents' perceptions of the speed of EFTPOS, ATM, and telephone banking transactions were not statistically significant, and as such they do not support the research proposition. They indicate that the perceived speed of EFTPOS, ATM, and telephone banking transactions may not have a significant impact on the number of transactions that WA consumers are likely to conduct using these modes of electronic banking. On the other hand, the results pertaining to Online banking support the research proposition. They show that respondents who perceive Online-banking transactions to be expeditious reported conducting numerous transactions while those who stated that they think Online-banking transactions are time consuming reported conducting fewer Online banking transactions. Thus, WA consumers who think Online banking transactions are fast are likely to conduct more Online banking transactions compared to those who think that Online banking transactions are not fast.

6.3.2 Transaction aids

P2a: There is a positive association between consumers' tendency to always listen to all the voice prompts available during telephone banking and:

- (i) The perceived ease of telephone banking transactions.*
- (ii) The perceived speed of telephone banking transactions.*
- (iii) The number of telephone-banking transactions consumers are likely to conduct.*

Perceived Ease

Nonparametric correlations were used to examine the association between extent of use of voice prompts and the perceived ease of telephone banking transactions. On the basis of the qualitative findings it was expected that there would be a positive association between both variables. The results show a statistically significant inverse association (Spearman's correlation coefficient = -0.131, $p =$

0.038) between the respondents' extent of use of the voice prompts and the perceived ease of telephone banking transactions. In so doing, the results do not support the research proposition. Instead, the results indicate that those respondents who reported that they always listen to all the voice prompts during telephone banking also reported that they find telephone banking transactions more difficult compared to those respondents who do not always listen to all the voice prompts.

Perceived Speed

Nonparametric correlations were also used to examine the nature of the association between the perceived speed of telephone banking transactions and the stated tendency to always use the voice prompts available. The qualitative findings suggest that there would be a negative association between the extent of use of the voice prompts and perceive speed of telephone banking transactions. While the quantitative results show a negative association they do not support the research proposition because they did not show a statistically significant association between both variables (Spearman correlation coefficient = -0.094, $P = 0.137$).

Usage Rate

Nonparametric correlations were also conducted to examine whether the stated tendency to always use the voice prompts has an effect on the number of telephone banking transactions respondents reported they conduct. The results showed an inverse association between both variables. Respondents who reported that they always listen to all the voice prompts during telephone banking transactions also reported conducting fewer transactions compared to the respondents who did not listen to all the voice prompts. However, the results were not statistically significant (Spearman's correlation coefficient = -0.077, $P = 0.226$) and so they do not support the research proposition.

Summary

The results pertaining to the association between the respondents' reported tendency to always use all the voice prompts available during telephone banking and

the perceived ease of telephone banking transactions did not support the research proposition. Instead, they showed a statistically significant inverse association between both variables. The results pertaining to the respondents' stated tendency to always use the voice prompts and the perceived speed of telephone banking transactions and the number of transactions they are likely to conduct showed inverse associations. However, they were not statistically significant and therefore they do not support the research proposition.

P2b: Consumers who have positive perceptions regarding the visual cues available during Online banking are likely to:

- (i) Perceive Online banking transactions as easy.*
- (ii) Perceive Online banking transactions as fast.*
- (iii) Conduct numerous Online banking transactions.*

Perceived Ease

The data show that most of the respondents (82%) who reported that they use Online banking also reported using Online banking because they can 'see' their transaction accounts. Spearman's rank order correlations were done to examine the nature of the association between the respondents' perceptions that they can 'see' their transaction accounts during Online banking and the perceived ease of Online banking transactions. The results support the research proposition. The results show a statistically significant positive association between respondents' perception that they can see their accounts and the perceived ease of Online banking transactions (Spearman's correlation coefficient = 0.491, $p = 0.001$).

Perceived Speed

Spearman's rank order correlations were also done to examine whether there is an association between the respondents' perceptions that they can 'see' their accounts during Online banking and their perceptions regarding the speed of Online banking transactions. The results show a statistically significant positive association

between both variables. Respondents who reported using the Online banking mode because they can see their transactions also reported that they perceive Online banking transactions to be expeditious (Spearman's correlation coefficient = 0.471, $p = 0.001$). Thus, the results support the research proposition.

Usage Rate

Finally, nonparametric correlations were done to examine the association between respondents' perceptions that they can 'see' their accounts during Online banking transactions and the number of Online banking transactions they reported they conduct. The results support the research proposition. They show a statistically significant positive association between both variables (Spearman's correlation coefficient = 0.255, $p = 0.002$).

Summary

The results pertaining to the visual cues available during Online banking support the research proposition. The results suggest that consumers who have positive perceptions towards the visual cues available during Online banking are likely to think that Online banking transactions are fast and easy, and they are also likely to conduct numerous Online banking transactions.

6.3.3 Perceived Risk

P3a: There is an inverse association between the perceived likelihood of making mistakes (psychological risks) and the number of transactions consumers are likely to conduct using EFTPOS, ATM, telephone and Online banking modes.

The results presented in Table 22 provide a summary of the responses relating to the perceived likelihood of making mistakes using the four modes of electronic banking. They show that most of the respondents who used each of the four modes of electronic banking reported that they do not make mistakes during transactions. However, it is worth noting that nearly half of the respondents who used telephone banking reported making mistakes during transactions.

Table 22: Summary – Perceived likelihood of making mistakes

I sometimes make mistakes	Agree	Disagree
EFTPOS	28%	72%
ATM	35%	65%
Telephone banking	43%	57%
Online banking	33%	67%

Bivariate correlations were done to examine whether the respondents who reported that they make some mistakes during electronic banking transactions conduct fewer transactions compared to respondents who reported that they do not make mistakes. The results did not support the research proposition. In all the cases, there was no significant association between the likelihood of making mistakes during electronic banking and the number of transactions respondents reported they conduct using the four modes of electronic banking.

P3b: There is a positive association between consumers' fear of being attacked while using ATMs and their perceptions regarding the risk of depositing money at ATMs.

Respondents' perceptions of the risk of conducting cash/cheque deposit transactions at ATMs were measured using a Likert scaled item ranging from 1 (strongly disagree) to 6 (strongly agree). The results show that respondents' general perceptions are that making deposits at ATMs is particularly risky (Median 4, Mode 6). Nonparametric correlations were then used to explore the association between respondents' concerns regarding their personal safety whilst using ATMs and their general attitudes towards making deposits at ATMs. The results showed a statistically significant positive association (Spearman's correlation coefficient = 0.414, $p = 0.001$). The results support the research proposition as they suggest that consumers who fear being attacked while using ATMs are also likely to perceive ATM deposits as risky.

P3c: Consumers who have concerns regarding their personal safety (physical risk) while using ATMs are likely to conduct fewer transactions compared to consumers who are not concerned about their personal safety.

The data show that 52.5% of the respondents who used ATMs reported that they fear being attacked whilst using ATMs. Spearman's rank order correlations were done to examine whether there is an association between the respondents' concerns of being attacked while using ATMs and the number of ATM transactions they reported conducting. Notably, the results highlight a statistically significant positive association between respondents' concerns for their personal safety and the numbers of ATM transactions they are likely to conduct (Spearman's correlation coefficient = 0.098, $p = 0.045$). This result does not support the research proposition. Instead, the result suggests that consumers who fear being attacked while using ATMs conduct more ATM transactions compared to consumers who do not fear being attacked.

P3d: Consumers who perceive Online banking transactions to be secure are likely to conduct more Online-banking transactions compared to consumers who perceive Online banking to be risky.

The data show that 70% of the Online banking users reported that they perceive Online banking transactions to be secure. Nonparametric correlations were done to examine the association between respondents' perceptions that Online banking transactions are secure and the number of Online-banking transactions they reported conducting. The results show a statistically significant positive association (Spearman's correlation coefficient = 0.209, $p = 0.012$). Thus they support the research proposition as they suggest that consumers who think that Online banking transactions are secure are likely to conduct more Online banking transactions compared to consumers who perceive Online banking transactions to be risky.

P3e: Consumers who always write their receipt numbers (performance risk) after telephone and Online banking transactions conduct more telephone and Online banking transactions compared to consumers who do not.

Telephone Banking

The quantitative data show that 80.9% of the respondents who used telephone banking reported that they always write down their receipt numbers after transactions. Bivariate correlations were done to examine whether there is an association between the writing down of receipts numbers and respondents' usage rate of telephone banking. The results were not statistically significant (Spearman's $\rho = 0.060$, $P = 0.339$). So, the results do not support the research proposition.

Online Banking

Similarly, the results did not show statistically significant associations between the respondents' use of Online banking and writing of receipt numbers (Spearman's $\rho = 0.094$, $P = 0.261$) or printing of paper receipts (Spearman's $\rho = -0.081$, $P = 0.341$). Therefore, they do not support the research proposition. However, the descriptive data show that 40.7% of the respondents who reported that they use Online banking noted that they always write down their receipt numbers while 56.7% of the respondents who use Online banking reported that they always print paper receipts.

6.3.4 Demographics

A summary of the demographic characteristics of the respondents who reported that they use the various modes of electronic banking was provided in section 6.2. The following section provides results of statistical tests done to explore whether respondents who reported using the four modes of electronic banking have particular demographic profiles.

P4a: There is an association between consumers' age, gender, occupation, level of education, and income and their use/non use of the various modes of electronic banking.

EFTPOS

As noted earlier, 81.9% of respondents reported conducting technology-assisted banking transactions using EFTPOS. Chi-square tests of association were conducted to determine whether there is an association between the respondents' age, gender, educational qualifications, income, occupation and their use or non-use of EFTPOS. The results are presented in Table 23. Table 23 shows that the results pertaining to the respondents' gender, education level, income, and occupation were not statistically significant.

However, the results show that there is an association between the respondents' age and their use/non use of EFTPOS. A large proportion of the respondents who reported that they use EFTPOS were between 36 to 45 years (25.1%) and 46 to 55 years (23.5%) of age. On the other hand, 25.6% of the respondents who reported that they do not use EFTPOS were between 36 to 45 years and 25.6% were 65 years of age or older.

In general, the descriptive data suggest that there is a curvilinear association between the respondents' age and their use/non-use of EFTPOS. There is a positive association between the use of EFTPOS and the respondents' age among those who are 18 years of age to those who are 45 years of age. There is then a negative association between age and use among the respondents who are 46 years of age or older.

Table 23: Association – Demographics and use/non use of EFTPOS

Chi-square Statistic	Gender	Age	Education	Income	Occupation
X ²	1.89	25.56	2.99	4.33	5.56
df	1	5	4	4	7
p	0.169	0.001*	0.558	0.632	0.592

Note. * Indicates results are significant, where $P < 0.05$

ATMs

As noted earlier, 92.1% of the respondents use ATMs. Chi-square tests of association were conducted to examine whether there is an association between the respondents' age, gender, educational qualifications, income, occupation and their use or non-use of ATMs. The results are presented in Table 24. The results show that there is no statistically significant association between the respondents' use/non use of ATMs and their gender, age, income, and occupation.

However, there is a statistically significant association between the use/non use of ATMs and the respondents' level of education. Generally, the data show that the largest proportion of ATM users are respondents who reported that their highest level of education is year 10 to 12 or equivalent and respondents who reported that they have an undergraduate degree or diploma. In particular, 3.6% of ATM users reported that their highest educational qualification is primary school education, 34.1% reported that it is year 10 to 12 or equivalent, 14.8% reported they have a trade certificate, 33.9% have an undergraduate degree or diploma, and 13.6% have a postgraduate qualification. Of those who reported that they do not use ATMs 13.9% have a primary school education, 25% year 10 to 12 or equivalent, 25% have a trade certificate, 25% have an undergraduate degree or diploma, and 11.1% have a postgraduate qualification.

Table 24: Association – Demographics and use/non use of ATMs

Chi-square Statistic	Gender	Age	Education	Income	Occupation
X ²	1.78	9.75	11.81	4.10	8.33
df	1	5	4	6	7
p	0.224	0.082	0.019*	0.663	0.305

Note. * Indicates results are significant, where $P < 0.05$

Telephone Banking

The descriptive statistics show that 55.8% of the respondents reported that they use telephone banking. Chi-square tests of association were done to examine whether there is an association between the respondents' age, gender, educational qualifications, income, occupation and their use or non-use of telephone banking. The results are presented in Table 25. The results show that there is a statistically significant association between respondents' demographic characteristics and their use/non use of telephone banking.

Table 25: Association – Demographics and use/non use of telephone banking

Chi-square Statistic	Gender	Age	Education	Income	Occupation
X ²	4.43	25.37	13.30	15.84	14.22
df	1	5	4	6	7
p	0.035*	0.001*	0.010*	0.015*	0.047*

Note. * Indicates results are significant, where $P < 0.05$

The descriptive statistics show that 54% of the respondents who reported using telephone banking were female and 46% were male. Respondents who reported that they use telephone banking were mainly from three age categories: 26 to 35 years (19.8%); 36 to 45 years (27.7%); and 46 to 55 years (24.1%). On the other hand, 22% of the respondents who did not use telephone banking were between 36 to 45 years of age, 21.5% were between 46 to 55 years of age, and 20% reported that they were 65 years of age or older. The data also show that 51% of the respondents who use telephone banking reported that their highest educational qualification was a diploma, undergraduate degree, or a postgraduate degree. By contrast, 37.9% of those who did not use telephone banking reported that their highest educational qualification was year 10/12 or equivalent and 29.8% reported that they had a diploma or undergraduate degree. The largest proportion (28.4%) of respondents who reported using telephone banking also noted that they had annual incomes of \$60,000, while the largest proportion (18.3%) of those who did not use telephone

banking reported that they had annual incomes of \$10,000 to \$19,999. Finally, 47.6% of the respondents who use Telephone banking reported that they are in managerial, administrative, professional, or para-professional occupations. Of those who did not use telephone banking, 41.9% were in these occupational categories.

Online Banking

As reported earlier, 32.9% of the respondents used Online banking. Chi-square tests of association were done to examine whether there is an association between the respondents' age, gender, educational qualifications, income, occupation and their use or non-use of Online banking. The results are presented in Table 26. The results show statistically significant associations between use/non use of Online banking and all the demographic variables except education. The descriptive data show that 60.1% of the respondents who reported that they use Online banking were male and 39.9% were female. Additionally, 58.4% of the respondents who reported using Online banking were between 36 to 55 years of age and this age group also represented 43.1% of the respondents who do not use Online banking. Nearly half (48.6%) of Online banking users reported that their annual incomes are higher than \$50,000. Of those who did not use Online banking, the largest proportion (18.8%) reported that they have annual incomes of \$10,000 to \$19,999 while 17.8% reported that they have annual incomes that are higher than \$60,000. Finally, most of the Online banking users (58.4%) reported that they are in managerial, administrative, professional, or para-professional occupations. Of those who did not use Online banking 22.7% reported that they had professional or para - professional occupations and 21.7% reported that they were retired or on a pension.

Table 26: Association – Demographics and use/non use of Online banking

Chi-square Statistic	Gender	Age	Education	Income	Occupation
X ²	8.27	21.51	6.42	28.96	20.94
df	1	5	4	6	7
p	0.004*	0.001*	0.170	0.000*	0.004*

Note. * Indicates results are significant, where $P < 0.05$

Summary

Chi-square tests of association were done to examine whether there is an association between the respondents' demographic characteristics and their use/non use of the four modes of electronic banking. The results show statistically significant associations between the respondents' use of EFTPOS and their age and the respondents' use of ATMs and their level of education. They also show statistically significant associations between the respondents' use of telephone banking and all the five demographic variables and their use of Online banking and their age, gender, income and occupation.

P4b: There is an association between consumers' age, gender, occupation, level of education, and income and the number of transactions they are likely to conduct using the various modes of electronic banking.

EFTPOS

The Mann-Whitney test was done to examine whether there is an association between the respondents' gender and the number of EFTPOS transactions they reported conducting. The results showed no statistically significant difference between the number of EFTPOS transactions that males and females reported conducting (Mann-Whitney $U = 15625.5$, $Z = -1.487$, $P = 0.137$). Kruskal-Wallis tests were then done to examine whether there is a significant difference between the

number of EFTPOS transactions respondents are likely to conduct and their age, educational qualifications, income, and occupation. The results are presented in Table 27. The results show a statistically significant association between the respondents' age and the number of EFTPOS transactions they reported conducting. However, they do not show statistically significant associations between EFTPOS usage rate and the respondents' occupation, income, and level of education. Half of the respondents who reported conducting less than four EFTPOS transactions a month were between 46 and 65 years of age. On the other hand, less than half of the respondents who reported conducting five to 12 EFTPOS transactions a month were between 36 and 45 years of age and this age group also represents more than half (54.2%) of those who reported conducting more than 12 transactions a month.

Table 27: Association – Demographics and usage rate of EFTPOS

Kruskal -Wallis	Age	Education	Income	Occupation
X ²	27.91	6.63	9.40	5.55
df	5	4	4	7
p	0.001*	0.157	0.153	0.593

Note. * Indicates results are significant, where $P < 0.05$

ATMs

The Mann-Whitney test was done to examine whether there is a significant difference between the number of ATM transactions males and females are likely to conduct. The results were not statistically significant (Mann-Whitney $U = 24668.0$, $Z = -1.333$, $P = 0.183$). Kruskal-Wallis tests were then done to examine whether there is an association between respondents' demographic characteristics and the number of ATM transactions they reported conducting. The results are presented in Table 28. Table 28 shows that there is no statistically significant association between the number of ATM transactions respondents reported conducting and their age, income, and occupation. However, the results show that there is a statistically significant difference between the number of ATM transactions respondents in different age groups reported they conduct. Almost half (48.4%) of

the respondents who reported conducting less than four ATM transactions a month were between 46 and 65 years of age. Similarly, nearly half (48.6%) of the respondents who reported conducting five to 12 transactions a month were between 36 and 45 years of age. This age group also represents 49.5% of those who reported conducting more than 12 ATM transactions a month.

Table 28: Association – Demographics and usage rate of ATMs

Kruskal -Wallis	Age	Education	Income	Occupation
X ²	12.39	2.56	7.77	12.37
df	5	4	6	7
p	0.030*	0.634	0.257	0.089

Note. * Indicates results are significant, where $P < 0.05$

Telephone Banking

Results of a Mann-Whitney test done to assess whether there is a difference between the number of telephone banking transactions males and females are likely to conduct were statistically significant (Mann-Whitney $U = 23024.0$, $Z = -0.2103$, $p = 0.035$). Females reported that they conduct more telephone banking transactions than males. More than half (53.8%) of the respondents who reported conducting five to 12 telephone banking transactions and 53.2% of those who reported conducting more than 12 telephone banking transactions each month were females. Kruskal-Wallis tests were done to examine whether there is an association between respondents' age, education, income, and occupation and the number of telephone banking transactions they are likely to conduct. The results were not statistically significant so they did not support the research proposition.

Online Banking

Results of a Mann-Whitney test done to examine whether there is a difference in the number of Online banking transactions that males and females are likely to conduct were also statistically significant (Mann-Whitney $U = 22294.0$, $Z = -2.873$, $p = 0.004$). The male respondents reported that they conduct more Online banking

transactions than their female counterparts. For instance, 57.4% of the respondents who reported conducting more than 12 Online banking transactions a month and 61.2% of the respondents who reported conducting five to 12 Online banking transactions were male. Kruskal-Wallis tests were also done to examine whether there is an association between the respondents' age, education, income, and occupation and the number of Online banking transactions they reported they conduct. The results are presented in Table 29. It shows that there is a statistically significant association between respondents' occupations and the number of Online banking transactions they reported that they conduct. The quantitative data show that 72.7% of the respondents who reported that they conduct more than 12 Online banking transactions a month also reported that they are in managerial, administrative, professional, or paraprofessional occupations.

Table 29: Association – Demographics and usage rate of Online banking

Kruskal -Wallis	Age	Education	Income	Occupation
X ²	1.22	5.99	9.40	14.37
df	5	4	6	7
p	0.943	0.199	0.153	0.045*

Note. * Indicates results are significant, where $P < 0.05$

Summary

Mann-Whitney tests were done to examine whether there is a difference in the number of electronic banking transactions that males and females are likely to conduct. The results show that the number of telephone and Online banking transactions respondents reported that they conduct differed with gender. Females reported conducting more telephone banking transactions than their male counterparts while males who used Online banking reported conducting more Online banking transactions than their female counterparts. The results also show that the number of EFTPOS and ATM transactions respondents reported they conduct differed with age. There were no statistically significant associations between the respondents' income and education and the number of transactions they reported

conducting using the four modes of electronic banking as would be expected based on the results of other studies (Moore & Benbasat, 1991; Javalgi, 1992; Stafford, 1996; Tan et al., 1999). There was therefore only partial support for the research proposition.

6.3.5 Paradoxes

This section presents the results of statistical tests done to examine whether consumers who use electronic banking can experience some of the paradoxes of technology adoption identified by Mick and Fournier (1998). It determines whether the qualitative findings are applicable to a larger sample by examining whether the likelihood of experiencing the paradoxes can affect consumers' usage rates of the adopted modes of electronic banking. It is important to note that some of the attitudinal statements used to identify criteria relevant to evaluating technology-assisted banking transactions were also used to examine whether the respondents can experience the paradoxes of technology adoption. As such, variables that were discussed in the preceding sections will also be referred to in the following section. Furthermore, in some instances multiple items were used to assess whether the respondents experienced the paradoxes of technology adoption. In these situations, the results were interpreted to mean that respondents experienced the relevant paradox if they responded to one or more of the items representing the paradox.

6.3.5.1 Control/Chaos paradox

P5a: Consumers who use electronic banking can experience the control/chaos paradox.

- (i) *There is a positive association between the number of transactions consumers conduct and their reported feelings of control and an inverse association between the number of transactions consumers conduct and their reported feelings of chaos.*

Control

The findings from the qualitative phase of this study suggest that consumers who conduct technology-assisted banking transactions can experience feelings of control when they feel that they are in charge of when and how they do their retail banking. In particular, the findings suggest that consumers can experience feelings of control when they use the available modes of electronic banking to manage their transaction accounts and to ensure their transactions are done correctly. So, respondents' perceptions of control were measured using two variables: their reported tendency to use electronic banking because it facilitates their money management activities and their reported use of electronic banking to make sure their transactions are done correctly.

The survey data show that 60% of the respondents reported that they use electronic banking because it allows them to manage their money and 62% of the respondents stated that they use electronic banking in order to ensure their transactions are done correctly. Chi-square tests of association were used to determine whether respondents who reported using electronic banking reported experiencing the control and/or chaos side of the paradox. Respondents' likelihood of experiencing feelings of control was measured using two variables. Therefore results relating to respondents' use of electronic banking because it facilitates money management are presented in Table 30 while results relating to the use of electronic banking to ensure transactions are done correctly are presented in Table 31. "Paradox" means that respondents who used the nominated mode of electronic banking indicated that they can experience feelings of control and chaos while "no-paradox" means that they indicated experiencing neither side.

Table 30: Association – Money management variable and control/chaos.

Mode	Control	Chaos	Paradox	No-paradox	X ²	df	P
EFTPOS	48.3%	13.6%	14.2%	23.9%	50.105	25	0.002*
ATM	44.5%	17.3%	17.6%	20.6%	70.234	25	0.001*
Telephone	42.2%	16.4%	26.5%	14.9%	43.081	25	0.014*
Online	54.5%	7.6%	25.5%	12.4%	44.045	25	0.011*

Note. * Indicates results are significant, where P < 0.05

Table 30 shows that most of the respondents suggested they experience feelings of control by reporting that they use electronic banking because it enables them to manage their money better. It also shows that while some respondents reported experiencing both sides of the control/chaos paradox others did not report experiencing the paradox.

Table 31: Ensure transactions are correct variable and control/chaos.

Mode	Control	Chaos	Paradox	No-paradox	X ²	df	P
EFTPOS	48.2%	11.5%	16.2%	24.1%	41.67	25	0.019*
ATM	43.4%	13.9%	20.6%	22.1%	56.830	25	0.000*
Telephone	44.4%	14.1%	27.8%	13.7%	28.220	25	0.298
Online	52.4%	6.2%	26.9%	14.5%	46.406	25	0.006*

Note. * Indicates results are significant, where P < 0.05

The results in Table 31 show statistically significant associations between the variables measuring the control/chaos paradox and the respondents' use of EFTPOS, ATM, and Online banking modes. It shows that most of the respondents indicated they experience feelings of control by reporting that they use electronic banking to ensure that their transactions are done correctly. Some respondents indicated that

they experience both sides of the paradox while others did not report experiencing feelings of control and/or chaos.

Spearman’s rank order correlations were done to examine whether respondents who reported they experience feelings of control conduct more transactions than their counterparts. The results are presented in Table 32. The results show that respondents who suggested that they experience feelings of control by reporting that they use electronic banking so that they can manage their accounts also reported that they conduct more EFTPOS, telephone, and Online banking transactions than their counterparts who exhibited less perceived control. Similarly, respondents who indicated that they feel like they are in control when they use electronic banking to make sure that their transactions are done correctly reported that they conduct more EFTPOS and Online banking transactions compared to their counterparts.

Table 32: Correlation – Control variables and use of electronic banking

Variable	Mode	Spearman’s rho	Significance
Allows me to manage my money	EFTPOS	0.107	0.041*
	ATM	-0.003	0.951
	Telephone	0.126	0.047*
	Online	0.178	0.032*
Allows me to ensure my transactions are correct	EFTPOS	0.109	0.039*
	ATM	-0.002	0.963
	Telephone	0.053	0.409
	Online	0.184	0.026*

Note. * Indicates results are significant, where $P < 0.05$

Chaos

According to the qualitative findings, consumers who use electronic banking can experience feelings of chaos when the modes of electronic banking in use do not facilitate the required transactions resulting in the disruption of banking activities. The interviewees reported that they experience feelings of chaos when they make mistakes during electronic banking transactions, with some noting that some mistakes can be difficult to correct. As such, two variables were used in the quantitative phase of this study to examine whether respondents can experience chaos: their perceived likelihood of making mistakes during transactions and the perceived difficulty of getting help when conducting electronic banking transactions.

The survey data show that 28% of the respondents who used EFTPOS, 35% of those who used ATMs, 43% of those who used telephone banking, and 33% of those who use Online banking reported that they sometimes make mistakes during electronic banking transactions. In addition, 55% reported that it is difficult to get help when using electronic banking. Furthermore, the results presented in Tables 31 and 32 show that some respondents reported experiencing feelings of chaos. Bivariate correlations were done to examine whether respondents who reported that they may experience feelings of chaos by responding to at least one of the variables above reported conducting fewer or more electronic banking transactions than their counterparts. The results were not statistically significant suggesting that consumers who may experience chaos during electronic banking transactions do not necessarily conduct more or less electronic banking transactions compared to consumers who may not experience chaos.

Control/Chaos Summary

The preceding section illustrates that consumers who use the various modes of electronic banking can experience both sides of the control/chaos paradox. Therefore, the results support the research proposition. They show that nearly half of the respondents who reported that they use electronic banking so that they can manage their accounts and/or so that they can make sure that their transactions are done correctly reported feelings of control. Some of the respondents also reported

experiencing feelings of chaos when they make mistakes during electronic banking transactions and when help becomes difficult to get while using electronic banking. Respondents who experience feelings of control reported that they conduct more EFTPOS, telephone, and Online-banking transactions compared to their counterparts who feel less in control. By comparison, respondents who reported feelings of chaos did not necessarily conduct more or less transactions compared to those who did not report feelings of chaos. These results provide partial support for the research proposition. It thus appears that control is the dominant side of the control/chaos paradox in the electronic banking context.

6.3.5.2 Freedom/Enslavement Paradox

P5b: Consumers who use electronic banking can experience the freedom/enslavement paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings of freedom and an inverse association between the number of transactions consumers conduct and their reported feelings of enslavement.*

Freedom

Findings from the in-depth interviews suggest that some consumers can experience feelings of freedom when the available modes of electronic banking allow them to do their banking transactions at their convenience. Specifically, interviewees from the qualitative stage of this study who used EFTPOS and ATM banking modes reported experiencing feelings of freedom when they stated that they think EFTPOS and ATM facilities are readily available. Interviewees who used telephone and/or Online banking reported feelings of freedom when stated that they can conduct their banking transactions from their places of work and/or their homes and at any time of the day. Therefore, in the quantitative phase of the study respondents' perceptions of the freedom side of the paradox were measured differently. Respondents' perceptions regarding the availability of EFTPOS and ATM facilities were measured using Likert scaled items while their perceptions and usage rate of telephone and

Online banking modes were measured using nominally scaled items. The results are presented in the following sections.

EFTPOS

Approximately 70% of respondents who reported using EFTPOS also reported that EFTPOS facilities are always available when they need to use them. This was taken to mean that these respondents can experience feelings of freedom because to them EFTPOS facilities are within easy reach. Chi-square tests of association were conducted to determine whether EFTPOS users can experience the freedom/enslavement paradox. The results were statistically significant ($X^2 = 40.507$, $df = 25$, $p = 0.026$). They showed that 29.3% of the respondents indicated that they experience feelings of freedom, 19.2% indicated they experience feelings of enslavement, 40.3% suggested that they experience both freedom and enslavement, and 11.2% did not report experiencing feelings of freedom and/or enslavement.

Spearman's rank order correlations were then done to examine whether respondents who suggested that they experience feelings of freedom by reporting that EFTPOS facilities are easily available also reported conducting more or less EFTPOS transactions compared to their counterparts. The results were not statistically significant (Spearman's $\rho = 0.031$, $p = 0.548$). The results suggest that respondents who experience feelings of freedom did not report conducting more or less EFTPOS transactions compared to their counterparts who reported lower levels of perceived freedom with EFTPOS use.

ATM

Respondents who used ATMs were also asked to report their perceptions regarding the availability of ATM facilities. The results show that 66.2% of the respondents reported that they think ATM facilities are easy to find. Results from the Chi-square tests of association conducted to determine whether ATM users can experience the freedom/enslavement paradox were also statistically significant ($X^2 = 51.015$, $df = 25$, $p = 0.002$). Approximately 29.1% of ATM users indicated that they experience feelings of freedom, 24.1% indicated that they experience feelings of

enslavement, 36.6% indicated that they experience the freedom/enslavement paradox, and 36.6% did not report experiencing feelings of freedom and/or enslavement.

Nonparametric correlations were done to examine whether respondents who can experience feelings of freedom also reported conducting more or less transactions compared to those who think that ATM facilities are not easy to find. The results were statistically significant (Spearman's correlation coefficient = 0.109, $P = 0.027$). ATM users who reported that they can experience feelings of freedom by indicating that they perceive ATM facilities to be readily available also reported conducting more ATM transactions compared to those who do not perceive ATMs to be easily available and thus appeared to have lower levels of perceived freedom. The descriptive statistics show that 18.2% of the respondents who reported that ATMs are easily available reported conducting less than four ATM transactions a month, most of them (56%) reported conducting five to 12 ATM transactions a month, and 25.8% reported conducting more than 12 ATM transactions a month.

Telephone banking

Prior to the introduction of the retail banking technologies Western Australian consumers did their banking in the banks' premises during the standard operating hours of 9.00am – 3.30pm. In particular, consumers who worked would have been forced to do most of their banking during the lunch hours of 12.00pm – 2.00pm. The introduction of electronic banking means that consumers are no longer restricted to doing their banking on the banks' premises and at these hours. Therefore, it was assumed that consumers who can conduct their retail banking transactions from their homes and beyond the banks' business hours of 9.00am to 3.30pm are likely to experience feelings of freedom because they can do their banking at their convenience.

The data show that 79% of the respondents reported that they conduct their telephone banking transactions from their homes. In addition, the data show that 11.59% of the respondents conduct their telephone banking transactions between the hours of 12.00am and 7.59am, 44% of respondents conduct their telephone banking

transactions between 5.00pm and 8.59pm, and 15.5% of them do their telephone banking between 9.00pm and 11.59am. Results from chi-square tests conducted to determine whether respondents who do their telephone banking from their homes and/or places of work reported experiencing both sides of the freedom/enslavement paradox were not statistically significant. Similarly, results pertaining to the usage times were not statistically significant except for those relating to telephone banking transactions conducted during the hours of 5.00pm – 8.59pm ($X^2 = 11.047$, $df = 5$, $p = 0.001$). Of the respondents who reported conducting their telephone banking transactions between the hours of 5.00pm – 8.59pm 14.4% reported that they can experience feelings of freedom, 32% reported they can experience feelings of enslavement, 29.6% indicated that they experience both sides of the paradox, while 24% did not report experiencing feelings of freedom and/or enslavement.

Chi-square tests were also done to examine whether there is an association between the location and usage times and the number of telephone banking transactions respondents reported conducting. The results showed no statistically significant associations between respondents' feelings of freedom and the number of telephone-banking transactions they conduct. The results indicate that consumers who enjoy the freedom of doing their telephone banking transactions from their homes beyond the banks' standard operating hours are not likely to conduct more or less transactions compared to those who experience lower levels of freedom.

Online Banking

The survey data show that 70.7% of the respondents who used Online banking reported that they conduct their Online banking transactions from their homes. In addition, 9.5% reported that they conduct their Online banking transactions between the hours of 12.00am and 7.59am, 49.7% do their Online banking between 5.00pm and 8.59pm, and 26.5% reported that they do their Online banking between 9.00pm and 11.59pm. Results from chi-square tests done to determine whether Online banking users reported experiencing feelings of freedom/enslavement were not statistically significant.

Additional, chi-square tests were done to examine whether there is an association between the location and usage times and the number of Online banking transactions respondents who reported feelings of freedom reported conducting. The results did not show a statistically significant association between the use of Online banking from home and the number of transactions the respondents reported they conduct. The results also did not show statistically significant associations between the number of Online banking transactions respondents are likely to conduct and the usage times of 12.00am to 7.59am and 5.00pm to 8.59pm. However, there was a statistically significant association between the number of Online banking transactions respondents reported conducting and the use of Online banking between 9.00pm to 11.59pm ($X^2 = 6.070$, $df = 2$, $p = 0.048$). The data show that 51.3% of the respondents who do their Online banking between 9.00pm and 11.59pm, also reported that they conduct more than 12 Online banking transactions a month. This result indicates that respondents who feel that they have the freedom to do their Online banking transactions at night from their homes are likely to conduct more Online banking transactions compared to respondents who experience lower levels of perceived freedom.

Enslavement

Findings from the qualitative phase of this study suggest that consumers' feelings of enslavement can result from limitations imposed by banks on the type of and number of electronic banking transactions they can conduct and from reliance on particular modes of electronic banking that may sometimes be unavailable. In particular, the interviewees' perceptions of enslavement appeared to relate mainly to the perceived difficulty of locating EFTPOS and ATM facilities when needed. The interviewees also noted that in general they feel like changes in the retail banking industry have forced them to use the available modes of electronic banking.

Therefore, in the quantitative phase of this study, respondents who used EFTPOS and ATMs were asked to indicate their perceptions regarding the availability of EFTPOS and ATM facilities. In addition, respondents were asked to report their general attitudes on whether or not they feel forced to use electronic banking.

According to the survey data, 30.2% of respondents who used EFTPOS and 33.8% of those who used ATMs reported that the facilities are not always available when they need to use them. Results from the chi-square tests of association showed that 19.2% of the respondents who reported that they use EFTPOS and 24.1% of those who reported that they use ATMs also indicated that they may experience feelings of enslavement.

Spearman's rank order correlations were done to examine whether respondents who appear to experience feelings of enslavement reported conducting more or less EFTPOS and ATM transactions compared to respondents who did not report feelings of enslavement. The results pertaining to respondents' use of EFTPOS were not statistically significant (Spearman's $\rho = 0.031$, $p = 0.548$). Of the respondents who reported that EFTPOS facilities are hard to find, 16% reported that they conduct less than four transactions a month, 54.5% reported that they conduct five to 12 transactions a month, and 29.5% reported that they conduct more than 12 transactions a month. This indicates that EFTPOS users who reported feelings of enslavement did not conduct more or less EFTPOS transactions compared to their counterparts who did not appear to report feelings of enslavement. The results pertaining to ATM use were statistically significant (Spearman's $\rho = 0.109$, $p = 0.027$). It was expected that ATM users who reported that they can experience feelings of enslavement would also report conducting fewer ATM transactions compared to those who did not report feelings of enslavement. However, it is interesting to note that ATM users who reported feelings of enslavement also reported conducting numerous ATM transactions. Of the respondents who reported that ATM facilities are hard to find, 29.3% reported that they conduct less than four transactions a month, 43.6% reported that they conduct five to 12 transactions a month, and 27.1% reported that they conduct more than 12 transactions a month.

Freedom/Enslavement Summary

The results support the research proposition as they indicate that consumers who use electronic banking can experience the freedom/enslavement paradox. One third of the respondents who use EFTPOS and ATMs indicated that they experience feelings of freedom because they reported that the facilities are easily available when

they need them. Most of the EFTPOS and ATM users reported experiencing both sides of the freedom/enslavement paradox. Furthermore, 56% of the respondents reported that they feel compelled to use electronic banking. Respondents who used telephone and Online banking modes reported that they can experience feelings of freedom when they reported that they conduct their banking transactions mainly from their homes in the evenings and at night. However, these results were not statistically significant so they do not support the research proposition.

ATM and Online banking users who reported experiencing feelings of freedom also reported conducting numerous transactions compared to respondents who did not report experiencing feelings of freedom. EFTPOS and telephone banking users who reported experiencing feelings of freedom did not report conducting more or less transactions compared to those who did not report experiencing feelings of freedom. Therefore, these results provide only partial support for the research proposition.

6.3.5.3 Competence/Incompetence paradox

P5c: Consumers who use electronic banking can experience the competence/incompetence paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings of competence and an inverse association between the number of transactions consumers conduct and their reported feelings of incompetence.*

Competence

Findings from the qualitative study suggest that consumers who use electronic banking are likely to feel competent when they can use the various modes of electronic banking to complete their transactions successfully. The interviewees reported that they feel competent when they can easily conduct their electronic banking transactions, remember their PINs, and when they do not make mistakes during transactions. Thus, in the quantitative phase of this study respondents'

likelihood of experiencing the competence side of the paradox was measured using the following variables: the perceived ease of conducting electronic banking transactions, reported ability to recall their personal identification numbers (PINs), and the perceived ease of paying bills using the various modes of electronic banking. Their responses are summarised in Table 33.

Table 33: Summary - Variables measuring competence/incompetence

Variable	Agree	Disagree
EFTPOS transactions are easy	92%	8%
ATM transactions are easy	89%	11%
Telephone banking transactions are easy	82%	18%
Online banking transactions are easy	84%	16%
I always remember my PIN	78%	22%
It is easy to pay bills electronically	64%	36%

The results in Table 33 show that most of the respondents who use each of the four modes of electronic banking reported that they perceive the transactions conducted using these modes to be easy. Table 33 also shows that most of the respondents reported that they always remember their PINs. It is worth noting that only 64 % of the respondents reported that they find it easy to pay bills using electronic banking. Nonetheless, the results were interpreted to mean that most of the respondents feel competent when using their preferred modes of electronic banking.

Bivariate correlations were used to investigate whether respondents who reported feelings of competence reported conducting more electronic banking transactions than their counterparts who did not report experiencing feelings of competence. The results are presented in Tables 34 and 35. The results in Table 34 provide the results of statistical tests done to examine whether there is an association between perceived ease and usage rate of each of the four modes of electronic banking. It shows that there is a positive association between the variables measuring competence and the number of transactions the respondents reported

conducting using EFTPOS, ATM, and Online banking modes. However, the results do not show a statistically significant association between the perceived ease of using telephone banking and the frequency of using telephone banking. This indicates that respondents who feel competent when using telephone banking do not necessarily conduct more or less telephone banking transactions compared to those who are not as competent with telephone banking.

Table 34: Correlation- Variables measuring competence and usage rate

Variable	Spearman's rho	Significance
EFTPOS transactions are easy	0.158	0.002*
ATM transactions are easy	0.138	0.005*
Telephone banking transactions are easy	0.096	0.129
Online banking transactions are easy	0.163	0.050*

Note. * Indicates results are significant, where $P < 0.05$

Table 35 presents the results of statistical tests done to determine if there is an association between the general variables measuring respondents' likelihood of remembering PINs and the perceived ease of bill payment transactions, and their usage rates of the four modes of electronic banking.

Table 35: Correlation – Additional competence variables and usage rate

Variable	Electronic banking mode	Spearman rho	Significance
I always remember my PIN	EFTPOS	0.073	0.165
	ATM	0.016	0.752
	Telephone	0.043	0.497
	Online	0.016	0.852
It is easy to pay bills electronically	EFTPOS	0.181	0.001*
	ATM	0.017	0.727
	Telephone	0.136	0.032*
	Online	0.225	0.006*

Note. * Indicates results are significant, where $P < 0.05$

Table 35 shows no statistically significant associations between respondents' reported ability to recall their PINs and the number of electronic banking transactions they reported conducting. However, the results show statistically significant positive associations between the perceived ease of paying bills and respondents' use of EFTPOS, telephone, and Online banking modes. These results suggest that respondents who reported that they find it easy to pay bills using EFTPOS, Telephone, and Online banking also reported conducting more electronic banking transactions using these modes.

Incompetence

The qualitative findings suggest that consumers who use the available modes of electronic banking are likely to feel incompetent when they lack the knowledge of how to use some of the modes of electronic banking and when they are unable to grasp the full capabilities of the modes they already use. In the quantitative phase of the study, incompetence was measured using variables relating to the perceived likelihood of making mistakes during electronic banking transactions and the modes

of electronic banking that respondents reported they did not use. As noted earlier, 28% of the respondents who used EFTPOS, 35% of those who used ATMs, 43% of those who used telephone banking, and 33% of those who use Online banking reported that they make mistakes during electronic banking transactions. The survey data also show that 18.1% of the respondents reported that they did not use EFTPOS, 7.9% did not use ATMs, 44.2% did not use Telephone banking, and 67.1% did not use Online banking. These data were interpreted to mean that respondents who reported making mistakes during transactions and respondents who did not use some modes of electronic banking can experience feelings of incompetence.

Nonparametric correlations were then used to examine whether respondents who can experience feelings of incompetence are likely to conduct more or less transactions compared to their competent counterparts. The results did not show statistically significant associations between the respondents' perceptions of their likelihood of making mistakes and their use of the four modes of electronic banking.

Competence/Incompetence Summary

The results of the preceding section support the research propositions, by suggesting that while respondents can experience feelings of competence when using their preferred modes of electronic banking they can also experience feelings of incompetence when they make mistakes during transactions and when they do not use some modes of electronic banking. Respondents who reported that they can experience feelings of competence also reported conducting more EFTPOS, ATM, and Online banking transactions than their counterparts who did not report feelings of competence.

6.3.5.4 Efficiency/Inefficiency paradox

P5d: Consumers who use electronic banking can experience the efficiency/inefficiency paradox.

- (i) *There is a positive association between the number of transactions consumers conduct and their perceptions that electronic banking transactions are efficient and an inverse association between the number of transactions*

consumers conduct and their perception that electronic banking transactions are inefficient.

Technology-assisted banking transactions can be efficient when they take less time to complete compared to transactions conducted in a bank by a human teller or by other modes of electronic banking. On the other hand, use of the various modes of electronic banking can result in inefficiency when the technology-assisted banking transactions take longer to complete compared to those conducted by human tellers in a bank branch or other modes of electronic banking. The respondents' likelihood of experiencing the efficiency/inefficiency paradox was measured in two ways. One way was through likert scaled items relating to their perceptions of the speed of transactions conducted with the modes of electronic banking they reported using and the other way was using an item measuring their general perceptions towards the use of electronic banking to avoid the queues associated with transactions conducted in the banks' branches or at ATMs. The results are presented in Table 36.

Table 36: Summary - Variables measuring the efficiency/inefficiency paradox

Variable	Agree	Disagree
EFTPOS transactions are fast	87%	13%
ATM transactions are fast	87%	13%
Telephone banking transactions are fast	31%	69%
Online banking transactions are fast	70%	30%
Electronic banking allows me to avoid queues	81%	19%

The results in Table 36 show that most respondents who use EFTPOS, ATM, and Online banking modes perceive transactions performed using these modes to be expeditious. However, most respondents who use telephone banking (69%) think that telephone-banking transactions are time consuming. By contrast, 13% of the respondents who used EFTPOS and ATMs, and 30% of those who used Online banking reported that they perceive transactions to be time consuming. The results in Table 36 also show that 81% of the sample respondents reported using electronic

banking because it helps them avoid queues. These results can be interpreted to mean that most of the respondents who use EFTPOS, ATM, and Online banking modes and respondents who use electronic banking to avoid queues perceive their technology-based banking transactions to be efficient while most of the telephone banking users perceive telephone banking transactions to be inefficient.

Bivariate correlations were done to examine whether respondents who think that electronic banking transactions are efficient reported conducting more or less transactions compared to respondents who did not think the transactions are efficient. The results are presented in Table 37.

Table 37: Correlation – Efficiency/inefficiency variables and usage rate

Transactions are fast	Spearman’s rho	Significance
EFTPOS	0.089	0.086
ATM	0.009	0.855
Telephone banking	0.075	0.235
Online banking	0.193	0.020*

Note. * Indicates results are significant, where $P < 0.05$

Table 37 shows that there is no statistically significant association between the respondents’ perceptions regarding the efficiency/inefficiency of technology-based banking transactions conducted using EFTPOS, ATMs, and Telephone banking modes and the number of transactions they reported conducting. However, the results show a statistically significant association between respondents’ perceptions of the speed of Online banking and the number of Online banking transactions they reported conducting. They suggest that consumers who perceive Online banking transactions to be efficient are likely to conduct more Online banking transactions compared to consumers who think Online-banking transactions are time consuming. The data show that 19.8% of the respondents who think Online-banking transactions are fast conduct less than four Online banking transactions a month, 37.6% carry out Online banking transactions five to twelve times a month and 42.6% conduct more than 12 Online banking transactions each month. Conversely, 43.2% of the respondents who perceive Online banking transactions to be time consuming

conduct less than four transactions a month, 29.5% conduct five to 12 transactions a month, and 27.3% conduct more than 12 transactions a month.

Efficiency/Inefficiency Summary

The results support the research proposition as they show that consumers who use electronic banking can experience the efficiency/inefficiency paradox. They show that most of the respondents who use EFTPOS, ATM, and Online banking experience the efficiency side of the paradox while most of the respondents who use telephone banking experience the inefficiency side of the paradox. There was no statistically significant association between variables measuring respondents' reported likelihood of experiencing the efficiency/inefficiency paradox and the number of EFTPOS, ATM, and telephone banking transactions they reported conducting. However, the results showed a statistically significant association between the efficiency/inefficiency paradox and respondents' use of Online banking. Therefore, the results relating to the efficiency/inefficiency paradox and the usage rates of the four modes of electronic banking partially support the research proposition.

6.3.5.5 Fulfils/Creates needs paradox

P5e: Consumers who use electronic banking can experience the fulfils/creates needs paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feelings that electronic banking fulfils needs.*

Fulfils needs

Findings from the qualitative phase of this study show that the various modes of electronic banking fulfil respondents' needs when they facilitate the required transactions. In the quantitative phase of this study respondents were asked to nominate the type of transactions they are likely to conduct using ATM, telephone, and Online banking modes. As noted previously, respondents were not asked to

nominate the transactions they are likely to conduct using EFTPOS because these facilities are used mainly for payments and/or withdrawals in retail settings. Respondents who stated that they used ATMs reported that they are mainly likely to conduct cash withdrawals, account balance checks, and deposit transactions. Those who used telephone banking and Online banking modes reported that they are mainly likely to conduct account balance checks, funds transfers, credit card payments, and bill payment transactions. These results were interpreted to mean that the respondents' preferred modes of electronic banking fulfil their retail banking needs because they facilitate transactions such as cash withdrawal, account balance checks, bill payments, and funds transfers amongst others.

Chi-square tests of association were conducted to determine whether there is an association between these transaction types and the number of transactions respondents reported conducting using ATM, telephone, and Online banking modes. The results showed statistically significant results between the number of ATM transactions respondents reported conducting and account balance checks ($X^2=7.295$, $df = 2$, $p = 0.026$) and cash deposit transactions ($X^2=7.063$, $df = 2$, $p = 0.029$). Approximately 54% of the respondents who reportedly used ATMs to conduct account balance checks also reported conducting five to 12 ATM transactions. Similarly, there was a statistically significant association between the number of telephone banking transactions respondents reported conducting and the use of telephone banking for funds transfers ($X^2= 6.992$, $df = 2$, $p = 0.030$). The data show that, of the telephone banking users who conduct funds transfers, 32% conduct less than four transactions a month, 40% conduct five to 12 telephone-banking transactions a month, and 28% conduct more than 12 telephone banking transactions a month. It is worth noting that the data did not show any statistically significant associations between the number of Online banking transactions respondents reported conducting and the type of transactions they conduct.

Creates needs

The qualitative findings also suggest that the advent of electronic banking has created the need for many consumers to learn how to use electronic banking. The qualitative findings suggest that while most consumers are likely to use at least two

modes of electronic banking, they seldom adopt all the four modes. Instead, they appear to rely on those modes that appear to suit their retail banking needs. The results presented in Table 38 provide a summary of the sample respondents who reported that they did not use each of the four modes of electronic banking

Table 38: Sample respondents who did not use each mode of electronic banking

Mode	Percentage
ATM	7.9
EFTPOS	18.1
Telephone	44.2
Internet/Online	67.1

Note. Percentage represents the respondents who did not use the particular mode of electronic banking as a percentage of the whole sample (453 respondents).

During the quantitative phase of the study, respondents who did not use some modes of electronic banking were asked to provide reasons for not using them. The results presented in Table 39 show the reasons respondents gave for not using the various modes of electronic banking. The data presented in Table 39 show that some respondents reported that they did not adopt telephone banking (17.2%) and Online banking modes (14.7%) because they did not know how to use them. Furthermore, some respondents reported that they did not use those modes of electronic banking they perceived as difficult to use (ATMs 2.7%, telephone banking 9.8%, and Online banking 3.3% of the non-users). These results imply that for these respondents there may be a need for them to learn how to conduct technology-based banking transactions using other modes of electronic banking. The data presented in Table 39 also show that some respondents reported they did not use some of the modes of electronic banking because they do not have access to equipment necessary to facilitate electronic banking transactions. For instance, 16.7% reported that they did not use ATMs because the facilities are not available in their towns, 0.5% reported they do not have telephones, 20.7% reported they do not have computers, and 16.1% reported that they do not have access to the Internet. So, it seems that for these respondents access to the necessary facilities may encourage them to conduct technology-based banking transactions. However, it is interesting to note that some

respondents reported that they did not feel the need to use telephone (31.5%) and Online banking modes (25.1%). It may be that for these respondents the modes of electronic banking they currently use fulfil all their banking needs.

Table 39: Reasons for not using ATM, telephone, and Online banking modes

Reason	ATM	Telephone	Online
Always have cash	13.9%		
I go to the bank branch	16.7%	6.9%	
I do not need to use it		31.5%	25.1%
I do not know how to use it		17.2%	14.7%
It is difficult to use	2.7%	9.8%	3.3%
It is not safe	27.8%	9.9%	13.0%
Not available in my town	16.7%		
I do not have access to the Internet			16.1%
I do not have a telephone		0.5%	
I do not have a computer			20.7%
The cost is high	8.3%	3.4%	1.1%
Too many PINs	5.6%	1.5%	
I use my credit card instead	5.6%		
I use Telephone banking instead	2.7%		2.3%
I use Online banking instead		15.3%	
Did not provide a reason for non-use		3.0%	2.0%
Deaf		0.5%	
It does not provide receipts		0.5%	
It is too slow			1.7%
Total	100%	100%	100%

Fulfil/Creates Needs Summary

The results support the research proposition. They suggest that the available modes of electronic banking fulfil the respondents' needs because they facilitate the required transactions. The results also show that respondents who indicated that electronic banking fulfils their retail banking needs also reported conducting many ATM and telephone banking transactions. The various modes of electronic banking can create three main needs, namely: the need to learn how to conduct technology-assisted banking transactions; to own equipment such as computers and telephones, and/or to have access to the Internet.

6.3.5.6 Engaging/Disengaging paradox

P5f: Consumers who use electronic banking can experience the engaging/disengaging paradox.

- (i) There is a positive association between the number of transactions consumers conduct and their reported feeling that electronic banking is engaging and an inverse association between the number of transactions consumers conduct and their reported feelings that electronic banking can be disengaging.*

According to Mick and Fournier (1998), the use of technology is engaging when consumers enjoy its use and it facilitates the required activities. On the other hand, the use of technology is disengaging when it results in distraction and inhibits the completion of required activities. Findings from the qualitative phase of this study show that in an electronic banking scenario, consumers' use of the available modes of electronic banking can be engaging when these modes facilitate transactions such as bill payments and funds transfers and when they provide consumers with access to financial information and access to other financial institutions. Consumers' use of the various modes of electronic banking can be disengaging when the available modes of electronic banking do not facilitate the successful completion of transactions, access to account information, and/or access to

other financial institutions. Therefore, in the quantitative phase of the present study respondents' views towards the engaging/disengaging paradox were measured using four variables: perceived ease of paying bills electronically, use of electronic banking to facilitate money management activities, perceived access to account information, and perceived access to other financial institutions. The results are presented in Table 40.

The results in Table 40 can be interpreted to mean that most of the respondents who use the various modes of electronic banking to access their account information, to pay bills, and for their money management activities find electronic banking transactions to be engaging, while less than half of the respondents who use or do not use the available modes electronic banking to access other financial institutions perceive electronic banking transactions to be engaging.

Table 40: Summary - Variables measuring engaging/disengaging paradox

Variable	Agree	Disagree
Electronic banking facilitates money management activities	60%	40%
It is easy to pay bills electronically	64%	36%
It is easy to access account information electronically	63%	37%
Electronic banking provides access to other financial institutions	42%	58%

Nonparametric correlations were done to examine whether respondents who think that the use of the available modes of electronic banking transactions is engaging reported conducting more transactions than those who think that it is disengaging. The results are presented in Table 41. Table 41 shows that there is a statistically significant positive association between the number of EFTPOS transactions respondents reported conducting and all variables measuring the engaging/disengaging paradox. This indicates that most of the respondents who suggested that electronic banking can be engaging also reported conducting numerous EFTPOS transactions. The results show statistically significant

associations between the number of telephone and Online banking transactions respondents are likely to conduct and the perceived ease of paying bills and facilitating money management activities. They suggest that respondents who use telephone banking and Online banking modes can find their use of both modes of electronic banking engaging because they facilitate easy bill payment and money management activities.

Table 41: Correlation - Engaging/disengaging variables and usage rate

Variable	Mode	Spearman's rho	Significance
Facilitates money management	EFTPOS	0.107	0.041*
	ATM	-0.003	0.951
	Telephone	0.126	0.047*
	Online	0.178	0.032*
It is easy to pay bills	EFTPOS	0.181	0.001*
	ATM	0.017	0.727
	Telephone	0.136	0.032*
	Online	0.225	0.006*
I can access information	EFTPOS	0.134	0.012*
	ATM	0.010	0.849
	Telephone	0.067	0.294
	Online	0.273	0.001*
I can access financial institutions	EFTPOS	0.176	0.001*
	ATM	0.050	0.336
	Telephone	-0.050	0.422
	Online	0.135	0.135

Note. * Indicates results are significant, where $P < 0.05$

Engaging/Disengaging Summary

The results support the research proposition. They suggest that consumers who use the available modes of electronic banking can find them engaging and disengaging. Most of the respondents reported that the available modes of electronic banking facilitate bill payment transactions, money management activities, and access to account information, suggesting that electronic banking can be engaging as

it facilitates their required banking activities. Respondents who indicated that electronic banking facilitates the retail banking transactions they require also reported conducting many EFTPOS, telephone, and Online banking transactions. Electronic banking can be disengaging, particularly when available modes of electronic banking do not facilitate access to other financial institutions. The results also show a statistically significant association between respondents' use of electronic banking to access other financial institutions and their use of EFTPOS.

6.4 Summary

This chapter presents the results of the quantitative phase of this study. The chapter includes a description of the resulting sample's characteristics and a presentation of the results relating to each research proposition. The following section provides a summary of the quantitative research findings relative to the present study's general research questions that were identified in section 1.2 (see page 17). The results are then discussed in relation to the relevant literature in chapter 7.

6.4.1 What criteria do consumers use to evaluate TASE in Western Australia's retail-banking sector?

The quantitative findings suggest that four main criteria may be pertinent to consumers' decisions regarding their level of satisfaction and/or dissatisfaction with technology-assisted banking transactions that are carried out using the four existing modes of electronic banking. These are perceived convenience, the type of transaction, the transaction aids available, and perceived risk. Perceived convenience appears to relate to the perceived ease of transactions, perceived speed of transactions, and the perceived availability of the various modes of electronic banking. The transaction aids available with the four modes of electronic banking include the voice prompts that are available with the telephone banking mode and the visual cues that are available with EFTPOS, ATMs and Online banking. The

perceived risk of conducting technology-based banking transactions is multidimensional and includes four sub-criteria. The first criterion is physical risk, which results from concerns about being attacked when using some modes of electronic banking. Secondly, there is the psychological risk that is associated with concerns about making mistakes during transactions and concerns regarding unauthorised parties having access to consumers' personal account details. The third risk is performance risk, which relates to consumers' concerns about whether or not the executed transactions will be successfully completed. The final risk is the financial risk associated with the perceived cost of transactions.

The findings of the present study also show that consumers who conduct technology-based banking transactions may experience some of the paradoxes of technology adoption identified by Mick and Fournier (1998). The relevant paradoxes include: freedom/enslavement, control/chaos, competence/incompetence, engaging/disengaging, and efficiency/inefficiency. The prevailing side of these paradoxes may have an effect on consumers' levels of satisfaction and/or dissatisfaction with technology-assisted service encounters in the retail banking industry. The assimilation/isolation and new/obsolete paradoxes did not appear to be significant to the respondents of the present study.

6.4.2 Do consumers use the same criteria to evaluate all TASE and do these criteria affect their usage rates of the four modes of electronic banking?

As noted in chapter 3, the principle assumption guiding this study is that consumers' perceptions influence their behaviour. Therefore it was expected that positive views towards the relevant criteria would result in higher usage rates of the different modes of electronic banking while negative opinions would result in lower usage rates. The findings suggest that some criteria may be more relevant to some modes of electronic banking than they are to other modes. Table 42 provides a summary of the criteria found to be associated with respondents' usage rates of the four modes of electronic banking. 'Yes' means that the results of the statistical tests showed a significant association between the nominated factor and respondents' use of the particular mode of electronic banking. Thus, consumers' perceptions of these

criteria are significant because they are likely to affect their levels of satisfaction/dissatisfaction as reflected by their usage rate of the identified modes of electronic banking. ‘No’ means that the results of the statistical tests associated with the identified factor and the designated mode of electronic banking were not statistically significant. As such, consumers’ views of these criteria are not likely to have an effect on their levels of satisfaction and/or dissatisfaction with technology-based banking transactions, as reflected by their usage rates.

Table 42: Summary – Relevant criteria

Relevant criteria		EFTPOS	ATM	Telephone	Online
Convenience	Easy	Yes	Yes	No	Yes
	Fast	No	No	No	Yes
	Location	No	Yes	No	Yes
	Transaction time	No	No	No	Yes
Transaction aid	Voice prompts	N/A*	N/A	Yes	N/A
	Visual Cues	No	No	N/A	Yes
Perceived risk	Physical	No	Yes	N/A	N/A
	Psychological	No	No	Yes	Yes
	Performance	No	Yes	Yes	No
	Financial	No	No	No	No

Note. * N/A indicates that the identified factor was not applicable to the particular mode of banking

6.4.3 Do consumers’ characteristics influence the criteria they are likely to use when evaluating electronic banking transactions?

The present study examined whether the respondents who reported that they used the four modes of electronic banking had particular demographic characteristics. The study also explored whether the criteria that may be pertinent to the respondents’ evaluations of their TASE in the retail banking industry were likely to differ with

their demographic characteristics. The following section summarises the findings in relation to the respondents' demographic characteristics.

It appears that respondents who reported that they use the four modes of electronic banking may have particular demographic characteristics. A summary of the results is provided in Table 43. 'Yes' indicates that the results of Kruskal-Wallis and Mann-Whitney tests done were statistically significant. This means that respondents who used the identified mode of electronic banking and those who did not use the particular mode of electronic banking differed notably on the basis of the nominated demographic variable. These results were interpreted to mean that the nominated criterion is pertinent when respondents who differ with the identified demographic characteristic are evaluating transactions conducted using the nominated mode of electronic banking. 'No' indicates that the results of the Kruskal-Wallis and Mann-Whitney tests were not statistically significant.

Table 43: Summary – Demographics and use/non use of electronic banking

Demographic	EFTPOS	ATM	Telephone	Online
Gender	No	No	Yes	Yes
Age	Yes	No	Yes	Yes
Income	No	No	Yes	Yes
Education	No	Yes	Yes	No
Occupation	No	No	Yes	Yes

The quantitative results suggest that the significance of some of the relevant criteria that were identified may differ with consumers' demographic characteristics. Table 44 provides a summary of the results relative to the respondents' demographic characteristics. 'Yes' means that the results of the statistical tests done to examine the association between the identified variables were statistically significant. That is, the respondents' perceptions of the identified mode of electronic banking that were based on the nominated factor seemed to differ with the identified demographic characteristic. For example, respondents' perceptions regarding the ease of EFTPOS

transactions appear to differ with age. ‘No’ means that respondents’ perceptions towards the relevant factor and the identified mode of electronic banking did not seem to differ with their demographic characteristics. For example, respondents’ perceptions of the perceived ease of telephone banking did not differ with age.

Table 44: Summary - Demographic characteristics and relevant criteria

Relevant criteria		Demographic	EFTPOS	ATM	Telephone	Online
Convenience	Easy	Age	Yes	Yes	No	No
		Gender	No	No	Yes	No
		Occupation	Yes	Yes	No	No
	Fast	Gender	No	No	Yes	No
		Education	No	No	No	Yes
	Location	Income	No	Yes	No	No
	Time	Age	No	No	No	Yes
Transaction aids	Visual cues	All	No	No	N/A*	No
	Voice cues	All	N/A*	N/A*	No	N/A*
Perceived risk	Physical	Gender	No	Yes	No	No
		Income	No	Yes	No	No
	Psychological	Age	No	Yes	Yes	No
		Gender	No	No	No	Yes
	Performance	Income	No	No	Yes	No
		Occupation	No	No	Yes	No
	Financial	Age	No	Yes	No	Yes
		Education	Yes	No	No	No
Occupation		Yes	Yes	No	No	

Note. * N/A indicates that the identified factor was not applicable to the particular mode of banking

6.4.4 Do consumers who conduct technology-assisted banking transactions experience the paradoxes of technology-adoption identified by Mick and Fournier (1998)?

The results suggest that consumers who conduct technology-assisted banking transactions can experience some of the paradoxes identified by Mick and Fournier (1998). The extent to which consumers experience the paradoxes of technology adoption when conducting technology-assisted banking transactions can differ with the mode of electronic banking in use. Table 45 provides a summary of the paradoxes that appear to be pertinent to technology-assisted banking transactions. In some instances respondents appeared to be likely to experience both sides of the paradox while in other instances one side of the paradox seemed to dominate. Table 45 highlights the electronic banking modes with which respondents seemed more likely to experience both sides of the paradox and the modes with which one side of the paradox appeared to dominate.

Table 45: Summary – Paradoxes and the four modes of electronic banking

Paradox	EFTPOS	ATM	Telephone	Online
Freedom/enslavement	Freedom	Freedom/ Enslavement	Freedom	Freedom
Control/Chaos	Control	Control/ Chaos	Control/ Chaos	Control
Competence/ Incompetence	Competence	Competence	Competence	Competence
Engaging/Disengaging	Engaging	Engaging/ Disengaging	Engaging	Engaging
Efficiency/Inefficiency	Efficiency	Efficiency	Inefficiency	Efficiency
Fulfils/Creates needs	Fulfils	Fulfils	Fulfils/ Creates	Fulfils/Creates
Assimilation/Isolation	N/A	N/A*	N/A	N/A
New/Obsolete	N/A	N/A	N/A	N/A

Note. * N/A indicates that the identified factor was not applicable the particular mode of banking

The results also suggest that electronic banking consumers who can experience the paradoxes of technology adoption might also have different usage rates of the four modes of electronic banking. A summary of the results is presented in Table 46. ‘Yes’ indicates that the results of the statistical tests that were conducted were significant. Therefore, respondents who reported experiencing the highlighted side of the paradox also reported conducting more or less transactions using the nominated mode of electronic banking. ‘No’ indicates that the results were not statistically significant. Thus, the identified side of the paradox did not have a statistically significant effect on the usage rate of the identified electronic banking mode.

Table 46: Summary – Paradoxes and usage rates

Paradox		EFTPOS	ATM	Telephone	Online
Freedom/Enslavement	Freedom	No	Yes	No	Yes
	Enslavement	No	Yes	No	No
Control/Chaos	Control	Yes	No	Yes	Yes
	Chaos	No	No	No	No
Competence/Incompetence	Competence	Yes	Yes	No	Yes
	Incompetence	No	No	No	No
Engaging/Disengaging	Engaging	Yes	No	Yes	Yes
	Disengaging	Yes	No	No	No
Fulfil/Creates needs	Fulfil	N/A*	Yes	Yes	No
	Creates needs	N/A	N/A	N/A	N/A
Efficiency/Inefficiency	Efficiency	No	No	No	Yes
	Inefficiency	No	No	No	Yes
Assimilation/Isolation		N/A	N/A	N/A	N/A
New/Obsolete		N/A	N/A	N/A	N/A

Note. * N/A indicates that the identified factor was not applicable the particular mode of banking

6.4.5 Conclusion

Chapter 6 provided the results of the tests of the research propositions. It began by providing a description of the respondents' demographic characteristics, showing that while the sample had a gender distribution similar to that of WA's population there were differences in the age, income, education, and occupation distributions of the sample and the WA population. Most of the respondents reported using ATMs (92.1%) and EFTPOS (81.9%), while 55.8% used telephone banking and 32.9% reported using Online banking.

The chapter also presents the results of research propositions pertaining to the relevant criteria identified in the qualitative phase of the study, the paradoxes of technology adoption, and respondents' demographic characteristics. The statistical tests conducted were used to determine whether the relevant facts, paradoxes of technology adoption, and respondents' demographic characteristics have an effect on the number of electronic banking transactions they reported conducting.

Respondents' perceptions of the four sub-dimensions of perceived convenience appeared to have an effect on the number of EFTPOS, ATM, and Online banking transactions they reported conducting. It is worth noting that these sub-dimensions did not seem to have an effect on the number of telephone banking transactions respondents reported conducting. However, the voice prompts available with the telephone banking mode appeared to have an effect on respondents' usage rates. The results showed an inverse association between the extent of use of voice prompts and the number of telephone banking transactions respondents reported conducting. They also showed that visual cues have a positive effect on the perceived ease and speed of Online banking transactions and the number of Online banking transactions respondents reported conducting. While respondents noted that they associated some modes of electronic banking with psychological and performance risk these risks did not seem to have an effect on the number of transactions they reported conducting. Respondents who reported that they have concerns about their safety while conducting ATM transactions also reported conducting many ATM transactions. As discussed in the following chapter, these respondents may use ATMs because they are one of the two modes of electronic

banking that provide them with access to cash and they may feel compelled by the Western Australian banking rules to use ATMs.

The results in this chapter show that respondents can experience the control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, engaging/disengaging, and fulfils/creates needs paradoxes. Respondents who reported that they experience the positive side of the paradoxes reported conducting many electronic banking transactions. Respondents who reported experiencing the negative side and both sides of the paradoxes did not report conducting more or less transactions compared to their counterparts who did not experience the negative side or both sides of the paradoxes. As such, chapter 6 shows that in most cases the research propositions outlined in chapter 5 were partially supported. These results are discussed in relation to the relevant literature in the following chapter.

CHAPTER 7

DISCUSSION

7.1 Introduction

This chapter discusses the results presented in chapter 6 in relation to the relevant literature. It begins by discussing the likely association between Western Australian consumers' demographic profiles and their use of electronic banking. This is followed by a discussion on the relevant criteria that may affect consumers' usage of the four modes of electronic banking. Finally, the paradoxes of technology adoption that consumers can experience when conducting electronic banking transactions are also explored as these paradoxes may have an effect on their levels of satisfaction and dissatisfaction.

7.2 Demographics

The following section discusses the demographic characteristics of the sample. Information regarding consumers' demographics is essential because it provides an indication of the consumers who are likely to adopt electronic banking technologies (Stafford, 1996). Tan et al. (1999) agree with the significance of demographic variables, suggesting that the target market of consumers who are likely to use technologies such as EFTPOS could be effectively segmented on the basis of age. Other researchers state that demographic variables are particularly inadequate when exploring the adoption of technology because technology is becoming widely available (Dabholkar & Bagozzi, 2002). Instead, consumers likely to adopt electronic banking ought to be segmented using their perceptions towards technology and/or their likelihood of adopting the various modes of electronic banking (Devlin, 1995; Machauer & Morgner, 2001). Nevertheless, the following section discusses the age characteristics of the resulting survey sample.

7.2.1 Age

Researchers generally agree that age is a significant factor when exploring consumers' adoption of various technologies (Segrest et al., 1998). The results of this study show an association between the respondents' ages and their use of the various modes of electronic banking. Some of the results are consistent with existing research that shows that younger consumers are more likely to adopt the various modes of electronic banking (Forman & Sriram, 1991; Moore & Benbasat, 1991; Orenstein, 1998).

Less than 10% of the respondents who are 66 years and over reported that they use EFTPOS, telephone, and Online banking modes. As such, these results support the findings of studies that show that older consumers are less likely to conduct electronic banking transactions compared to their younger counterparts (Barczak et al., 1997). The results also showed that less than 10% of the respondents who are between ages 18 and 25 reported they use the available modes of electronic banking. These results contradict the findings of the aforementioned studies, which show that younger consumers are more likely to adopt new technologies. A possible cause of this finding is the sample distribution of the present study. As noted in the preceding chapter, only 7.3% of the sample respondents were between 18 to 25 years of age while this age group represents 14.8% of Western Australia's population (ABS, 2002). The difference in the sample distribution may be a result of the sampling frames used for this study, which were the Western Australian telephone directories. It may also be that the available modes of electronic banking are not as relevant to respondents between 18 to 25 years of age because they may be new to the workforce and thus they may have fewer financial commitments compared to consumers in the older age groups.

7.2.2 Gender

The findings of this study also show an association between respondents' gender and use of the four modes of electronic banking. More than half of the respondents who use EFTPOS, ATM, and telephone banking were female. By contrast, 60.1% of Online banking users were male. The latter result is consistent with Jayawardhena and Foley's (2000) findings, which suggest that Online banking

consumers tend to be male. It is interesting to note that most of the respondents who reported using EFTPOS, ATMs, and telephone banking were female given that the gender distribution of the sample (49.4% female, 50.3% male, and non-response of 0.3%). It may be that females in Western Australia conduct more retail banking transactions than males. Females are likely to conduct more retail banking transactions if they carry out most of the required financial transactions in the household. These transactions may include payments for groceries and household shopping and bill payments for utilities such as electricity, telephone, and water. As such, the available modes of electronic banking may be more pertinent to them because they present alternative methods of making payments for goods and services.

7.2.3 Income

The results of the quantitative stage of this study suggest that consumers who have higher incomes are more likely to use electronic banking when compared to consumers who are on lower incomes. Approximately, 33.1% of Online banking users reported that they have gross annual incomes of \$60,000 or more. This result supports research that shows that Online banking users are more likely to be high income earners (Orenstein, 1998; Jayawardhena & Foley, 2000). These consumers may be on higher incomes because they are more educated and/or highly skilled and thus they are in occupations that require them to be more adept at using technology-based service delivery modes (Filotto et al., 1997; Jayawardhena & Foley, 2000; Thornton & White, 2001; Pereira, 2002). Some studies suggest that more lower income earners are adopting the various modes of electronic banking because these facilities are becoming readily available (Moore & Benbasat, 1991; Barczak et al., 1997). The current results did not support this research. The difference in findings may result from the composition of this study's sample. Respondents generally reported that they earn higher incomes compared to those reported by the WA population.

7.2.4 Education

Researchers suggest that Online banking consumers are more likely to have above average education and they may be students because students are more exposed to the use of technologies such as computers and the Internet (Jayawardhena & Foley, 2000). For example, 77% of Online banking consumers in the USA are college graduates (Orenstein, 1998). Furthermore, consumers who are less educated may not be skilled or confident about conducting their own technology-assisted banking transactions (Thornton & White, 2001; Pereira, 2002). However, the current study found no significant association between respondents' level of education and the use of EFTPOS and Online banking. EFTPOS transactions are typically conducted in retail settings and they involve retail personnel who facilitate the completion of transactions (Mitchell, 1998; Tan et al., 1999). Therefore, for EFTPOS users education may not be a significant factor because of the presence of retail personnel. The level of education may also not be as significant in the respondents' use of Online banking because of the visual cues that are available. The results showed a significant association between respondents' level of education and their use of ATMs and telephone banking. Nonetheless, consumers' level of education may have an effect on how they evaluate technology-based service encounters. Consumers who are highly educated and knowledgeable may form higher expectations of the TASE in the banking industry (Javalgi, 1992; Jamal & Naser, 2002). These consumers may be dissatisfied with the use of electronic banking if performance falls short of these higher expectations and satisfied if their high expectations are met or exceeded.

7.2.5 Occupation

The results suggest that there may be an association between consumers' use of the four modes of electronic banking and their occupation. For instance, the data show that 46% of EFTPOS users, 45% of ATM users, 35% of telephone banking users, and 58% of Online banking users reported that they were in managerial, administrative, professional, or para-professional occupations. These results support the findings of existing studies that suggest that consumers in professional

occupations may be more likely to use the available modes of electronic banking (Filotto et al., 1997; Jamal & Nasser, 2002). The results also appear to be consistent with previous research that shows that consumers in professional occupations are likely to conduct Online banking transactions, possibly because the use of technologies such as computers and the Internet is consistent with their lifestyles (Rogers, 1995). Furthermore, these consumers are likely to have fewer concerns regarding the use of electronic banking because they have the knowledge required to perform their own banking transactions (Barczak et al., 1997; Novak et al., 2000; Thornton & White, 2001; Pereira, 2002). Consumers with managerial, administrative, professional, or para-professional occupations may also be likely to use Online banking because they may have the financial resources required to obtain the hardware necessary and to get access to the Internet in order to conduct Online banking transactions.

In conclusion, the findings of the current study indicate that Western Australian consumers who are likely to conduct TASE in the retail banking industry are likely to be between 26 to 65 years of age, on high incomes, and in managerial, administrative, professional, or para-professional occupations. In addition, more than half of the consumers who use EFTPOS, ATM, and telephone banking are likely to be female, while two-thirds of Online banking users are likely to be male. It also appears that consumers' levels of education are associated with their use of ATMs and telephone banking. However, consumers' levels of education did not seem significant for those who use EFTPOS and Online banking modes. This may be because EFTPOS transactions are conducted in retail settings with the assistance of retail personnel while the Online banking mode has visual cues that make Online banking transactions appear to be easy to conduct.

7.3 Convenience

The survey results suggest that convenience may be a significant factor for consumers evaluating TASE in the retail banking industry. They support previous literature that shows that consumers are motivated to conduct technology-based

banking transactions if they perceive the use of electronic banking to be convenient (El-Haddad & Almahmeed, 1992; Joseph et al., 1999; Jun & Cai, 2001; Zhu et al., 2002). The quantitative results contribute to this literature by suggesting that convenience is a multi-dimensional factor that has four sub-dimensions. These sub-dimensions include: the perceived ease of using the various modes of electronic banking, the perceived speed of transactions, the availability of electronic banking facilities at different locations, and the accessibility to transaction accounts at different times of the day beyond the banks' standard operating hours. It is important to note that while the attribute relating to the perceived financial cost of electronic banking transactions appeared to relate to convenience in the qualitative phase of this study, in the quantitative it became apparent that the perceived cost is a sub-dimension of perceived risk. The following section discusses the dimensions that relate to the perceived convenience of electronic banking transactions.

7.3.1 Ease Of Use

Findings from the qualitative and quantitative stages of this study suggest that when evaluating TASE in the retail banking industry consumers are likely to consider the perceived ease of using the various modes of electronic banking. These findings are consistent with existing research on the general adoption of technologies which suggests that consumers are likely to adopt technologies that they perceive to be easy to use (Dover, 1988; Moore & Benbasat, 1991; Rogers, 1995; Aggarwal et al., 1998; Meuter et al., 2000).

In particular, results from the quantitative section show a positive association between the perceived ease of conducting EFTPOS, ATM, and Online banking transactions and the number of transactions respondents reported conducting. These results suggest that consumers who perceive these modes of electronic banking to be easy to use are likely to conduct more transactions compared to consumers who may find electronic banking transactions challenging. These findings also support findings from research specifically pertaining to the adoption of retail banking technologies, such as research which shows that consumers are more likely to use EFTPOS and ATMs if they perceive them as easy to use (El-Haddad & Almahmeed,

1992; Prendergast, 1993; Liao et al., 1999; Tan et al., 1999). The findings of the present study also support findings from studies which show that consumers are more likely to use Internet/Online banking if they can effortlessly navigate their banks' Web sites (Anandarajan et al., 2000; Jayawardhena & Foley, 2000; Jun & Cai, 2001; Dabholkar & Bagozzi, 2002).

Past researchers have found that the perceived ease of using technology is associated with consumers' characteristics (Adams, Nelson, & Todd, 1992; Novak, Hoffman, & Yung, 2000; Dabholkar & Bagozzi, 2002). The results of this study show statistically significant associations between respondents' age and occupation and their perceptions regarding the ease of EFTPOS and ATM transactions, and between their gender and the perceived ease of telephone banking transactions. The results did not show an association between any demographics and the perceived ease of using Online banking. It can be argued that these associations were a result of the sample distribution. As illustrated in chapter 6, more than half of the respondents were between 36 to 55 years of age, 45% of the respondents reported being in higher-end occupations, and more than half of the telephone banking users were female. Respondents' lifestyle and skill levels may also explain the statistically significant associations between their demographic characteristics and their perceptions regarding the ease of using EFTPOS, ATM, and telephone banking modes. While Rogers (1995) notes that consumers have a tendency to adopt technologies that suit their lifestyles, other researchers add that consumers who are highly skilled are more likely to conduct technology-based banking transactions (Jayawardhena & Foley, 2000; Thornton & White, 2001; Pereira, 2002). Perhaps the respondents who reported that EFTPOS and ATM transactions are easy are more adept than their counterparts at using payment technologies because they are more exposed to technologies such as computers and the Internet in their occupations.

Another possible explanation for the difference in respondents' perceptions regarding the ease of conducting electronic banking transactions may be the transaction aids available (discussed later in this chapter) with each mode of electronic banking. The perceived ease of EFTPOS, ATM, and Online banking modes may be explained by the visual cues available. According to some researchers, these visual cues can make electronic banking transactions seem easy to

conduct because they make consumers feel like they are in direct contact with their financial institutions (Dabholkar, 1994; Dannenberg & Kellner, 1998). On the other hand, telephone banking users rely on the voice prompts available. The data show a negative association between the extent of use of voice prompts and the perceived ease of telephone banking transactions. Thus, it can be argued that while respondents who use EFTPOS, ATM, and Online banking modes may think transactions are easy because they rely on the visual cues available which make them feel like they can 'see' their transactions taking place, telephone banking users may think telephone banking transactions are problematic because of the nature of the voice prompts.

It is important to note that the correlation coefficients between the perceived ease of electronic banking transactions and the number of transactions consumers are likely to conduct were small. This indicates that factors other than the perceived ease of using the available modes of electronic banking are likely to have an effect on the number of electronic banking transactions consumers conduct. This may include factors such as the transaction aids, perceived risks, and the paradoxes of technology adoption (discussed later in this chapter) that consumers are likely to experience when using electronic banking.

7.3.2 Transactions Are Fast

Existing studies show that the time taken to complete service encounters is significant because it affects consumers' satisfaction/dissatisfaction with the service (Harvey & Filiatrault, 1991). The duration of the service delivery process is important because consumers' lifestyles are changing, they are becoming busier and they are consequently preferring service encounters that are expeditious (Jayawardhena & Foley, 2000; Meuter et al., 2000; Jun & Cai, 2001; Polatoglu & Ekin, 2001; Dabholkar & Bagozzi, 2002). Similarly, the findings of the present study indicate that consumers are likely to consider the length of time taken to complete transactions when evaluating TASE in the retail banking industry. In an electronic banking scenario this includes the amount of time it takes consumers to move from the access phase to the disengagement phase of electronic banking transactions (Bitran & Lojo, 1993).

More than 70% of the respondents who reported that they used EFTPOS, ATM, and Online banking modes reported that they perceive the transactions to be fast whereas only 31% of the respondents who used telephone banking reported that telephone banking transactions are fast. As noted previously, the differences in the perceptions of time taken to complete transactions using the four modes of electronic banking may be explained by the transaction aids available. Consumers who use telephone banking may think that telephone banking transactions are time consuming because of the length of time taken to listen and navigate through all the voice prompts available and the length of time taken to key in the required details.

The results did not show statistically significant associations between the respondents' perceptions regarding the length of time taken to complete EFTPOS, ATM, and telephone banking transactions and the number of transactions they are likely to conduct. Perhaps the results did not show an association between the respondents' use of EFTPOS and their perceptions regarding the speed of EFTPOS transactions because these transactions are typically conducted in retail settings. Therefore, respondents' usage levels of EFTPOS are limited to the availability and accessibility of retail establishments with EFTPOS facilities. EFTPOS transactions may also take a longer time to complete compared to transactions conducted using the other modes of electronic banking. However, as these transactions are conducted in a shopping environment, the respondents may perceive the length of time taken to complete the transactions to be acceptable because they may expect the payments for goods and services at retail establishments to be time consuming. The lack of a significant association between respondents' perceptions of the speed of ATM transactions and the number of ATM transactions they reported conducting may be explained by most of the respondents who use ATMs reporting that they feel compelled to use them. Western Australian banking rules such as the charges for conducting transactions in bank branches may compel some consumers to reluctantly use ATMs.

Most of the respondents who use telephone banking reported that telephone banking transactions are not fast. The types of delays that are likely to occur during TASE may explain their perceptions of the length of time taken to complete telephone banking transactions. Hui et al. (1998) note that there are two types of

delays associated with service encounters, procedural delays and correctional delays. Correctional delays tend to occur during the initial stages of the service encounter. In a telephone banking scenario this is the stage where consumers key in their access codes and their PINs. Procedural delays tend to occur during the later stages of the service delivery process. In the telephone banking scenario this is the stage where consumers request a transaction and wait for it to be completed. Hui et al. (1998) state that correctional delays, which occur earlier during the service encounter, are more likely to evoke negative feelings from consumers compared to procedural delays, which occur in the later stages of the service delivery process. That is because when correctional delays occur consumers tend to think that the services they require will not be delivered, whereas if procedural delays occur consumers are more certain that they will receive the required service because the delays occur towards the end of the service delivery process.

In an electronic banking context, it seems that respondents who perceive telephone banking transactions to be time consuming experience correctional delays. That is largely because for these respondents the perceived length of time taken to complete transactions may increase as they key in their pass words, access codes and/or identification numbers. Furthermore, as noted by an interviewee during the qualitative phase of this study, the information that consumers' key in during telephone banking transactions is repeated by the voice response technologies for verification. This process may increase listening time and consequently the perceived length of time taken to complete telephone banking transactions. While the same information is entered during Online banking transactions, these transactions may appear to be more expeditious than telephone banking transactions because consumers rely on the visual cues and therefore they do not listen to keyed information being verified verbally. Therefore, these correctional delays may deter some respondents from conducting telephone banking transactions, which explains why the results did not show an association between the perceived speed and the number of telephone banking transactions respondents reported conducting. Additionally, the visual cues may motivate consumers to use Online banking and thus explain the statistically significant positive association between the number of Online banking transactions respondents reported conducting and their perceptions regarding the speed of Online banking transactions.

There was a statistically significant association between the respondents' perceptions of the speed of Online banking transactions and their educational qualifications. Respondents with lower levels of education (primary school and year 10/12 or equivalent) were more likely to think Online banking transactions are time consuming while respondents with higher levels of education (diploma, undergraduate, or postgraduate qualification) indicated that Online banking transactions are fast. It may be that consumers with higher levels of education have been more extensively exposed to and therefore more familiar with the use of technologies such as computers and the Internet. These consumers may enjoy conducting Online banking transactions, consequently perceiving them to be relatively fast. Previous research exploring consumers' experiences with Online environments suggests that consumers who enjoy Online environments become highly involved in their activities and incognizant about the time that lapses as they engage in their activities (Novak et al., 2000). Thus, consumers who enjoy Online banking may become highly involved in their activities so they are more likely to perceive the transactions as fast compared to consumers who do not enjoy Online banking.

7.3.3 Location

Existing studies on consumers' bank selection criteria show that when choosing amongst banks the location of branches is a significant factor (Howcroft & Anthony, 1993; Levesque & McDougall, 1996; Mittal, 1999). The findings of the present study suggest that location may also be an important factor for evaluating technology-assisted banking transactions. According to Mulligan and Gordon (2002), organisations often adopt technologies for service delivery purposes because the technologies facilitate service delivery to consumers at multiple locations. Donner and Dudley (1997) note that consumers' access to financial services from different locations is important because consumers like up-to-date account information so they demand easy access to their transaction accounts from anywhere.

Location may be a significant factor for consumers when evaluating the perceived convenience of EFTPOS and ATM banking modes because these are

currently the only modes of electronic banking that provide consumers with access to cash. Previous research on the adoption of ATMs and EFTPOS shows that consumers are motivated to use these modes if the facilities are easy to find (Almossawi, 2001; Humphrey et al., 2001). Past research also shows that the main reason given for non-adoption of ATMs and EFTPOS is lack of information on where to find them (El-Haddad & Almahmeed, 1992; Prendergast, 1993; Liao et al., 1999; Tan et al., 1999). The results of the current study partially support those of the existing studies. The results show a statistically significant positive association between respondents' perceptions regarding the availability of ATMs and the number of ATM transactions that respondents are likely to conduct. However, the results did not show an association between the respondents' perceptions regarding the accessibility of EFTPOS and the number of EFTPOS transactions that they are likely to conduct.

The difference in the perceptions of the respondents may be explained by the difference in the availability of both modes of electronic banking. Perhaps the availability of EFTPOS facilities is not as important as that of ATM facilities because EFTPOS facilities are generally available in retail settings (Tan et al., 1999) so that the respondents' may generally expect access to these facilities to be limited to the location and the operating hours of retail establishments. On the other hand, ATM facilities are not limited to the operating hours of bank branches and/or retail centres. Thus, the location of ATMs is important for respondents who need to use them because they need to know where the ATMs are situated. Furthermore, the survey data show that 60.3% of the respondents who use ATMs reported that they only use their bank's ATMs. These respondents may only use their bank's ATMs to avoid the charges that are imposed by some Western Australian banks for using another bank's ATMs. Therefore, it can be argued that for these respondents the location of their particular bank's ATMs is important.

The results of this study also show a statistically significant association between the accessibility of Online banking facilities from work and the number of Online-banking transactions respondents reported they conduct. Most of the respondents who conduct Online banking transactions from work reported that they carry out more than 12 transactions every month. These results are similar to those

of previous studies investigating consumers' use of Online banking, which show that consumers are motivated to use Online banking because they have easy access to their accounts from any location that has the necessary facilities (Jun & Cai, 2001; Polatoglu & Ekin, 2001). The results also show that more than 70% of the respondents who reported that they conduct Online banking transactions from work also reported that they are in administrative, managerial, professional, or para-professional occupations. It may be that these respondents conduct more Online banking transactions because they have easier access to Online banking facilities from their places of work.

7.3.4 Any time

As noted in section 7.2.1, consumers are more likely to use electronic banking if it does not require them to make significant changes to their lifestyles (Dover, 1988; Moore & Benbasat, 1991). As their work and home obligations change consumers are becoming increasingly concerned with their time and preferring service encounters that do not impede on their leisure time (Devlin, 1995; Jayawardhena & Foley, 2000). Therefore consumers are more likely to use banking options that can facilitate their banking at any time they choose (Devlin, 1995; Jayawardhena & Foley, 2000).

The survey data show that respondents mainly conduct their telephone and Online banking transactions from their homes and that between 40 – 50% of their telephone and Online banking transactions are conducted in the mornings (8.00am to 11.59am) and in the evenings (5.00pm to 8.59pm). However, the results did not show a statistically significant association between the respondents' usage times for telephone banking and the number of telephone banking transactions they reported conducting. However, the results did show statistically significant associations between the number of Online banking transactions respondents reported conducting and the use of Online banking between 12.00pm and 4.59pm and 9.00pm and 11.59pm. This may be the case because some respondents may conduct their Online banking transactions during the lunch hours of 12.00 to 2.00pm while others conduct

their transactions in the night times, after they have had their evening meals and completed their household chores.

The quantitative results contradict the findings of Dabholkar and Bagozzi (2002) that show that access to consumers' accounts beyond bank business hours has no significant effect on their adoption and subsequent use of the various modes of electronic banking. The results of this study suggest that some consumers may be motivated to use telephone and Online banking modes because they can conduct their retail banking transactions beyond banks' traditional business hours. This increased access to their transaction accounts through electronic banking may affect their levels of satisfaction and/or dissatisfaction with both modes of electronic banking.

To conclude, the findings of the present study indicate that Western Australian consumers are likely to evaluate their TASE in the retail banking industry on the basis of perceived convenience. The findings of this study are similar to those of previous studies which show that consumers in Denmark, Norway, and Turkey emphasise convenience when assessing their electronic banking transactions (Mols et al., 1999; Humphrey et al., 2001; Polatoglu & Ekin, 2001). Brady and Cronin (2001) contend that most criteria used by consumers to evaluate service encounters are multidimensional. The results of this study support Brady and Cronin's (2001) assertion, as convenience was found to be multidimensional. The results show that when evaluating the convenience of using the various modes of electronic banking consumers are likely to consider four criteria. These criteria include the perceived ease of using the mode, the perceived speed of transactions, perceptions regarding the availability of electronic banking facilities from various locations and perceptions regarding the accessibility of their transaction accounts at any time of the day.

7.4 Transactions Aids

The four modes of electronic banking have transaction aids that guide consumers through the service delivery process. Consumers' perceptions of these transaction aids may have an effect on their levels of satisfaction and/or dissatisfaction with technology-assisted banking transactions. These transaction aids

are the voice response units used in telephone banking and the visual cues used in EFTPOS, ATMs, and Online banking modes.

7.4.1 Voice Response Units

The results of the quantitative phase of this study suggest that the voice prompts available during telephone banking are significant because they can influence consumers' satisfaction and/or dissatisfaction with telephone-banking transactions. Some researchers argue that telephone-banking transactions are not TASE because they do not require consumers to learn new behaviours (Aggarwal et al., 1998; Bobbit & Dabholkar, 2001). Specifically, they argue that consumers are only required to enter the necessary information using the key pad as they would when making a regular telephone call (Bobbit & Dabholkar, 2001). Siehl et al. (1991) and Dabholkar (1994) argue otherwise as they contend that telephone banking requires consumers to play the role of partial employees by relying on computerised equipment to deliver their own services. In this case, the computerised equipment would be the voice response units that are available with the telephone banking mode.

Most of the respondents who use telephone banking (56%) reported that they always listen to all the voice prompts when conducting telephone-banking transactions. The results show that there is a statistically significant inverse association between the extent of use of voice prompts and the perceived ease of conducting telephone-banking transactions. This negative association may result from respondents' perceptions regarding the amount of time taken to listen to all the voice prompts. For instance, 69% of the respondents who use telephone banking reported that they think the voice prompts are time consuming. The negative association between the voice prompts and respondents' perceptions of the ease of telephone banking may also be explained by some of the findings from the qualitative phase of this study. Some of the interviewees reported negative feelings towards the voice prompts, particularly if they made mistakes during transactions. They stated that correcting mistakes made during telephone-banking transactions is time consuming because it involves going back to the main menu, listening to all the voice

prompts and keying in all the information again. This prolonged process may make telephone banking transactions appear to be difficult and it may also explain the negative association between the use of voice prompts and perceived ease of telephone banking.

The quantitative results showed an inverse association between the extent of use of the voice prompts and the perceived speed. The results also showed a negative association between the extent of use of the voice prompts and usage rate of telephone banking. These results were not statistically significant. The telephone banking software enables consumers to key in their details and complete their transactions without listening to all the voice prompts available. It is worth noting that the interviewees who used telephone banking did not discuss this attribute. Notwithstanding, the quantitative results suggest that consumers who always listen to all the voice prompts available with telephone banking are not likely to perceive telephone banking transactions as fast and they are likely to conduct fewer transactions compared to consumers who choose to bypass some of the voice prompts.

7.4.2 Visual Cues

Visual cues are available with EFTPOS, ATM, and Online banking modes. However, in this study, they did not appear to be significant when evaluating EFTPOS and ATM transactions. A previous study by Riffelmacher (1991) found that consumers who are uncertain about how to use the visual cues available with ATMs are less likely to use ATMs. However, this may no longer be the case because since then consumers have become more familiar with ATMs and this may also be the case with EFTPOS. This increased familiarity with EFTPOS and ATM modes may explain why the visual cues did not appear to be significant for respondents who conduct electronic banking transactions using these modes.

Visual cues appear to be a significant evaluative criterion for respondents who conduct Online banking transactions. The quantitative results showed a statistically significant positive association between respondents' use of Online banking because of the visual cues and the perceived ease of Online banking transactions. These results support the findings of existing studies which show that

visual cues have a positive impact on the perceived ease of use of the Online banking mode and as such, they provide an incentive for consumers to conduct Online-banking transactions (Dabholkar, 1994; Dannenberg & Kellner, 1998).

According to Dabholkar (1994) and Dannenberg and Kellner (1998), visual cues have a positive impact on the perceived ease and the usage rate of Online banking transactions because consumers appear to be in “direct contact” with their financial institutions and particularly their transaction accounts. This may help explain the findings of the present study. Perhaps the respondents are motivated to use Online banking because they feel as though they are in direct contact with their financial institutions. Indeed, 82% of the respondents indicated that they like using Online banking because they can “see” their transaction accounts. Researchers state that the Online banking visual cues assist consumers during their Online banking transactions so the consumers are likely to evaluate the appearance and gist of visual cues (Jayawardhena & Foley, 2000; Meuter et al., 2000; Jun & Cai, 2001; Schoenbachler & Gordon, 2002). Thus, the visual cues can significantly influence consumers’ levels of satisfaction and/or dissatisfaction with Online banking transactions.

The findings of this study are consistent with previous studies that show that when consumers evaluate their service encounters they are likely to evaluate the service delivery process (Gronroos, 1984; Howcroft, 1993). They show that when consumers are evaluating technology-based service encounters in the retail banking industry they are likely to consider the transaction aids that are available with the various modes of electronic banking. In particular, when evaluating telephone and Online banking modes consumers are likely to consider the voice prompts and the visual cues that facilitate transactions. Consumers’ perceptions of the voice prompts and visual cues may thus influence their levels of dis/satisfaction and their usage rates of the various modes of electronic banking.

7.5 Perceived Risk

Services are harder than goods to evaluate because they are intangible and they can be characterised by search, credence, and experience qualities (Guseman, 1981; Murray & Schlacter, 1990; Turley, 1990). In particular, retail-banking services are hard to evaluate because consumers rely on credence and experience qualities (Siehl et al., 1991; Mitra, Reiss, & Capella, 1999). According to Siehl et al. (1991) and Novak et al. (2000), credence and experience qualities make it difficult for consumers to evaluate the service delivery process because evaluation of the service encounter requires psychological involvement from the consumer. When consumers' psychological involvement is high it can invoke high levels of perceived risk, which can then deter consumers from TASE (Ram & Sheth, 1989; Mitchell & Boustani, 1993; Stone & Gronhaug, 1993; Bobbit & Dabholkar, 2001). The following section explores the perceived risks found to be applicable to TASE in the retail banking industry. Research shows that perceived risk is a multi-dimensional construct that includes financial risk, performance risk, physical risk, social risk, psychological risk and time risk (Roselius, 1971; Kaplan, Syzbillo, & Jacoby, 1974). It also shows that the significance of these dimensions of risk depends on the nature of the product (Mitchell & Prince, 1993; Stone & Gronhaug, 1993). The qualitative and quantitative phases of this study suggest that the dimensions of risk that are applicable to an electronic banking scenario include; physical risk, psychological risk, performance risk, and financial risk. They are discussed below.

7.5.1 Physical Risk

According to Dholakia (2001), consumers are likely to experience physical risk if the products and/or services they adopt have the potential to instigate bodily harm. The results of this study show that some consumers may associate the use of ATMs with physical risk. Approximately half of the respondents (52.5%) who use ATMs reported that they fear being attacked while conducting their ATM transactions. This indicates that the respondents' perceptions of physical risk may be a relevant factor when evaluating their satisfaction and/or dissatisfaction with ATM transactions.

Previous studies show that higher levels of perceived physical risk are likely to dissuade consumers from the use of ATMs (Stevens et al., 1986; Middlemiss, 1992; Tan et al., 1999). In a similar manner, results from the current study show that 27.8% of the respondents who did not use ATMs reported that they did not use ATMs because they did not perceive them to be safe. The results from the respondents who used ATMs show a statistically significant positive association between the respondents' perceptions of the physical risk associated with the use of ATMs and the number of ATM transactions they reported conducting. This positive association may be explained by a number of factors. Firstly, as noted previously, ATMs are one of only two modes of electronic banking that can provide consumers with access to cash (Tan, et al. 1999). Secondly, ATMs can be used at any hour of the day meaning that their use at night may leave consumers particularly vulnerable. Finally, consumers feel compelled to use ATMs, as the data show more than half (55.2%) of the respondents who reported using ATMs also reported that they feel that circumstances force them to use ATMs. Therefore respondents who associate ATM use with physical risk may still conduct ATM transactions as they are one of the two electronic banking modes that provide respondents with access to cash and if they feel that banking rules in Western Australia, such as the charges for transactions conducted in bank branches, force them to use ATMs.

Respondents' demographic characteristics may also explain the positive association between perceived risk and use of ATMs. Respondents' perceptions of physical risk of using ATMs may be associated with their gender and/or annual income. The results show that 61% of the females who use ATMs reported that they have concerns about being attacked while doing their banking. By contrast, 43.2% of the male respondents who use ATMs reported similar concerns. Perhaps more females than males have concerns about being set upon because they feel more susceptible to assaults while using ATMs. The data also show that more than half of the respondents in all the income brackets except \$40,000 - \$49,999 and \$60,000 and over reported that they have concerns about being attacked when using ATMs. In these income categories only 40% and 47% of the respondents reported concerns regarding their personal safety while using ATMs. Perhaps those in the lower income categories have concerns about their personal safety while using ATMs yet they still do more transactions of lower value each time while those in the higher

income categories may conduct fewer transactions of greater value and/or they may use telephone and/or Online banking modes to conduct some of their banking transactions.

7.5.2 Psychological Risk

Consumers are likely to experience psychological risks when their consumption of products and/or services evokes negative thoughts and behaviours (Dholakia, 2001). In an electronic banking scenario, the sources of psychological risk appear to be consumers' inability to recall their personal identification numbers and/or consumers' concerns regarding the electronic trails that may compromise the security of their account details (Leblanc, 1990; Moore & Benbasat, 1991; Tan et al., 1999). Leblanc (1990) found that some consumers may be dissuaded from the use of ATMs and EFTPOS because they associate them with high levels of psychological risk and Black et al. (2001) found that some consumers may associate telephone banking with psychological risks because they are concerned about making mistakes during transactions.

In this study, respondents' perceptions of psychological risks were measured using the following items: perceived ability to recall PINs, perceived likelihood of making mistakes, and perceived security of Online banking. Most of the respondents (78%) reported that they always recall their PINs. Furthermore, the bivariate correlations did not show statistically significant associations between respondents' likelihood of recalling their PINs and the number of electronic banking transactions they reported conducting. These results suggest that for the respondents of this study the inability to recall their PINs may not be a source of psychological risk.

The quantitative results show that 28% of respondents who used EFTPOS, 35% of those who used ATMs, 43% of those who used telephone banking, and 33% of those who used Online banking reported that sometimes they make mistakes during transactions. The results also show inverse associations between respondents' perceived likelihood of making mistakes and the number of transactions they reported conducting using the four modes of electronic banking. However, the results are not statistically significant. This means that respondents who reported

making mistakes during electronic banking transactions did not report conducting more or less transactions compared to respondents who reported that they do not make mistakes during transactions. Perhaps the respondents who reported making mistakes during electronic banking transactions still conduct as many technology-based banking transactions as those who do not make mistakes because they feel compelled to use electronic banking. The data showed that 59.6% of the respondents reported that they feel like they are forced electronic banking.

In spite of this, it is interesting to note that the results showed statistically significant inverse associations between respondents' perceived likelihood of making mistakes and the perceived ease of transactions conducted using the four modes of electronic banking. These results suggest that respondents who are more likely to make mistakes during electronic banking are less likely to perceive electronic banking transactions to be easy. These respondents are likely to experience higher levels of psychological risk because of the negative thoughts they may associate with electronic banking as result of making mistakes during transactions that consequently make electronic banking transactions appear to be difficult.

Some researchers suggest that consumers may associate telephone banking transactions with lower levels of psychological risk when compared with other forms of electronic banking because if consumers make mistakes they can still make contact with customer service personnel (Jayawardhena & Foley, 2000; Black et al., 2001). The quantitative results do not appear to support this contention. The results suggest that telephone banking transactions may be associated with higher levels of psychological risk because more telephone banking users reported making mistakes compared to respondents who used the other modes of electronic banking. These mistakes may evoke negative feelings towards telephone banking because they have a negative effect on the perceived ease of telephone banking transactions. There may be an association between consumers' ages and their perceptions regarding the psychological risk of using the telephone banking mode. Specifically, the data suggest a U-shaped association between respondents' ages and their reported likelihood of making telephone banking mistakes.

Existing studies show that some consumers may associate Online Banking with higher levels of psychological risk which may result from their concerns about

making mistakes during transactions, concerns regarding the intellectual effort required to complete transactions, and concerns regarding the security, privacy and reliability of their financial institution's web site (Sathye, 1999; Black et al., 2001; Bobbit & Dabholkar, 2001; Polatoglu & Ekin, 2001). Most of the respondents (70%) who used Online banking reported that they perceive Online banking transactions to be secure. In addition, the results did show a statistically significant positive association between respondents' perceptions of the security of Online banking and the number of Online banking transactions respondents reported conducting. These results suggest that consumers are more likely to use Online banking if they associate it with lower levels of psychological risk.

A third of the Online banking users stated that they sometimes make mistakes during transactions. The results show that the perceived likelihood of making mistakes during Online banking does not have a statistically significant effect on the number of transactions respondents reported conducting. However, the perceived likelihood of making mistakes during Online banking seems to have a significant effect on the perceived ease of Online banking transactions. These results suggest that consumers who are more likely to make mistakes during Online banking are less likely to perceive Online banking transactions as easy. There may be an association between the consumers' gender and their likelihood of making mistakes. The data show that 36% of the males who used Online banking reported that sometimes they make mistakes while only 27% of the females who use Online banking reported making mistakes. On one hand, this may mean that more males than females are likely to associate Online banking with psychological risk. On the other hand, the association between gender and the psychological risk of Online banking may be a result of the sample distribution, 60.1% of the respondents who reported that they use Online banking were male while 32.9% were female.

7.5.3 Performance Risk

Dholakia (2001) states that performance risk is experienced when consumers' use of products and services does not result in the required outcomes. Existing research indicates that performance risk may result when there is a problem inherent

in the technology in use and/or when the technology malfunctions and cannot deliver the service required (Meuter et al., 2001). So, in an electronic banking context, this risk may occur when the hardware or software required to facilitate technology-based banking transactions is not available and/or fails during the service delivery process and the electronic banking transactions are not successfully completed. Studies exploring consumers' use of Online banking show that some sources of performance risk may be problems experienced while connecting to the Internet, accessing the bank's web site, and/or the long download times (Bobbit & Dabholkar, 2001; Jun & Cai, 2001; Polatoglu & Ekin, 2001). These problems may increase consumers' concerns as to whether or not the transactions they initiate have been or will be completed successfully.

Findings from the qualitative phase of this study suggest that to alleviate this risk consumers who use telephone and/or Online banking modes are likely to print paper receipts or write down receipt numbers during the checkout or disengagement phase of the service delivery process. It seems that the paper receipts and receipt numbers serve two purposes. Firstly, the paper receipts and receipt numbers indicate the end of the TASE. Mills and Morris (1986) state that in some service encounters, when consumers participate by co-producing services, service providers find it hard to point out the end of the service delivery process. In an electronic banking scenario, consumers deliver their own services with the assistance of the available technologies and minimal direct contact with bank employees. It seems that in these scenarios, the paper receipts and/or receipt numbers represent the end of the service delivery process. Secondly, the paper receipts and/or receipt numbers seem to give consumers reassurance because they act as a guarantee that initiated transactions have been successfully completed. For example, some informants from the qualitative stage of this study reported that they are discouraged from using telephone banking because it only provides a receipt number, it does not provide a 'hard copy' transaction receipt, so the receipt number does not provide enough assurance compared to the paper receipt. Nonetheless, receipt numbers or paper receipts are significant because they reduce the perceived level of performance risk by providing tangible evidence that the consumer did perform the transaction.

The survey data show that most (80.9%) of the respondents who used telephone banking reported that they write down their receipt numbers after transactions. The data also show that 40.7% of those who used Online banking reported that they write their receipt numbers while 56.7% of the Online banking users reported that they print paper receipts. This may be interpreted to mean that these respondents have concerns about whether or not the telephone and Online banking transactions they initiate are successful. Thus, these respondents may experience performance risk because they have concerns about whether or not the telephone and Online banking technologies will deliver the required services. For the respondents who are likely to experience performance risk the receipt numbers and/or paper receipts provided at the disengagement phase of their technology-assisted banking transactions may reduce their perceived levels of performance risk by providing tangible evidence of successfully completed transactions. It is worth noting that the data did not show statistically significant associations between the likelihood of printing paper receipts and/or writing receipt numbers and the number of telephone banking and Online banking transactions respondents reported conducting. These results suggest that while the availability of paper receipts and/or receipt numbers can mitigate consumers' concerns about whether or not the technology-assisted retail banking services they require will be delivered, and they can affect consumers' use/non-use of electronic banking, they do not have a direct effect on the number of electronic banking transactions consumers are likely to conduct.

The results discussed in this section suggest that consumers who use telephone and Online banking modes may associate these modes of electronic banking with performance risk if they have concerns about whether or not the technologies will provide the retail banking services they require. Consumers' perceptions of performance risk may be significant when they are deciding whether or not to use telephone and/or Online banking modes. Studies show that high levels of perceived performance risk might be a significant deterrent to consumers' subsequent use of the available modes of electronic banking because consumers are

more likely to use technologies to deliver their own services if positive outcomes are evident (Moore & Benbasat, 1991).

The quantitative results appear to indicate that although electronic banking users are likely to experience performance risk it may not have a direct effect on their usage rate of the four modes of electronic banking. Nonetheless, Dabholkar and Bagozzi (2002) state that performance risk may be a significant criterion to consumers who prefer personal contact when doing their banking because these consumers are less likely to use electronic banking if it is associated with high performance risk.

7.5.4 Financial Risk

Financial risk results from the costs consumers incur when purchasing products and/or services (Dholakia, 2001). As noted earlier, services are high in experience and credence qualities which makes them difficult for consumers to evaluate (Siehl et al., 1991; Voss et al., 1998; Devlin, 2001). Consequently, when evaluating service encounters consumers rely on price as an indication of the expected level of service (Ruyter et al., 1997; Voss et al., 1998; Devlin, 2001). Moreover, consumers' perceptions of price tend to be relative (Mitchell & Boustani, 1994). Researchers note that consumers evaluate the value of their service encounters by comparing the price of the services provided to them by a particular organisation with the cost of the similar services provided by its competitors (Mills, 1990; Woodruff & Gardial, 1996). This suggests that consumers may evaluate the value of their TASE in the retail banking industry on the basis of the perceived financial cost of transactions carried out using the various modes of electronic banking. Previous research shows that consumers tend to be sensitive to the price of financial services and particularly services delivered using technology (Humphrey et al., 2001; Jun & Cai, 2001). The research also shows that consumers are more likely to use those modes of electronic banking they perceive to provide the best value and those modes of electronic banking where they perceive the costs of transactions to be relatively cheaper (Ruyter et al., 1997; Meuter et al., 2000).

Results from the quantitative stage of this study indicate that consumers may associate technology-based service encounters facilitated by the four modes of electronic banking with perceived financial risk. However, the level of perceived financial risk may differ with the mode of electronic banking in use. The data show that 70% of EFTPOS users, 76% of ATM users, 44% of telephone banking users, and 44% of Online banking users reported that they think the cost of transactions is high. High levels of perceived financial risk can affect how consumers evaluate their satisfaction or dissatisfaction with technology-based banking transactions. For instance, high levels of perceived financial risk have been shown to be a significant deterrent to consumers' use of ATMs in Hong Kong, and consumers' use of Online banking in Australia and Turkey (Ho & Ng, 1994; Sathye, 1999; Polatoglu & Ekin, 2001).

The results of this study did not show statistically significant associations between the respondents' perceptions of the financial cost of electronic banking transactions and the number of electronic banking transactions they reported conducting using the four modes. Therefore, in this study, respondents' perceptions of financial risk do not appear to have a direct effect on their usage patterns of the four modes of electronic banking. Perhaps respondents who associate electronic banking with higher levels of perceived financial risk conduct numerous transactions using the various modes because they feel compelled to use them. As noted earlier, nearly two-thirds (59.7%) of the respondents reported that they feel forced to use electronic banking. Moreover, there may be factors other than the perceived financial cost that affect the number of electronic banking transactions consumers are likely to conduct using the various modes of electronic banking. These may be factors such as those explored in this study.

Studies exploring consumers' use of Online banking show that consumers may associate Online-banking transactions with high financial risk because of the costs associated with acquiring the computers and other hardware needed to facilitate the transactions (Dover, 1988; Jayawardhena & Foley, 2000; Bobbit & Dabholkar, 2001). In a like manner, the findings of the present study indicate that some consumers may be dissuaded from the use of Online banking because of the perceived financial costs of acquiring computers and getting access to the Internet.

For instance, some of the interviewees from the qualitative phase of this study reported that they do not use Online banking because they do not own computers and they do not have access to the Internet. Additionally, results from the survey show that 20.7% of the sample respondents stated that they do not use Online banking because they did not own computers and 16.7% stated that they did not have access to the Internet. According to Dholakia (2001), the prices consumers pay for goods and services are a source of perceived financial risk. Therefore, these results were interpreted to mean that for these consumers the associated financial costs of acquiring the equipment necessary to facilitate telephone and Online banking transactions is high and this dissuades them from adopting both modes of electronic banking.

The levels of financial risk that consumers are likely to associate with EFTPOS, ATMs, and Online banking modes may differ with their demographic characteristics. The results suggest that consumers with lower levels of education may be more likely to associate EFTPOS transactions with higher levels of perceived financial risk compared to consumers with higher levels of education. Approximately 84.7% of the respondents with only primary education reported that the cost of EFTPOS transactions is high compared to 59.5% of those with postgraduate qualifications. It may be that the EFTPOS users reported higher levels of financial risk as a result of transaction costs incurred. Respondents with lower levels of education may not have the skills required to conduct electronic banking transactions using the other three modes. These respondents may thus rely on EFTPOS because the transactions are typically conducted in retail settings with the assistance of the retailer/cashier (Mitchell, 1988; Ho & Ng, 1994; Tan et al., 1999). The extensive use of EFTPOS may result in higher transaction charges, and thus higher levels of perceived financial risk.

In terms of ATMs, the perceived financial risk may differ with consumers' age and occupation. It seems that older consumers may associate ATMs with higher levels of perceived financial risk as most of the respondents in each of the older age categories reported that the cost of ATM transactions is high. Similarly, a large proportion of the respondents who reported that the cost of ATM transactions is high

(38.5%) also reported that they were in managerial, administrative, professional, or para-professional occupations.

Respondents' perceptions of the financial risk of telephone banking did not appear to differ with their demographic characteristics. However, the perceived level of financial risk associated with Online banking seemed to differ with respondents' age. The largest proportion of respondents who noted that the cost of Online banking transactions is high also reported that they were between 36 and 55 years of age. Perhaps older consumers have more financial commitments and therefore they conduct more electronic banking transactions compared to their younger counterparts, which may result in higher transaction costs and thus explain the higher levels of perceived financial risks.

To conclude, the results indicate that the perceived risks associated with the use of electronic banking are likely to be physical, psychological, performance, and financial risks. Consumers' perceptions of these risks may differ with the mode of electronic banking in use. The perceptions of risk may also be relevant to consumers when they are evaluating their levels of satisfaction or dissatisfaction and consequently the continual use of technology-based service encounters in the retail banking industry.

7.6 Paradoxes Of Technology Adoption

Existing research exploring the development of consumers' perceptions and behaviours after they have adopted a technology suggests that consumers can develop conflicting views towards the same technology (Mick & Fournier, 1998). As discussed in chapter 2, Mick and Fournier's (1998) theory suggests that consumers are likely to experience eight paradoxes when they adopt technology: Control/Chaos, freedom/enslavement, new/obsolete, competence/incompetence, efficiency/inefficiency, fulfils/creates needs, engaging/disengaging, and assimilation/isolation. The results of the present study show that the control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, fulfils/creates needs, and engaging/disengaging paradoxes may be applicable to the

electronic banking scenario, while the assimilation/isolation and new/obsolete paradoxes are largely inapplicable. The following section discusses the paradoxes that seem applicable to the electronic banking scenario.

7.6.1 Control/Chaos

Past research shows that the more control consumers appear to have over their service encounters, the more likely they are to evaluate them positively (Bateson, 1985; Dabholkar, 1996). Specifically, some studies show that consumers are more likely to opt for technology-based service encounters if they allow them to be in command of their activities and less likely to select technology-based service encounters if they anticipate problems (Rice & Anderson, 1994; Bobbit & Dabholkar, 2001). The findings of these studies are similar to Mick and Fournier's (1998) findings, which suggest that post-adoption of technologies consumers are likely to experience the control/chaos paradox.

Findings from the present study indicate that consumers are likely to experience feelings of control when their use of the various electronic banking technologies allows them to facilitate their banking transactions. By comparison, they are likely to experience chaos when the retail banking technologies are unavailable and they cannot initiate and/or complete the desired banking transactions successfully. The findings suggest that a need for control over their retail banking activities may persuade some consumers to use the various modes of electronic banking.

The results show that 62.5% of the respondents who used EFTPOS, 62.7% of ATM users, 68.8% of telephone banking users, and 79.8% of Online banking users noted that they use electronic banking because it allows them to manage their money better. These results indicate that control was more prevalent amongst the sample because more than two-thirds of the respondents reported feelings of control while using the four modes of electronic banking. Furthermore, respondents who reported feelings of control also reported conducting numerous EFTPOS, telephone, and Online banking transactions. These results are similar to those of previous studies which suggest that consumers who use electronic banking because it facilitates

control over their account management functions are likely to use telephone and/or Online banking modes (Jayawardhena & Foley, 2000; Black et al., 2001).

Consumers who prefer control over their banking activities may be more likely to use telephone and Online banking modes because these modes facilitate more banking transactions than EFTPOS and ATMS. The telephone and Online banking modes facilitate banking transactions such as bill payment, transfer of funds, account balance checks, and account statement access. Researchers state that consumers may be more likely to use Online banking instead of telephone banking for account management transactions because the Online banking mode can facilitate more transactions simultaneously thus providing consumers with more control over their banking activities (Jayawardhena & Foley, 2000; Black et al., 2001).

Novak et al. (2000) contend that though consumers prefer TASE that make it easy to control their activities, the level of control they require may depend on their level of competence. Novak et al. suggest that consumers who prefer higher levels of control over their banking activities are likely to be highly skilled and competent. The results of this study however, did not show significant associations between the elements measuring the control/chaos paradox and the respondents' occupations and level of education. The results did show an association between respondents' age and the reported use of electronic banking to control banking activities. They showed that 79% of the respondents who were 18 –35 years of age indicated that they use electronic banking to facilitate control over their account management activities. By comparison, only 53% of those aged 66 years and over reported that they use electronic banking for the same purposes. Respondents who are between 18 – 35 years of age may conduct more retail banking transactions compared to those who are aged 66 years and over and therefore they require more control over their banking activities. Nonetheless, these results support previous findings by Moore and Benbasat (1991), which show that younger consumers may be more likely to use technology-based banking modes to control their banking transactions.

The respondents to this study also reported feelings of chaos during electronic banking transactions. The results show statistically significant associations between respondents' feelings of chaos and their reported use of ATMs and telephone banking modes. It may be that when using ATMs the respondents are likely to experience

feelings of chaos when they make mistakes during transactions, the ATMs are not working and/or they cannot facilitate the required transactions. On the other hand, respondents who use telephone banking may also experience feelings of chaos when they make mistakes during telephone-banking transactions. As noted previously, correcting mistakes made during telephone banking transactions can be an onerous task for some consumers because it involves going back to the main menu, listening to all the voice prompts and keying in all the required information again. This extended process may evoke feelings of chaos in consumers who use telephone banking.

Nonetheless, the findings of this study support those of Mick and Fournier (1998) by showing that consumers who adopt the various modes of electronic banking can experience feelings of control and feelings of chaos simultaneously while conducting their electronic banking transactions.

7.6.2 Freedom/Enslavement

Findings from the qualitative stage of this study suggest that consumers who use electronic banking can experience the freedom/enslavement paradox identified by Mick and Fournier (1998). Interviewees from the qualitative phase indicated that they are likely to experience feelings of freedom as a result of a reduction in the number of restrictions associated with banking. In particular, interviewees reported that they are likely to experience feelings of freedom when they can do their banking from any location where electronic banking facilities are available and at convenient times, which appeared to be beyond the bank's traditional business hours. The interviewees reported experiencing feelings of enslavement as a result of dependence on the four modes of electronic banking, the limitations of using these modes that the banks may impose directly and/or the limitations that may result from the nature of the electronic banking modes.

Most of the respondents of the quantitative phase of this study who used EFTPOS and ATM modes reported that they can always find these facilities when they need to use them. Respondents who used telephone and Online banking reported that they mainly do their banking from home between the hours of 12.00am

to 7.59am, 8.00am to 11.59am, and/or 9.00pm to 11.59pm. These results indicate that consumers who use these modes of electronic banking experience feelings of freedom because they are not restricted to doing their banking during the bank's business hours as they can do their banking from suitable locations and at suitable times. These results support those of previous studies which show that consumers are more likely to adopt TASE if they have the autonomy to conduct their transactions from multiple locations and at anytime of the day (Rice & Anderson, 1994; Devlin, 1995; Almosawi, 2001).

The results showed statistically significant associations between the variables measuring respondents' perceptions of freedom and the use of EFTPOS, ATM, and Online banking modes while results pertaining to the use of telephone banking were not statistically significant. The respondents who reported experiencing feelings of freedom also reported conducting numerous transactions using EFTPOS, ATM, and Online banking modes. These results support the findings of studies which show that the possibility of conducting banking transactions at anytime may motivate some consumers to use electronic banking (Devlin, 1995; Jayawardhena & Foley, 2000; Thornton & White, 2001). In so doing, the results of this study do not support the findings of Dabholkar and Bagozzi (2002) who state that consumers are not motivated to use electronic banking because they can access their transactions accounts at anytime of the day.

It seems that consumers who conduct technology-assisted banking transactions may experience feelings of enslavement. In particular, the findings suggest that consumers are likely to experience feelings of enslavement when they use EFTPOS and ATMs. Findings from the qualitative stage show that consumers who become reliant on the use of EFTPOS and ATMs can experience feelings of enslavement when they expect to use these modes of electronic banking only to find that they are inaccessible. In the quantitative stage of this study, one-third of the respondents who used EFTPOS and ATMs reported that these facilities are not always available when they need to use them. These results were interpreted to mean that these respondents may experience feelings of enslavement because the reported inability to access EFTPOS and ATM facilities was reported in the interviews to lead

to frustration and it may highlight their dependence on both modes of electronic banking.

Findings from the qualitative phase of this study suggest that consumers can also experience feelings of enslavement as a result of the limitations that banks impose on the number of EFTPOS and ATM transactions consumers can conduct. Banks can limit the number of EFTPOS and ATM transactions by imposing additional charges for transactions exceeding the number of free transactions allowed. The additional charges may restrict the number of transactions some consumers are likely to conduct because, as noted earlier, consumers are sensitive to the cost of financial products and services (Sathye, 1999; Humphrey et al., 2001; Polatoglu & Ekin, 2001). Thus, consumers whose banking activities become contingent on the availability of EFTPOS and ATM facilities may experience feelings of enslavement because they cannot use these modes of electronic banking as often as they like without incurring financial penalties. Most of the respondents who used ATMs reported that the cost of ATM transactions is high and that they feel compelled to use them. It may be that these respondents conduct numerous ATM transactions and in so doing they incur financial penalties for exceeding the number of free transactions that are allowed by their financial institutions.

Thus, the findings of this study suggest that consumers who use electronic banking can experience the freedom/enslavement paradox. Specifically, consumers who use telephone and Online banking modes are likely to experience the freedom side of the paradox while consumers who use EFTPOS and ATM banking modes are likely to experience both sides of the paradox.

7.6.3 Competence/Incompetence

Findings from the qualitative phase of this study suggest that consumers are likely to experience feelings of competence when they can use the available modes of electronic banking to conduct their banking transactions successfully. Consumers can also experience feelings of incompetence when they make mistakes during electronic banking transactions, when they are unable to utilise the full capabilities of

the modes of electronic banking they use, and when they do not know how to use other modes.

More than 80% of the respondents who reported that they use each of the four modes of electronic banking also reported that they find technology-assisted banking transactions easy. In addition, 78% of all the respondents reported that they find it easy to remember their personal identification (access) numbers and 64% of the respondents reported that they think bill payment transactions are easy. These results indicate that most of the respondents experience feelings of competence.

The results support the findings of previous research which shows that consumers are more likely to adopt technology if they suppose that they will achieve their desired outcomes without making mistakes (Goette, 2000; Black et al., 2001). Dover (1988) notes that competent consumers are more likely to adopt technologies that are consistent with their lifestyles. In other words, consumers whose lifestyles involve extensive use of computers, telephone and other technologies are more confident about using these technologies and are consequently more likely to adopt electronic banking. Researchers contend that competent consumers are more likely to be highly educated, highly skilled, and thus self-assured in conducting their TASE (Thornton & White, 2001; Pereira, 2002). Notably the results of this study did not show statistically significant associations between the respondents' reported feelings of competence and levels of education or occupation. This may be explained by the presence of the transaction aids that are available with the four modes of electronic banking. It may be that some consumers do not need to be highly skilled and/or educated in order to use the various modes of electronic banking because the transaction aids that are available with each mode facilitate their electronic banking transactions.

The results of the current study also suggest that electronic banking consumers can experience feelings of incompetence. Consumers can feel incompetent if they make mistakes while conducting their technology-based banking transactions. A third of the respondents who used EFTPOS, ATM, and Online banking and 43% of those who used telephone banking reported that sometimes they make mistakes during transactions. The quantitative results also indicate that consumers can experience feelings of incompetence if they cannot remember their

PINs or they cannot effectively conduct some transactions using the modes of electronic banking they already use. In this study, 22% of the respondents noted that they do not always remember their PINs and 36% of the respondents reported that they do not think it is easy to pay bills using electronic banking. Finally, consumers can feel incompetent if they do not know how to use some modes of electronic banking. The data show that 44.2% of the respondents reported that they do not use telephone banking. Of these respondents, 27% stated that they do not use telephone banking because they think transactions are difficult and they do not know how it works. Similarly, 61.7% of the respondents did not use Online banking, and 18% of the non-users stated that it is because they think the transactions are difficult and they do not know how Online banking works indicating feelings of incompetence.

The competence/incompetence paradox may be a significant paradox particularly for consumers who are less confident about their use of technology and as such prefer doing their banking using customer service personnel. According to Dabholkar and Bagozzi (2002), consumers who are less confident with the use of technology are less likely to engage in electronic banking transactions if they associate them with negative outcomes or if they do not understand how to use the various modes. Similar research shows that consumers who are unsure about how to conduct ATM transactions are less likely to use them (Leblanc, 1990; Riffelmacher, 1991). In addition, researchers exploring consumers' adoption of Online banking suggest that a major disincentive for consumers' use of Online banking transactions is incompetence, which results from lack of knowledge and/or information on how the technology works (Sathye, 1999; Jayawardhena & Foley, 2000).

The qualitative results support Mick and Fournier's (1998) findings which show that post adoption of technologies consumers can experience feelings of competence and incompetence. While consumers can feel competent when conducting technology-based banking transactions using some modes of electronic banking, they can also feel incompetent if they make mistakes during transactions or they do not know how to use some modes of electronic banking.

7.6.4 Efficiency/Inefficiency

Technology-based banking transactions are likely to be efficient when they require less time and effort to complete and they are likely to be inefficient when they require more time and effort to complete compared to transactions conducted using other modes of electronic banking and/or transactions conducted in bank branches. Researchers suggest that consumers are more likely to use technology-assisted service delivery modes if they perceive them to be fast and efficient (Jayawardhena & Foley, 2000; Meuter et al., 2000; Jun & Cai, 2001; Polatoglu & Ekin, 2001; Dabholkar & Bagozzi, 2002). The findings of the present study indicate that consumers who conduct electronic banking transactions can experience the efficiency/inefficiency paradox. The results show that most of the respondents who reported using EFTPOS, ATMs, and Online banking modes also reported that they perceive transactions facilitated by these modes of electronic banking to be efficient. On the other hand, most of the respondents who used telephone banking reported that they perceive telephone banking transactions to be inefficient. As noted previously, respondents may perceive telephone banking transactions to be inefficient because they have negative perceptions towards the length of time taken to listen to all the voice prompts, to key in details such as access codes and personal identification numbers, and the length of time taken to correct telephone banking mistakes. The data also show that 81% of the respondents reported that they use electronic banking in order to avoid queues. This suggests that in general, respondents who do not like waiting for retail banking services prefer electronic banking because they perceive technology-based banking transactions to be efficient.

The findings of this study suggest that consumers' perceptions of this paradox may be associated with their age and level of education. The results show that 90% of the respondents between 18 and 25 years of age reported using electronic banking to avoid queues. By comparison, less than 25% of respondents in the other age categories reported using electronic banking to avoid queues. From these results, it seems that the perceived length of time taken to complete banking transactions is more significant to younger consumers than it is to older consumers, suggesting that perceived efficiency may be a significant motivator for younger consumers to use electronic banking. It may also be that consumers who are between 18 and 25 years

of age may have fewer financial commitments while consumers who are between 25 and 65 years of age may not avoid queues because they may have greater financial commitments which means that they may need to visit bank branches and/or agents to conduct banking transactions that cannot be facilitated by the available modes of electronic banking. Respondents with only a primary education or year 10/12 and equivalent reported that they think electronic banking transactions are time consuming while respondents with higher levels of education were more likely to indicate that electronic banking transactions are efficient. Consumers who use electronic banking are likely to be highly skilled and to have higher levels of education (Filotto et al., 1997; Jamal & Nasser, 2002). Thus, respondents with higher levels of education may be more familiar with technology-based service encounters in other industries, consequently they may perceive technology-based banking services to be relatively fast as their increased experience with these service encounters allows them to conduct transactions expeditiously.

The findings of this study indicate that while most of the consumers who conduct EFTPOS, ATM, and Online banking transactions are likely to perceive technology-based banking transactions as efficient, many consumers who use telephone banking are likely to think that telephone banking transactions are inefficient. The findings indicate that consumers who use at least two modes of electronic banking may perceive some modes of electronic banking to be more efficient than others

7.6.5 Fulfils/Creates Needs

Electronic banking can fulfil consumers' banking needs by providing them with access to their transaction accounts and facilitating the desired transactions. This finding is consistent with research which indicates that consumers are more likely to conduct TASE if they consider them likely to satisfy their needs (Goette, 2000; Meuter et al., 2000). In particular, consumers are more likely to conduct electronic banking transactions if they can fulfil their account management needs (Bednar et al., 1995; Dannenberg & Kellner, 1998; Orenstein, 1998). This may

include needs such as cash withdrawal, account balance checks, funds transfers, bill payments, and account statements.

The findings of the current study show that the advent of electronic banking may have resulted in emphasising some needs that were previously unrealised. Findings from the qualitative stage show that for some consumers the introduction of electronic banking has highlighted the need to obtain information and the need to learn how to utilise many of the functions of the various modes of electronic banking. These needs may be significant. For example, the survey data show that 17.2% of the respondents who reported that they did not use telephone banking stated that they do so because they do not know how it works. Of those who did not use Online banking, 20.7% reported that they do not have access to computers, 16.1 % reported that they do not have access to the Internet, and 14.5% stated that they have no technical knowledge. This is in accordance with studies showing that consumers are less likely to conduct TASE if they do not know how to use the technologies that facilitate the service delivery process (Aggarwal et al., 1998; Voss et al., 1998; Sathye, 1999; Jayawardhena & Foley, 2000). Furthermore, for consumers who are interested in Online banking, its introduction has created the need for them to own hardware such as computers, the need to gain access to the Internet, and the need to learn how to conduct Online-banking transactions (Sathye, 1999; Jayawardhena & Foley, 2000). Thus, the existence and fulfilment of these needs may influence how consumers evaluate their levels of satisfaction and/or dissatisfaction with TASE in the retail banking industry.

7.6.6 Engaging/Disengaging

The findings of this study suggest that the use of the various modes of electronic banking can be engaging when the modes facilitate the desired banking transactions. On the other hand, use of the four modes of electronic banking can be disengaging when the modes do not facilitate the completion of the desired transactions.

The results show that 64% of respondents use electronic banking because bill paying is easy, 63% can access to account information easily, and 42% can easily

access other financial institutions. The latter may include financial institutions such as other banks, building societies, and credit unions. While most respondents perceive the use of electronic banking to be engaging, most of the respondents who require access to other financial institutions (58%) did not think that using the available modes of electronic banking is engaging. It seems that electronic banking consumers mostly conduct the above mentioned electronic banking transactions so that when these needs are not met use of the various modes is perceived to be disengaging. Most of the respondents who indicated that their use of electronic banking is engaging by reporting that it facilitates bill payment and easy access to account information also reported conducting many EFTPOS, telephone, and Online banking transactions. This is a likely outcome because with the exception of EFTPOS that can provide consumers with access to cash; the telephone and Online banking modes generally facilitate transactions that appear to be associated with the engaging side of the paradox. Respondents who reported that they require access to other financial institutions reported that using the available modes of electronic banking is not engaging. These respondents also indicated that they conduct numerous EFTPOS transactions. These respondents may not be familiar with the capabilities of the other modes of electronic banking, and as such they rely on EFTPOS and perceive the other modes of electronic banking to be disengaging. EFTPOS can provide consumers with access to their transactions accounts while facilitating withdrawals and/or payment transactions in retail establishments.

The results also show that consumers' use of the various modes of electronic banking can be disengaging when the modes do not facilitate the completion of the required transactions. This is likely to occur when the technology in use fails or is inaccessible and cannot facilitate the necessary transactions (Meuter et al., 2000). In an electronic banking scenario, this may happen when an ATM is closed or it cannot dispense cash in the required denominations. It may also occur when a consumer cannot access Online banking facilities because the bank's website is inaccessible and/or difficult to navigate.

Consumers' perceptions of the engaging/disengaging paradox may be associated with their age and level of education. For example, based on the items used to represent the engagement side of the paradox, more than half of the

respondents of ages 18 to 35 indicated that the use of electronic banking can be engaging while less than half those who are over 36 years of age indicated that the use of electronic banking can be engaging. These results suggest that younger consumers may be more likely to perceive electronic banking as engaging compared to older consumers. Moreover, while only 27% of the respondents with only a primary education indicated that the use of electronic banking can be engaging, more than half of the respondents with higher levels of education implied that the use of electronic banking can be engaging. These results suggest that consumers who are more highly educated may be more likely perceive the use of electronic banking as engaging compared to consumers with lower levels of education. These results seem to support the findings of previous studies which suggest that consumers who are younger and consumers who are highly skilled are more likely to adopt the various modes of electronic banking (Dover, 1988; Bednar et al., 1995; Goode & Mountinho, 1996; Stafford, 1996).

It also seems likely that consumers' perceptions of the engaging/disengaging paradox may significantly influence how they evaluate their TASE. Studies show that consumers are likely to evaluate TASE that they enjoy positively (Cowles & Crosby, 1990; Dabholkar & Bagozzi, 2002). However, they note that consumers' level of involvement can vary with the technologies in use. Thus, in an electronic banking scenario consumers are not likely to find the various modes of electronic banking equally engaging. The results of the present study appear to support this assertion. As reported earlier, respondents who indicated that the use of electronic banking can be engaging reported higher usage rates of EFTPOS, telephone, and Online banking modes. The results of this study also support findings from previous studies which show that consumers who find Online environments challenging can become highly involved in Online activities and consequently perceive Online environments to be engaging (Novak et al., 2000; Van Riel et al., 2001).

To conclude, the findings of the current study suggest that consumers who use the four modes of electronic banking are likely to experience the following paradoxes: control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, fulfils/creates needs, and engaging/disengaging. The

dominating side of the paradoxes may influence how consumers evaluate technology-based banking transactions and their subsequent level of satisfaction or dissatisfaction with the service encounter. For instance, consumers who use Online banking because it facilitates control over their banking activities may develop positive feelings towards Online banking, while consumers who find telephone banking to be inefficient may develop negative views towards the use of this mode.

7.7 Summary

Chapter 7 discussed the results presented in the preceding chapter in relation to the existing literature. The first section discussed the significance of respondents' demographic profiles. It showed that while the existing literature has shown that younger consumers are more likely to adopt electronic banking compared to older consumers, this may not always be the case. This may be because younger consumers tend to be new to the workforce and they may have fewer financial commitments and therefore electronic banking may not be as significant to them. In Western Australia females may conduct more retail banking transactions which may explain their higher usage rates of EFTPOS, ATM, and telephone banking modes. While some studies have shown that consumers on lower incomes can still adopt banking technologies because they are readily available, the results of this study showed that those on higher incomes are still more likely to conduct electronic banking transactions. This study also found that consumers with lower levels of education may prefer EFTPOS and telephone banking transactions over other forms of electronic banking. That is because EFTPOS transactions are conducted in retail settings with the assistance of the retailer/cashier and the telephone banking mode has voice prompts that guide them through their transactions.

Consumers' perceptions of the convenience, transaction aids, and risks associated with electronic banking may also affect their levels of dis/satisfaction and their usage patterns of these modes. The results support research showing that perceived convenience is a motivating factor for consumers' use of electronic banking. They expand on previous research by showing that perceived convenience has four sub-dimensions, which include perceived ease of use, perceived speed of

transactions, availability of facilities at various locations, and accessibility to transaction accounts at any time of the day. Western Australian consumers are likely to perceive EFTPOS, ATM, and Online banking transactions as easy to conduct and expeditious, while they are likely to perceive telephone banking transactions to be time consuming and difficult because of the correctional delays experienced during the check-in phase of the transactions.

The transaction aids that facilitate electronic banking can also affect consumers' evaluations of their TASE. While the voice prompts available with the telephone banking mode are likely to evoke negative perceptions, the visual cues available with the Online banking modes may make transactions appear to be easy and thus motivate some consumers to conduct more Online banking transactions.

The perceived risks associated with electronic banking include physical, psychological, performance, and financial risks. Higher levels of perceived physical risk are not likely to have an adverse effect on consumers' usage patterns of ATMs because Western Australian consumers are likely to feel compelled to use ATMs by the existing banking rules. While psychological risks appeared to affect the usage rates of the four modes of electronic banking, perceptions of performance risk seemed to have an effect on the likely use/non-use of the various modes of electronic banking but not on their levels of use of the modes. In a like manner, it appears that consumers' perceptions of the financial risk of conducting electronic banking transactions may not have a direct effect on their usage patterns. However, higher usage patterns may incur financial penalties and result in higher levels of perceived financial risk.

Finally, this study found that consumers who conduct electronic banking transactions are likely to experience six of the eight paradoxes of technology adoption that were identified by Mick and Fournier (1998). These are the control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, fulfils/creates needs, and engaging/disengaging paradoxes. The dominating side of the paradoxes may influence consumers' level of satisfaction or dissatisfaction with their TASE in the retail banking industry. The following chapter discusses the implications of these findings, to existing theories, instruments, and techniques that have been used to explain how consumers evaluate TASE.

CHAPTER 8

CONCLUSIONS

8.1 Introduction

This chapter presents the implications of the current study's findings. Firstly it outlines the implications for the theories, instruments, and techniques that have been used to measure and explain consumers' satisfaction and/ or dissatisfaction with service encounters. Secondly it illustrates how the findings contribute to existing literature on how consumers evaluate TASE in the retail banking industry. Finally, the implications for practitioners and organisations that use technology-based service delivery modes are presented.

8.2 Implications for existing theories, instruments, and techniques

As noted in chapter 2, some theories, instruments, and techniques in their current form are inapplicable to technology-based service encounters. As a result they need to be adapted to be applicable. The holistic, customer value, and Nordic theories, the SERVQUAL, SERVPERF, SYSTRA-SQ, and TRI instruments, and the CIT and SOPI techniques need to be adapted to be applicable to technology-based service encounters. Disconfirmation and script theories are likely to be still applicable in their current form. This section does not include a discussion of role theory. As noted in the literature review, role theory is only applicable to service encounters that involve personal contact between consumers and an organisation's human representatives and as such has little or no relevance to TASE as described in this study. Each of the theories, instruments, and techniques that could be modified for use for TASE are discussed in turn below.

8.2.1 Disconfirmation theory

Developers of the disconfirmation theory identified the process that consumers are likely to go through when assessing their levels of satisfaction/dissatisfaction with their service encounters. They assert that consumers evaluate service encounters by comparing their expectations of a particular service encounter with their perceptions of the service they actually receive (Oliver, 1980; Woodruff et al., 1983; Cooper et al., 1989; Halstead et al., 1994; Spreng et al., 1996; Woodruff & Gardial, 1996; Alford, 1998). Satisfaction is likely to result when consumers' expectations are met while dissatisfaction is likely to result when consumers' expectations are not met (negative disconfirmation) (Oliver, 1980; Oliver & Desarbo, 1988; Woodruff & Gardial, 1996; Alford, 1998).

It was beyond the scope of this study to determine whether consumers go through the disconfirmation process when evaluating TASE. Instead, this study sought to identify the criteria that are significant to consumers' evaluation of TASE. The findings of this study suggest that in an electronic banking context the significant elements that would form the basis of consumers' evaluation processes with different electronic service encounters include perceived convenience, perceived risk, and the transaction aids available with the various modes of electronic banking. In addition, the findings of the current study indicate that the paradoxes of technology adoption that consumers can experience while conducting the required electronic banking transactions may also be relevant factors in their evaluation of their service encounters.

8.2.2 Script theory

The script theory perspective suggests that service encounters are essentially repetitive, consequently consumers form cognitive scripts (expectations) of what is likely to occur during the service encounter (Abelson, 1976; Smith & Houston, 1983; Alford, 1998). Satisfaction is likely when the consumers' expectations are met while dissatisfaction is likely when the expectations that form the consumers' cognitive scripts are not met (Smith & Houston, 1983; Danaher & Mattsson, 1994; Alford,

1998). It seems that personal interaction between an organisation's customers and its representatives is not a significant requirement of this theory, making it applicable to the evaluation of TASE.

The current study did not determine whether consumers who conduct technology-based banking transactions form cognitive scripts and evaluate service encounters on the basis of those scripts. It seems though that the events that are likely to occur from the check-in phase of the technology-based banking transactions to the disengagement phase of the service encounters are repetitive. Consequently, after familiarisation consumers can form cognitive scripts of the events that are likely to occur during electronic banking transactions. These scripts would form the basis of consumers' expectations regarding technology-assisted banking transactions. Thus, satisfaction would result if the scripts are met and dissatisfaction would result if the service delivery process deviates from the script. A significant limitation of this theory is the assumption that all deviations from the script result in dissatisfaction (Alford, 1998). It is important to note that some deviations from the script may lead to customer satisfaction. For example, a telephone banking transaction that takes less time than is expected represents a positive deviation from the script that can lead to customer satisfaction.

8.2.3 Holistic theory

Proponents of the holistic theory assert that when evaluating service encounters consumers are likely to consider all aspects of the service encounter and the service organisation (Gerson, 1988; Le Blanc & Nguyen, 1988; Howcroft & Anthony, 1993; Johnson et al., 1995; Halachmi, 1997). In the retail banking industry these elements include: the consumers' general perceptions of the bank and its financial activities; consumers' perceptions regarding the banks' employees, technology and equipment used by the bank during the service delivery process; and consumers' degree of satisfaction with the service provided (Halachmi, 1997).

Elements of the holistic theory requiring consumers to evaluate service encounters by considering their perceptions of the banks' employees and their interactions with those employees are usually inappropriate for an electronic banking

scenario, which typically involves minimal personal contact between the consumer and banks' employees. These elements may be substituted with elements measuring the perceived convenience and perceived risk of using the various modes of electronic banking. Other elements of the theory such as general perceptions of the bank and its activities are applicable to electronic banking service encounters. Additionally, when evaluating the technology and equipment used during the service delivery process, consumers may evaluate the various ATMs, the voice prompts available in telephone banking and the visual cues available with the Online banking mode. In an electronic banking scenario, consumers may also evaluate their degree of satisfaction with the use of the various technology-based banking modes.

8.2.4 Nordic school theory

The Nordic school theory suggests that consumers evaluate service encounters by forming expectations of employees' performance on the technical and functional dimensions of the service encounter and then comparing them with their perceptions of the employees' performance (Kelley et al., 1990; Gronroos, 1993; Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994). Some elements of this theory need to be adapted in order to be applicable to TASE. In particular, elements that require consumers to evaluate the equipment used during the service delivery process are applicable while elements that require consumers to evaluate personal contact with an organisation's customer service personnel need to be modified to make this theory applicable.

According to the Nordic theory, technical aspects of the service encounter relate to the end result of the service encounter and include elements such as the employee's knowledge and the equipment that facilitates the service delivery process (Kelley et al., 1990; Gronroos, 1993; Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994; Mels et al., 1997). In the case of electronic banking, the technical aspects may be adapted to represent the equipment associated with different modes of electronic banking, such as the EFTPOS and ATM equipment and or the transaction aids associated with the various modes of electronic banking. The technical aspects may also include the types of transactions that consumers wish to

conduct. For instance, consumers who transfer funds between their accounts may evaluate such transactions differently depending on whether they are performed using ATMs, telephone, and/or Online banking modes.

The functional aspects of the service encounter relate to the employee's responsiveness, empathy, and reliability (Howcroft, 1993; Herbig & O'Hara, 1994; McDougall & Levesque, 1994). To be applicable to electronic banking transactions these elements may need to be replaced with elements measuring consumers' perceptions of the convenience and risk of using the different modes of electronic banking. Additionally, elements in the Nordic theory that require consumers to evaluate the employee's knowledge may be adapted to relate to consumers' perceptions of their own competence and the paradoxes of technology that they are likely to experience during the service delivery process.

8.2.5 Customer value determination theory

According to customer value theory, consumers are likely to evaluate service encounters on the basis of three value dimensions: emotional, practical, and logical dimensions (Mills, 1990; Iacobucci et al., 1994; Woodruff & Gardial, 1996; Ruyter et al., 1997; Hartman, 1998; Dawes & Brown, 2000). Dawes and Brown (2000) state that consumers tend to form value judgements on the basis of contact personnel's responsiveness, assurance, and competence and the organisation's credibility. The findings of this study suggest that in order for this theory to be applicable to TASE elements of the three value dimensions that relate to consumers' interactions with organizations' personnel should be excluded and replaced with factors that relate to the service delivery technologies.

For example, the emotional dimension relates to consumers' feelings during service encounters (Ruyter et al., 1997; Hartman, 1998). The findings of this study suggest that in an electronic banking scenario this may include consumers' feelings towards the convenience of using the various modes of electronic banking, transaction aids available, and the perceived risk of using the available modes of electronic banking. It may also relate to the paradoxes of technology adoption that consumers are likely to experience during these transactions. The practical elements

of the technology-based banking transactions may include all the events that occur from the access to the disengagement phase of the transactions. Finally, the logical component might relate to elements such as the cost of the service (Ruyter et al., 1997). For instance, the findings of this study have shown that financial risk (perceived cost) can be a significant criterion when consumers are evaluating technology-assisted banking transactions.

8.2.6 SERVQUAL and SERVPERF

The SERVQUAL instrument was developed to measure service quality by assessing consumers' perceptions and expectations of their service encounters on the basis of five dimensions: tangibility, reliability, responsiveness, assurance, and empathy (Parasuraman et al., 1988). In spite of its general applicability, researchers have been particularly critical of the use of the expectations measure (discussed in chapter 2) (Carman, 1990; Boulding et al., 1993; Lewis, 1993; Cronin & Taylor, 1994; Teas, 1994; Llosa et al., 1998). Subsequently, the SERVPERF instrument was developed to rectify the deficiencies of SERVQUAL. While the SERVPERF instrument eliminates the gap score by requiring consumers to report only their perceptions of the service encounter (Cronin & Taylor, 1994). The SERVPERF instrument still relies on the five dimensions proposed by Parasuraman et al., (1988).

The five dimensions of the SERVQUAL and SERVPERF instruments are not totally applicable to TASE. The elements relating to consumers' evaluations of customer service personnel are usually inapplicable specifically those elements that require consumers to evaluate the appearance of customer service personnel, the willingness of personnel to help them, the knowledge and courtesy of employees, and the employees' ability to instil trust and confidence (Parasuraman et al., 1988; Hill, 1996).

However, some tangible elements of the SERVQUAL and SERVPERF instruments are still applicable to TASE. The findings of this study show that elements that relate to consumers' expectations and perceptions regarding the physical facilities and equipment used during technology-based service encounters are relevant. In an electronic banking scenario, this includes the equipment

associated with the various modes of electronic banking such as the EFTPOS and ATM equipment. Other SERVQUAL/SERVPERF elements that seem to be applicable are the elements that require consumers to evaluate the promptness and the accuracy of technology-based services. These elements appear to be similar to elements identified in this study relating to the perceived speed of transactions and the perceived likelihood of making mistakes during technology-based banking transactions.

The findings of this study also show that to be relevant to the electronic banking scenario, the SERVQUAL and SERVPERF scales need to be adapted to include the additional criteria that are relevant to technology-based banking service encounters: the transaction aids available, perceived convenience, and the perceived risks that consumers appear to associate with electronic banking transactions.

8.2.7 SYSTRA-SQ

The SYStem and TRAnsactional quality instrument has been developed to measure consumers' perceptions of retail banking service encounters on the basis of four dimensions: service system quality, behavioural service quality, machine service quality, and service transactional accuracy (Aldaigan & Buttle, 2002). The findings of the present study suggest that while the service system quality and machine service quality elements are relevant to the evaluation of technology-assisted banking transactions, the behavioural service quality and service transactional accuracy are largely inapplicable.

Service system quality and machine service quality elements are relevant because they require consumers to evaluate the equipment used to facilitate electronic banking transactions, such as the EFTPOS and ATM equipment and the voice response units and visual cues available with some modes.

However, the behavioural service quality and service transactional accuracy dimensions in their current form are inappropriate for evaluating electronic banking transactions (Aldaigan & Buttle, 2002). These items in their current form may be applicable only on those occasions where consumers need help from bank employees

to rectify mistakes made while conducting technology-assisted banking transactions because electronic banking transactions involve minimal contact with bank personnel.

Behavioural service quality and the service transactional accuracy dimensions of the SYSTRA-SQ may need to be adapted to allow consumers to evaluate their feelings regarding their interactions with technologies that facilitate the service delivery process. In its current form the behavioural service quality dimension requires consumers to evaluate service encounters based on elements such as employees' politeness and courtesy. This dimension can be modified to allow consumers to evaluate their participation during the service delivery process on the basis of elements such as the paradoxes of technology adoption that they are likely to experience. The service transactional accuracy relates to consumers' acceptance and tolerance of mistakes made by customer service employees. This dimension can be adapted to include consumers' perceptions of psychological and performance risk dimensions.

8.2.8 TRI

The technology readiness index (TRI) measures consumers' likelihood of adopting technology on the basis of four dimensions optimism, innovativeness, discomfort, and insecurity (Parasuraman, 2000). The findings of this study suggest that optimism, discomfort, and insecurity in their current form may still be applicable to consumers' evaluations of TASE. The innovativeness dimension however, may need to be adapted to be applicable to TASE. This dimension explores consumers' behaviours pre-adoption of technology by examining the stages of the product life cycle during which consumers are likely to adopt technologies. This dimension can be adapted to include elements that allow consumers to relate their positive and/or negative views of technology post adoption. The innovativeness dimension may be altered to include items such as the multi-dimensional criteria identified in this study.

8.2.9 CIT and SOPI

The critical incident technique (CIT) and sequence-oriented problem identification (SOPI) technique involve collecting information through stories consumers tell about their service encounters (Bitner et al., 1990; Nick & Tyas, 1997). From these stories satisfying and dissatisfying incidents are identified in order to determine the criteria consumers use to evaluate the service encounters (Bitner et al., 1990; Nick & Tyas, 1997). Both techniques can be adapted to suit TASE by removing the condition that requires consumers to discuss incidents involving customer-employee interaction and asking consumers to discuss satisfying and dissatisfying incidents which occur when using technology to deliver their own services.

8.3 Proposed Items for a (TASE) model

Technological advancements in the retail banking industry have resulted in changing consumers' levels of participation during service delivery processes. Previously consumers' levels of participation were at a medium level as they interacted with bank personnel and did some of the actions necessary to deliver their own retail banking services. In the electronic banking scenario consumers' levels of participation are high because they rely on technology to deliver their own retail banking services. This has resulted in minimal contact with banks' customer contact personnel and has meant that contact personnel have little or no direct effect on consumers' levels of satisfaction/dissatisfaction with TASE.

This study explored the criteria consumers are likely to use when evaluating TASE in the retail banking industry and the effect these criteria can have on their usage levels of the available modes. The findings show that consumers are likely to evaluate TASE on the basis of perceived convenience, the transaction aids available, and perceived risk. Consumers' perceptions towards these three dimensions can affect their levels of satisfaction/dissatisfaction and their level of use of the technology-assisted service delivery modes that are available. As such, these

dimensions have been used to propose items that may be used to develop a model for evaluating TASE.

The findings from the qualitative stage of this study made it possible to identify the criteria that consumers are likely to use when evaluating their TASE. The findings from the second stage of the study illustrate that these criteria can have a direct and/or indirect effect on consumers' levels of satisfaction/dissatisfaction and their levels of use of the technology-based service delivery modes that are available. Therefore, the sub dimensions of perceived convenience, transaction aids, and perceived risk have been used to develop some of the proposed items for a TASE model.

Some of the SERVQUAL items have also been included in the proposed list of items for a TASE model. This is because SERVQUAL has been widely used, tested, and found to be a useful instrument for measuring consumers' perceptions of the quality of services offered by organisations (Pitt et al., 1995). Furthermore, the findings of the current study indicate that some of the SERVQUAL items may be applicable to TASE.

The findings of this study are based on data relating to respondents' use of EFTPOS, ATM, telephone, and Online banking technologies. These technologies have different transaction aids (voice prompts and visual cues) and they can facilitate different outcomes (transactions). However, it is important to note that on the basis of Bitran and Lojo's (1993) stages of the service delivery process, technology-assisted banking transactions are similar from the access phase to the disengagement phase of the service encounter regardless of the mode employed. Each mode includes the following five stages: access phase, check-in phase, diagnosis phase, service delivery phase, and disengagement phase (Bitran & Lojo, 1993). The proposed items may be developed further and used to develop a TASE model that could be used to measure consumers' evaluations of technology-based service delivery processes of organisations in various service industries. The proposed items that may be used to develop a TASE model are outlined in the following section.

8.3.1 TASE model

Convenience

1. The services are easy to perform.
2. Services are available from different locations.
3. Services are accessible at any time.
4. Service delivery processes are fast.

Transaction aids

5. Voice prompts/visual cues are easy to follow.
6. Voice prompts/Visual cues do not take too long.
7. Voice prompts/Visual cues make it easy to perform the services.
8. Voice prompts/Visual cues make the service delivery process fast.
9. Services can be completed without following all the voice prompts/visual cues.
10. I always write the receipt number/print paper receipts after the service delivery process is complete.
11. Receipt numbers/copies are important to me.

Perceived risk

12. I make mistakes during the service delivery process.
13. I can solve problems/mistakes that occur when using the technology.
14. When I have problems or I make mistakes help is readily available.
15. Some mistakes require me to visit the Company's offices.
16. The technology used to deliver the service is always working.
17. The technology facilitates delivery of the requested services at the requested time.
18. The technology helps me maintain accurate records.
19. I have too many PINs/Passwords.

20. It is easy to remember my PINs/Passwords.
21. I sometimes have problems accessing the Company's Internet site.
22. I sometimes have problems accessing the Company's telephone services.
23. The Internet download times are too long.
24. My personal safety is at risk when using the service delivery technology.
25. My account details are not accessible to unauthorised parties.
26. The financial cost of using the service delivery technology is high.
27. I have easy access to the equipment (telephones, computers, and/or Internet etc) necessary to facilitate the service delivery process.
28. Financial cost of the equipment needed to facilitate the service delivery process is high.
29. The service delivery technology allows me to perform all the functions that I require.

8.4 Implications for existing literature on how consumers evaluate electronic banking transactions

Studies exploring how consumers adopt and evaluate retail-banking technologies have identified some criteria that may have positive or negative effects on consumers' levels of satisfaction and/or dissatisfaction with particular service encounters. These studies show that the following criteria are relevant to the evaluation of technology-assisted retail-banking transactions; convenience of using the various modes of electronic banking, ease of use, the length of time taken to complete the transaction, customisation of services, quality of information available, security of consumers' accounts, security of consumers' personal details, accuracy of transactions, accessibility, feedback and complaint management, and service system quality (Barczak et al., 1997; Sathye, 1999; Joseph et al., 1999; Jayawardhena &

Foley, 2000; Jun & Cai, 2001; Humphrey et al., 2001; Polatoglu & Ekin, 2001; Aldaigan & Buttle, 2002; Howcroft et al., 2002; Jamal & Nasser, 2002; Zhu et al., 2002).

The present study contributes to existing literature by illustrating that there are three multidimensional criteria and six paradoxes of technology adoption that can also affect consumers' levels of satisfaction and/or dissatisfaction with TASE in the retail banking industry. The multidimensional criteria include: perceived convenience, perceived risk, and the transaction aids available with each mode of electronic banking. The findings of this study thus support those of existing studies which show that perceived convenience and concerns regarding the security of accounts and privacy of personal details are significant factors in consumers' evaluations of their electronic banking transactions. This study extends previous literature by showing that perceived convenience is a multidimensional factor that has four sub-dimensions, namely: perceived ease of use, perceived speed of transactions, availability of the facilities at different locations and accessibility to transaction accounts at any time. It also adds to existing literature by identifying additional risks that consumers who conduct technology-based banking transactions can experience. These include: performance, physical, and financial risks. The findings of this study also show that the visual cues and the voice prompts that are available with the different modes of electronic banking can have a positive or negative effect on consumers' levels of satisfaction and/or dissatisfaction with technology-assisted banking transactions.

Consumers who conduct technology-assisted banking transactions can also develop positive and negative perceptions towards the different characteristics of the various modes of electronic banking. Consumers who conduct electronic banking transactions can experience six of the paradoxes of technology adoption identified by Mick and Fournier (1998). These include feelings of control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, fulfils/creates needs, and engagement/disengagement when using the four modes of electronic banking. These feelings can have a significant effect on evaluations of technology-assisted banking transactions and the level of use of the available modes of electronic banking.

8.5 Implications for practitioners and organisations that use technology-assisted service delivery modes

Consumers have been found to be slow to adopt technologies that are used for commercial purposes (Gow, 1997). Organisations need to develop strategies that can encourage and hasten consumers' adoption of the service delivery technologies that they implement. The findings of the current study indicate that the slow rate of adoption of technology-based service delivery options may be a result of consumers' perceptions of the retail banking technologies. The findings suggest that consumers evaluate technology-based service encounters in the retail banking industry using three main criteria and consumers can form positive and negative perceptions towards these technology-based service delivery modes simultaneously.

These findings have significant implications for retail banking institutions and other organisations that implement technology-based service delivery modes. Organisations can use these criteria in various ways. They can use the criteria as a basis for developing standards for assessing the viability of the service delivery technologies they intend to implement. For example, organisations introducing telephone-based service delivery modes can evaluate the ease of accessing their facilities, the quality of the voice prompts, the length of time taken to listen to all the voice prompts and to complete the service delivery process, and the perceived likelihood of making mistakes during the service delivery process.

The evaluative criteria and the relevant paradoxes can also act as a foundation for the development of instruments for measuring consumers' perceptions and their levels of satisfaction and/or dissatisfaction with TASE in various industries. In addition, marketers can use the criteria to develop marketing plans and promotional strategies to encourage consumers to adopt existing technology-based service delivery modes. For example, by emphasising the ease of transactions, the speed of transactions and the accessibility of transaction accounts from various locations and at any time of the day, promotional strategies can communicate the benefits of electronic banking. The promotional strategies can also be used to address consumers' concerns, such as feeling incompetent when conducting electronic banking and perceiving electronic banking transactions to be disengaging and

chaotic. Marketing strategies can be used to mitigate these perceptions of risk by providing consumers with information regarding the positive side of the paradoxes and the existence of transaction aids such as visual cues and voice prompts that facilitate electronic banking transactions.

8.6 Limitations of this study

The present study examined the evaluative criteria that active users of electronic banking are likely to use when assessing their levels of satisfaction/dissatisfaction with technology-based banking transactions. While the study provides invaluable insight into how consumers are likely to evaluate TASE it has some limitations.

In the current study it was assumed that the criteria consumers are likely to use when evaluating TASE are equally significant. This may not always be the case. Some criteria may have a greater effect on consumers' levels of satisfaction and/or dissatisfaction with electronic banking.

While the results showed statistically significant associations between some of the variables, the associated correlation coefficient values were low. This was interpreted to mean that there are additional factors affecting consumers' usage levels and perceptions of electronic banking that were not identified.

Emphasis was laid on the evaluative criteria that active users of electronic banking use to evaluate TASE. As such it was assumed that consumers either adopt or reject the retail banking technologies. Studies show that some consumers adopt technologies for some time and then reject them (Merrick, 2000; Nelson, 2000; Rubino, 2000). This study did not explore the perceptions that ex-consumers have of electronic banking nor did it identify the factors that resulted in rejection.

The findings show that transaction aids are significant to consumers' use and evaluation of the electronic banking modes. As emphasis was laid on identifying the evaluative criteria and paradoxes of technology adoption that can affect consumers' levels of dis/satisfaction, these dimensions were not fully explored. In particular the

consumers' perceptions of the visual cues available with EFTPOS and ATMs were not examined and their perceptions of the visual cues associated with Online banking and the voice prompts available with telephone banking were not fully explored.

The processes consumers are likely to go through when evaluating TASE were not addressed. Specifically, the study did not determine whether consumers use the disconfirmation process when evaluating TASE. In addition, the research did not examine whether electronic banking consumers form 'cognitive scripts' of the service delivery processes and then evaluate service performances based on those scripts.

The perceptions of non-users of electronic banking were not explored. Findings from non-users may highlight specific service elements that lead to dissatisfaction and/or non-adoption of the available modes of electronic banking.

The qualitative and quantitative stages of the current study employed a sample of Western Australian consumers. Whilst the findings illustrate how Western Australian consumers are likely to evaluate technology-based banking transactions they may not be applicable or generalisable to consumers who conduct technology-based retail banking transactions Australia-wide and in other countries.

Finally, the findings are based on a study of consumers' evaluations of TASE in a single industry - retail banking. The applicable evaluative criteria and paradoxes of technology adoption may differ with TASE in other industries. The following section outlines possible areas for further research.

8.7 Recommendations for future research

More research is required to identify the additional criteria that consumers are likely to use when evaluating TASE, the elements that lead to the rejection of adopted modes, and the most significant determinants of satisfaction/dissatisfaction with TASE in the retail banking industry. More research is also required to fully explore the nature of the transaction aids dimension.

Bitran and Lojo (1993) note that service delivery process have five stages beginning with the check-in phase and ending with the disengagement phase. As such, it would be interesting to explore whether consumers who participate in these service delivery processes form cognitive scripts and whether they go through the disconfirmation process when evaluating TASE.

The findings of the current study have led to the proposal of the TASE model, which includes items that consumers are likely to use when evaluating technology-assisted service encounters. Further research is required to identify and include additional elements that affect consumers' perceptions of TASE. Additional research is also required to develop the model further in order to test its reliability, validity, and applicability to TASE in various industries.

According to Mick and Fournier (1998, p 133), consumers who experience the paradoxes of technology adoption manage the paradoxes by using "avoidance and confrontative strategies." Studies can explore the coping strategies that electronic banking consumers are likely to use when managing the paradoxes of technology adoption they experience when conducting their transactions.

As noted in the preceding section, the evaluative criteria and relevant paradoxes of technology adoption applicable to this study may differ with the target population. Thus, additional research is necessary to explore whether retail banking consumers in Australia and in other countries are likely to evaluate their technology-based banking transactions using the identified criteria and whether they are likely to experience the six paradoxes of technology adoption that appear to be applicable in this study. Similarly, future studies can explore whether consumers who conduct TASE in other industries are likely to evaluate their levels of satisfaction/dissatisfaction using the same evaluative criteria and whether they are likely to experience the same paradoxes of technology adoption.

8.8 Conclusions

Existing studies show that consumers' attitudes towards the service delivery process are the most significant element of the service encounter because they have a

greater effect on consumers' perceptions of service quality and their level of satisfaction/dissatisfaction with service encounters compared to their attitudes towards the service outcome (Lehtinen & Lehtinen, 1982; Gronroos, 1998). Consequently, researchers suggest that changes in the service delivery process may lead to changes in how consumers evaluate their service encounters (Lovelock & Young, 1979; Gronroos, 1984; Zeithaml et al., 1990).

Traditionally services have been delivered primarily through personal contact between an organisation's employees and its consumers. Thus, personal contact has been a significant determinant of customer satisfaction and/or dissatisfaction with service encounters (Schneider & Bowen, 1985; Leblanc & Nguyen, 1988; Parasuraman et al., 1988; Howcroft, 1993; Donner & Dudley, 1997; Nicholls et al., 1998). However, in recent years, technological advancements have begun to influence how some organisations deliver their services. Services that were previously delivered through high personal contact between customer service employees and customers can now be delivered with the use of technology and minimal contact with employees (Daniel, 1999; Bitner, 2001; Grove et al., 1998; Ruyter et al., 2001; Web, 2000; Zhu et al., 2002).

The present study examined the criteria that consumers who participate in technology-based service delivery processes are likely to use when evaluating their levels of satisfaction and/or dissatisfaction with these service encounters. The study investigated the criteria consumers are likely to use when evaluating TASE in the retail banking industry and also examined whether the significance of these criteria is likely to differ with consumers' demographic characteristics and/or with the mode of electronic banking in use. In so doing, this study examined whether the theories, techniques, and instruments that have been used to assess how consumers evaluate service encounters that are characterised by high personal contact are applicable to TASE. The study also examined whether consumers who conduct technology-assisted banking transactions are likely to experience the paradoxes of technology adoption identified by Mick and Fournier (1998).

The research questions were answered using qualitative and quantitative research methods. The qualitative data were collected through 20 in-depth interviews with current users of electronic banking in Western Australia. The interview

discussions were tape-recorded then the N.U.D.I.S.T. (Non-numerical Unstructured Data Information Searching, Indexing, and Theorizing) software was used to categorise and analyse the data collected. The qualitative data provided invaluable insights into consumers' behaviours and perceptions towards TASE in the retail banking industry. The qualitative findings were used to develop a survey instrument to examine the effect that the identified criteria and paradoxes of technology adoption can have on consumers' satisfaction/dissatisfaction levels and their use of electronic banking. The data were collected through a mail survey. A total of 1700 questionnaires were mailed out to potential respondents, and the resulting response rate was 28.9%. The data were entered into the SPSS v.10 program and analysed using nonparametric statistical tests.

The findings of this study show that consumers are likely to evaluate their levels of satisfaction and/or dissatisfaction with TASE in the retail banking industry using three main criteria: perceived convenience, perceived risk, and the transaction aids available with each mode of electronic banking. These criteria are multi-dimensional. The sub-dimensions of perceived convenience include the perceived ease of conducting transactions, perceived speed of transactions, and accessibility to transaction accounts from multiple locations and at any time of the day. The dimensions relating to perceived risk include physical, performance, psychological, and financial risks. The transaction aids dimension relates to the visual cues available with EFTPOS, ATM, and Online banking modes and the voice prompts available with the telephone banking mode. The findings show that the significance of these criteria is likely to differ with the mode of electronic banking in use and the consumers' demographic characteristics. They also show that consumers who conduct technology-based banking transactions can experience six of the paradoxes of technology adoption identified by Mick and Fournier (1998), namely the control/chaos, freedom/enslavement, competence/incompetence, efficiency/inefficiency, engaging/disengaging, and fulfils/creates needs paradoxes. The dominating side of the paradoxes can influence consumers' usage levels of the available modes of electronic banking.

To conclude, the findings of the present study corroborate Lovelock and Young (1979), Gronroos (1984), and Zeithaml et al.'s (1990) suggestions that

changes in the service delivery process are likely to result in changes in the criteria that consumers use to evaluate their service encounters. The findings illustrate that most of the existing theories, instruments, and techniques that address how consumers evaluate their service encounters may be inapplicable in their current form to TASE. In particular, elements that require consumers to evaluate personal contact with an organisation's employees may need to be adapted to allow consumers to evaluate their interactions with various technologies. In addition, the existing theories and measures of customer satisfaction may need to be adapted to include the identified criteria and paradoxes of technology adoption. Therefore, the findings of this study were used to propose the TASE model that has dimensions that can be used to determine consumers' levels of satisfaction/dissatisfaction with their interactions with technologies during service provision.

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APPENDICES

Appendix A: Summary of Existing Studies on Technology-Assisted Banking Transactions

AUTHOR	YEAR	AIM	SAMPLE	FINDINGS
El-Haddad and Almahmeed	1992	To examine the adoption and usage of ATMs in the Gulf	ATM users in Kuwait	<ul style="list-style-type: none"> • Most consumers use ATMs three to four times a month • Consumers mainly conduct cash withdrawal and account balance checks. • Factors that motivate consumers to use ATMs include: convenience, speed of transactions, ease of use, easy accessibility, and to avoid carrying cash. • Discouraging elements include: breakdown of machines, not knowing their locations, poor maintenance, and poor lighting around ATMs (p 25 – 35).

Prendergast	1993	Explores the diffusion process of EFTPOS, ATMs, and telephone banking	EFTPOS, ATM, and telephone banking users in New Zealand	<ul style="list-style-type: none"> • EFTPOS and ATM users are typically younger. • No statistically significant associations between telephone banking and consumers' demographics • Adoption of EFTPOS had reached the late majority stage • The laggards were beginning to adopt ATMs. • The early majority had begun to adopt telephone banking (p 29 – 35).
Filotto, Tanza, and Saita	1997	To examine consumers' use of ATMs and Point of sale technologies (POS)	Consumers who use ATMs and make electronic payments at point of sale in Italy	<ul style="list-style-type: none"> • Sources of dissatisfaction with ATMs and POS include: cost of transaction, the length of time taken to complete the transaction, and limited availability of facilities. • Sources of satisfaction include: easy access to account information, expertise of staff, and staff friendliness. • Consumers typically had higher levels of education and work in "upper-end professions" (p 13 – 21).

Joseph, McClure, and Joseph	1999	To study of the effects of technology on consumers' perceptions of service quality	Australian banking consumers	<ul style="list-style-type: none"> Identified six factors that may influence consumers' perceptions of service quality. They include: "convenience/accuracy of transactions, feedback and complaint management, accessibility, efficiency, customisation, and queue management" (p 182 - 191).
Liao, Wang, and Chen	1999	Examine whether the theory of planned behaviour and the theory of innovation diffusion can be used to explain the adoption of virtual banking	Professionals and highly educated consumers who used ATMs, home banking, and/or Internet banking in Hong Kong	<ul style="list-style-type: none"> Consumers conduct an average of 11 ATM transactions a month and six Internet or home banking transactions a month. Theory of planned behaviour is partially applicable to the adoption of virtual banking. The following factors affect consumers' attitudes towards the adoption of virtual banking: "relative, advantage, compatibility, ease of use, and results demonstrability" (p 63 - 74).
Sathye	1999	To determine the factors that are likely to influence the consumers' adoption	Australian business and residential consumers	<ul style="list-style-type: none"> Most consumers are deterred from adopting internet banking by: security concerns, perceived difficulty of use, inadequate information on the benefits of internet banking, perceptions of

		of internet banking.		financial cost, and lack of access to internet banking facilities (p324 – 334).
Tan, Beaumont, and Freeman	1999	Examine consumers' perceptions of service quality and usage of EFTPOS and ATMs.	Users of EFTPOS and ATM banking modes in Melbourne, Australia.	<ul style="list-style-type: none"> • EFTPOS and ATM banking consumers are likely to use both modes at least once a week. • ATM users conduct mainly account balance and cash withdrawal transactions. • The usage rates for both modes of electronic banking are associated with consumers' age and income. • Some consumers are dissuaded from using both modes of electronic banking by the following reasons: preference for personal contact, perceived cost of transactions, perceptions of security, perceived difficulty of transactions, and limited accessibility to EFTPOS and ATM facilities.
Jayawardhena and Foley	2000	Explore the demographics of Internet consumers	Internet banking consumers in U.K.	<ul style="list-style-type: none"> • Consumers are motivated to use internet banking by the following factors: speed of transactions, design of the bank's web site, quality of

		and the factors that limit the adoption of Internet banking		<p>information available at the web site, ease of using the web site, perceived security of transactions, and the ability to personalise their transactions.</p> <ul style="list-style-type: none"> • Consumers are less likely to use Internet banking when they lack sufficient information, they have few transaction accounts, they conduct limited transactions, and when they have a preference for personal contact (p 19 – 30).
Merrick	2000	Reports on the results of a survey on consumers' Online banking experiences	Online banking consumers in U.S.	<ul style="list-style-type: none"> • More than 80% of respondents indicated that Online banking is better than in branch banking. • Approximately 20% of the respondents had begun Online banking and then stopped using it. Of these respondents, half of them reported that they were dissuaded from using Online banking because there were required to key in too much data. • Most of the respondents who used Online banking used it to transfer funds between

				<p>accounts in different financial institutions.</p> <ul style="list-style-type: none"> • Less than 10% of the respondents used banks that only provide Internet banking (p 20).
Humphrey, Kim, and Vale	2001	Determine the effects of electronic payment systems on a country's economy.	Use of retail payment technologies (ATMs, Checks, and debit cards at point of sale) in Norway.	<ul style="list-style-type: none"> • Consumers who use electronic payment systems are generally sensitive to the financial costs of the services. • Electronic payment systems cost one-third of the costs of paper-based transactions. • Electronic payment systems contribute to 3% of the National GDP. • Generally, electronic payment systems result in costs savings for financial institutions (p 216 – 234).
Jun and Cai	2001	Explores the factors that affect consumers' levels of dis/satisfaction and their perceptions of the service quality of	Internet banking consumers in U.S.	<ul style="list-style-type: none"> • Sources of satisfaction with Internet banking include: reliability, responsiveness, compatibility, accessibility, accuracy of information, availability of information, understanding customers, convenience, and email accessibility. • Sources of dissatisfaction include: lack of

		Internet banking.		knowledge on the expected advantages and perceived security of transactions (p 276 – 291).
Polatoglu and Ekin	2001	To identify the factors that affect satisfaction and dissatisfaction with Internet banking	Internet banking users in Turkey	<ul style="list-style-type: none"> • Factors that lead to customer satisfaction include: reliability, security of transactions, privacy, accessibility of services, time, and cost savings. • Factors leading to customer dissatisfaction are: poor Internet connections and inaccessibility of services (p 156 – 165).
Aldaigan and Buttle	2002	To develop an instrument for measuring consumers' perceptions of quality in the retail banking industry	Retail banking consumers in the U.K.	<ul style="list-style-type: none"> • Consumers are likely to evaluate retail banking service quality on a functional and organisational basis. • Developed the SYSTRA-SQ • SYSTRA-SQ measures service quality using four main dimensions: service system quality, behavioural service quality, service transactional accuracy, and machine service quality (p 362 – 381).
Howcroft, Hamilton, and Hewer	2002	To identify the factors that encourage	Telephone and Internet banking	<ul style="list-style-type: none"> • The factors that motivate consumers to use both modes of electronic banking are: lesser service

		and/or dissuade consumers' use of telephone and Internet banking	consumers in U.K.	<p>charges, better service, time efficiency, and after hours accessibility.</p> <ul style="list-style-type: none"> • Consumers avoid telephone and Internet banking because of security concerns and concerns about making mistakes during transactions (p 111 – 121).
Jamal and Nasser	2002	To examine the effect consumers' knowledge and demographics have on their perceptions of customer satisfaction and service quality	Retail banking consumers in the United Arab Emirates	<ul style="list-style-type: none"> • When evaluating the quality of services provided by organisations consumers evaluate the core service provided and the service delivery process. • Levels of satisfaction are likely to differ with consumers' education and income levels. • Knowledgeable and professional consumers tend to report lower levels of satisfaction compared to their counterparts because they have higher expectations (p 146 – 160).
Karjaluoto, Mattila, and Pento	2002	Examine the factors that influence consumers' attitudes towards Online	Retail banking consumers in Finland	<ul style="list-style-type: none"> • Study found that three main factors affect consumers' attitudes towards Online banking. They include; previous experience with computers and technology, demographics

		banking.		(education and household income), and preference for personal contact during banking (p 261 – 272).
Mulligan and Gordon	2002	Explores how information technology affects service delivery processes	Senior technology and strategic managers of financial firms in Boston, U.S.	<ul style="list-style-type: none"> • The use of information technology results in the reduction of cost, time and place constraint during the delivery of financial services. • Information technology can increase consumers' perceptions of service quality by reducing queues and giving consumers more control over their service encounters. • The threats associated with the use of information technology are the risk of adopting the wrong technology and the risk of the adopted technology becoming obsolete (p 29 – 46).
Zhu, Wymer, and Chen	2002	To develop a model for evaluating customers' levels of satisfaction and perceptions service	Electronic banking consumers in U.S.	<ul style="list-style-type: none"> • Consumers' perceptions of the services provided using information technology have an effect of on three SERVQUAL dimensions. They are reliability, responsiveness, and assurance. • The dimensions consumers are likely to use when

		quality when using information technology		evaluating information technology services include: perceived ease of use, time efficiency, convenience, accuracy of information, meets consumers' needs, and perceived security (p 69 – 90).
Rexha, Kingshot, and Au	2003	Examines the factors that affect corporate client's use of electronic banking	Senior bank personnel in Singapore and Australia	<ul style="list-style-type: none"> • Trust and commitment are essential to corporate client's adoption of electronic banking. • Satisfaction has no direct effect on corporate clients' likelihood of adopting electronic banking. • Satisfaction has an indirect effect on the adoption of electronic banking. That is because satisfaction has a direct effect on trust and commitment, which have an effect on the likelihood of adopting electronic banking. • "Banks need to develop close long term relationships with their clients to encourage the adoption of electronic banking"(p 53 – 67).

Appendix B: In-depth Interview Questions

- What do you think about banks?
 - What do you feel about banks?
 - Do you think most people feel the same way?
1. How do you do most of your banking?
 2. What type of transactions do you conduct?
 3. Why do you use that form of banking?
 4. What are the advantages of that form of banking?
 5. What are the disadvantages of that form of banking?
 6. How did you learn about that form of banking?
 7. What are some of your concerns regarding that form of banking?
 8. What did you expect when you first tried that form of banking?
 9. Were those expectations met?
 10. Do you use telephone banking? (If yes Q2 - Q9)
 11. Why don't you use telephone banking?
 12. Do you use Online (Internet banking)? (If yes Q2 – Q9)
 13. Why don't you use Online banking?
 14. What do you feel about technology in general?
 15. What are some of the advantages of using technology?
 16. What are some of the disadvantages of using technology?
 17. What are your reactions to the current trend of electronic banking?
 18. If you had your way how would you change the current banking system?

Appendix C: In-depth Interview Codes

Q.S.R. NUD.IST Power version, revision 4.0.
Licensee: Catherine Munene.

PROJECT: CMUNENE, User Catherine Munene.

```
*****
*****
(D) //Document Annotations
*** No Definition
This node codes 0 documents.
*****
*****
(F) //Free Nodes
*** No Definition
This node codes 0 documents.
*****
*****
(F 1) //Free Nodes/Negative stories
*** Definition:
Negative stories told by respondents. That I have to analyse and
re-code
This node codes 5 documents.
*****
*****
(F 2) //Free Nodes/Unauthorised transactions
*** Definition:
When respondent speaks of transactions that bank conducted without
his/her consent
This node codes 1 document.
*****
*****
(I) //Index Searches
*** No Definition
This node codes 0 documents.
*****
*****
(C) //Node Clipboard - 'Paradoxes'
*** Definition:
Copy of node (19).
This node codes 0 documents.
*****
*****
(T) //Text Searches
*** No Definition
This node codes 0 documents.
*****
*****
(11) /Bank accounts
*** No Definition
This node codes 0 documents.
*****
*****
(11 3) /Bank accounts/loans
*** No Definition
This node codes 7 documents.
*****
*****
(11 1) /Bank accounts/Number of accounts
*** No Definition
This node codes 3 documents.
```

```

*****
*****
(11 2) /Bank accounts/Passbook accounts
*** No Definition
This node codes 1 document.
*****
*****
(4) /Brick and Mortar branches
*** No Definition
This node codes 0 documents.
*****
*****
(4 8) /Brick and Mortar branches/Bank
*** Definition:
The list of banks in WA that the consumers make references to
This node codes 10 documents.
*****
*****
(4 8 2) /Brick and Mortar branches/Bank/ANZ
*** No Definition
This node codes 2 documents.
*****
*****
(4 8 2 1) /Brick and Mortar branches/Bank/ANZ/Problem
solving
*** No Definition
This node codes 1 document.
*****
*****
(4 8 2 2) /Brick and Mortar
branches/Bank/ANZ/Transactions
*** Definition:
Length of time taken to process transactions
This node codes 2 documents.
*****
*****
(4 8 3) /Brick and Mortar branches/Bank/BankWest
*** No Definition
This node codes 1 document.
*****
*****
(4 8 1) /Brick and Mortar branches/Bank/Commonwealth
*** No Definition
This node codes 7 documents.
*****
*****
(4 8 9) /Brick and Mortar branches/Bank/National
*** No Definition
This node codes 3 documents.
*****
*****
(4 8 8) /Brick and Mortar branches/Bank/Post Office
*** Definition:
When consumers use the Post office for their banking transactions
This node codes 1 document.
*****
*****
(4 8 7) /Brick and Mortar branches/Bank/Profit
*** Definition:
Information on the banks being profit and money driven
This node codes 2 documents.
*****
*****
(4 8 5) /Brick and Mortar branches/Bank/Reasons
*** Definition:
This is all the reasons consumers give for switching banks

```

This node codes 1 document.

(4 8 6) /Brick and Mortar branches/Bank/Shareholders

*** Definition:
Information and references made to shareholders

This node codes 1 document.

(4 8 4) /Brick and Mortar branches/Bank/WestPac

*** No Definition

This node codes 3 documents.

(4 8 4 1) /Brick and Mortar
branches/Bank/WestPac/Service

*** No Definition

This node codes 3 documents.

(4 10) /Brick and Mortar branches/Building
societies

*** No Definition

This node codes 5 documents.

(4 2) /Brick and Mortar branches/Closure

*** No Definition

This node codes 10 documents.

(4 1) /Brick and Mortar branches/Community

*** No Definition

This node codes 3 documents.

(4 3) /Brick and Mortar branches/Employees

*** No Definition

This node codes 3 documents.

(4 3 4) /Brick and Mortar
branches/Employees/Negative

*** Definition:

References made to the bank staff being unhappy with or during their
jobs and unhelpful

This node codes 12 documents.

(4 3 3) /Brick and Mortar
branches/Employees/Positive

*** Definition:

These are the positive comments made about bank staff referring to
them being helpful and positive

This node codes 6 documents.

(4 11) /Brick and Mortar branches/Government
Support

*** Definition:

When the government is said to provide financial backing, or used to
drive the economy

This node codes 2 documents.

(4 5) /Brick and Mortar branches/Location


```

*** No Definition
This node codes 6 documents.
*****
(4 5 4) /Brick and Mortar
branches/Location/Bayswater
*** No Definition
This node codes 1 document.
*****
(4 5 7) /Brick and Mortar
branches/Location/Beechboro
*** No Definition
This node codes 1 document.
*****
(4 5 5) /Brick and Mortar branches/Location/Carine
*** No Definition
This node codes 1 document.
*****
(4 5 2) /Brick and Mortar branches/Location/East
Perth
*** No Definition
This node codes 1 document.
*****
(4 5 3) /Brick and Mortar branches/Location/Galleria
*** No Definition
This node codes 1 document.
*****
(4 5 8) /Brick and Mortar
branches/Location/Mirrabooka
*** No Definition
This node codes 0 documents.
*****
(4 5 6) /Brick and Mortar branches/Location/Stirling
*** No Definition
This node codes 1 document.
*****
(4 5 1) /Brick and Mortar branches/Location/Victoria
Park
*** No Definition
This node codes 1 document.
*****
(4 9) /Brick and Mortar branches/Personalization
*** Definition:
Any information referring to personal service in the branches
This node codes 14 documents.
*****
(4 9 2) /Brick and Mortar
branches/Personalization/Confidence
*** Definition:
Confidence that the transaction took place
This node codes 4 documents.
*****
(4 9 3) /Brick and Mortar
branches/Personalization/Cost
*** Definition:

```

This is any reference made to over the counter fees or cost of transactions in the bank
This node codes 3 documents.

(4 9 7) /Brick and Mortar
branches/Personalization/Mobile banking
*** No Definition
This node codes 1 document.

(4 9 4) /Brick and Mortar
branches/Personalization/Negative views
*** Definition:
These are general negative views on going into the bank
This node codes 8 documents.

(4 9 5) /Brick and Mortar
branches/Personalization/Opening hours
*** No Definition
This node codes 2 documents.

(4 9 6) /Brick and Mortar
branches/Personalization/time consuming
*** No Definition
This node codes 4 documents.

(4 9 1) /Brick and Mortar
branches/Personalization/Visual
*** Definition:
They want to see the transactions or papers as evidence that the transactions have occurred
This node codes 5 documents.

(4 7) /Brick and Mortar branches/Quality of services
*** Definition:
This discusses the level of services that consumers experienced in the branches and whether or not they are seeking it
This node codes 4 documents.

(4 7 8) /Brick and Mortar branches/Quality of services/Angry
*** No Definition
This node codes 6 documents.

(4 7 2) /Brick and Mortar branches/Quality of services/Bad
*** No Definition
This node codes 8 documents.

(4 7 5) /Brick and Mortar branches/Quality of services/Decreased
*** No Definition
This node codes 8 documents.

(4 7 7) /Brick and Mortar branches/Quality of services/Expectations

```

*** No Definition
This node codes 7 documents.
*****
(4 7 1) /Brick and Mortar branches/Quality of
services/Good
*** No Definition
This node codes 10 documents.
*****
(4 7 4) /Brick and Mortar branches/Quality of
services/Increased
*** No Definition
This node codes 4 documents.
*****
(4 7 3) /Brick and Mortar branches/Quality of
services/Irregular
*** Definition:
When consumers receive different service or different responses to
the same question
This node codes 2 documents.
*****
(4 7 6) /Brick and Mortar branches/Quality of
services/Limited
*** No Definition
This node codes 2 documents.
*****
(4 4) /Brick and Mortar branches/Queues
*** No Definition
This node codes 12 documents.
*****
(4 6) /Brick and Mortar branches/Return branches
*** No Definition
This node codes 4 documents.
*****
(4 12) /Brick and Mortar branches/Stock market
*** Definition:
This is where respondents refer to investing in the stock market as
an option
This node codes 2 documents.
*****
(9) /Consumers
*** No Definition
This node codes 1 document.
*****
(9 1) /Consumers/Disabled or Sick
*** Definition:
References to special services for sick or disabled consumers
This node codes 2 documents.
*****
(9 2) /Consumers/Elderly
*** Definition:
References made to the elderly and their needs
This node codes 6 documents.
*****
(9 5) /Consumers/Govt subsidies
*** Definition:

```

The different types of consumers and subsidies served by the banks.
From those on pensions to Austudies
This node codes 1 document.

(9 8) /Consumers/Valuable consumers

*** Definition:

The difference the respondent sees between personal and business consumers, or the consumers the respondent thinks, the banks value most

This node codes 3 documents.

(1) /Demographics

*** No Definition

This node codes 0 documents.

(1 2) /Demographics/Age

*** No Definition

This node codes 0 documents.

(1 2 1) /Demographics/Age/18 - 24

*** No Definition

This node codes 2 documents.

(1 2 2) /Demographics/Age/25 - 34

*** No Definition

This node codes 5 documents.

(1 2 3) /Demographics/Age/35 - 49

*** No Definition

This node codes 8 documents.

(1 2 4) /Demographics/Age/50 - 64

*** No Definition

This node codes 4 documents.

(1 2 5) /Demographics/Age/65 and over

*** No Definition

This node codes 1 document.

(1 5) /Demographics/Education

*** No Definition

This node codes 0 documents.

(1 5 1) /Demographics/Education/Computer Literate

*** No Definition

This node codes 6 documents.

(1 5 3) /Demographics/Education/Learning

*** Definition:

This is reference to the respondent learning how to use computers

This node codes 3 documents.

(1 5 2) /Demographics/Education/Not computer

literate

```

*** No Definition
This node codes 6 documents.
*****
*****
(1 1) /Demographics/Gender
*** No Definition
This node codes 0 documents.
*****
*****
(1 1 2) /Demographics/Gender/Female
*** No Definition
This node codes 10 documents.
*****
*****
(1 1 1) /Demographics/Gender/Male
*** No Definition
This node codes 10 documents.
*****
*****
(1 3) /Demographics/Income
*** No Definition
This node codes 0 documents.
*****
*****
(1 3 1) /Demographics/Income/Low
*** No Definition
This node codes 0 documents.
*****
*****
(1 3 2) /Demographics/Income/Middle
*** No Definition
This node codes 0 documents.
*****
*****
(1 3 3) /Demographics/Income/Upper
*** No Definition
This node codes 0 documents.
*****
*****
(1 4) /Demographics/Occupation
*** No Definition
This node codes 6 documents.
*****
*****
(2) /Electronic banking
*** No Definition
This node codes 7 documents.
*****
*****
(2 3) /Electronic banking/ATM
*** No Definition
This node codes 17 documents.
*****
*****
(2 3 8) /Electronic banking/ATM/Access
*** Definition:
The ability to use or find an ATM at the required time
This node codes 1 document.
*****
*****
(2 3 9) /Electronic banking/ATM/Account balance
*** No Definition
This node codes 2 documents.
*****
*****
(2 3 11) /Electronic banking/ATM/Advantage

```

```

*** No Definition
This node codes 4 documents.
*****
*****
(2 3 3) /Electronic banking/ATM/Age
*** Definition:
How age determines their usage
This node codes 5 documents.
*****
*****
(2 3 2) /Electronic banking/ATM/Closure
*** Definition:
When the ATM machines are closed
This node codes 2 documents.
*****
*****
(2 3 5) /Electronic banking/ATM/Convenient
*** No Definition
This node codes 4 documents.
*****
*****
(2 3 5 4) /Electronic banking/ATM/Convenient/Easy cash
*** No Definition
This node codes 8 documents.
*****
*****
(2 3 5 1) /Electronic banking/ATM/Convenient/Easy to
use
*** No Definition
This node codes 2 documents.
*****
*****
(2 3 5 3) /Electronic banking/ATM/Convenient/Place
*** No Definition
This node codes 2 documents.
*****
*****
(2 3 5 2) /Electronic banking/ATM/Convenient/Time
*** No Definition
This node codes 4 documents.
*****
*****
(2 3 6) /Electronic banking/ATM/Cost
*** Definition:
These are all the charges associated with the use of ATMs
This node codes 4 documents.
*****
*****
(2 3 10) /Electronic banking/ATM/Disadvantage
*** No Definition
This node codes 6 documents.
*****
*****
(2 3 4) /Electronic banking/ATM/Location
*** No Definition
This node codes 5 documents.
*****
*****
(2 3 1) /Electronic banking/ATM/Security
*** No Definition
This node codes 5 documents.
*****
*****
(2 3 7) /Electronic banking/ATM/Transactions
*** No Definition
This node codes 3 documents.

```

```

*****
*****
(2 6) /Electronic banking/Credit card
*** No Definition
This node codes 6 documents.
*****
*****
(2 4) /Electronic banking/EFTPOS
*** No Definition
This node codes 7 documents.
*****
*****
(2 4 6) /Electronic banking/EFTPOS/Advantages
*** No Definition
This node codes 2 documents.
*****
*****
(2 4 3) /Electronic banking/EFTPOS/Disadvantage
*** No Definition
This node codes 4 documents.
*****
*****
(2 4 2) /Electronic banking/EFTPOS/Easy
*** No Definition
This node codes 2 documents.
*****
*****
(2 4 5) /Electronic banking/EFTPOS/Easy access
*** Definition:
EFTPOS is available everywhere
This node codes 2 documents.
*****
*****
(2 4 4) /Electronic banking/EFTPOS/Easy cash
*** No Definition
This node codes 4 documents.
*****
*****
(2 4 1) /Electronic banking/EFTPOS/Security
*** No Definition
This node codes 2 documents.
*****
*****
(2 1) /Electronic banking/Internet
*** No Definition
This node codes 10 documents.
*****
*****
(2 1 18) /Electronic banking/Internet / Computers
*** Definition:
This is a node carrying all references to Internet banking and the
ownership of computers
This node codes 7 documents.
*****
*****
(2 1 18 1) /Electronic banking/Internet / Computers/Age
*** Definition:
All references made to computer ownership and/or literacy and age
This node codes 3 documents.
*****
*****
(2 1 14) /Electronic banking/Internet /Account
information
*** No Definition
This node codes 2 documents.

```

```

*****
*****
(2 1 17)                /Electronic banking/Internet /Accustomed
*** Definition:
Issues relating to the importance of getting used to using the
Internet, or 'being a matter of time"
This node codes 3 documents.
*****
*****
(2 1 3)                  /Electronic banking/Internet /Advantages
*** No Definition
This node codes 9 documents.
*****
*****
(2 1 9)                  /Electronic banking/Internet /Bill paying
*** No Definition
This node codes 6 documents.
*****
*****
(2 1 2)                  /Electronic banking/Internet /Consumers
*** Definition:
These are references made to the types of consumers who are more
likely to use the Internet
This node codes 2 documents.
*****
*****
(2 1 7)                  /Electronic banking/Internet /Convenient
*** No Definition
This node codes 1 document.
*****
*****
(2 1 7 5)                /Electronic banking/Internet
/Convenient/Cash
*** Definition:
These are references made to it being easier because you don't have
to carry cash.
This node codes 1 document.
*****
*****
(2 1 7 1)                /Electronic banking/Internet
/Convenient/Easy
*** Definition:
Where consumers find the contraption convenient because it is easy,
even easier than using human tellers
This node codes 6 documents.
*****
*****
(2 1 7 4)                /Electronic banking/Internet
/Convenient/More services
*** No Definition
This node codes 1 document.
*****
*****
(2 1 7 6)                /Electronic banking/Internet
/Convenient/Place
*** No Definition
This node codes 1 document.
*****
*****
(2 1 7 3)                /Electronic banking/Internet
/Convenient/time
*** No Definition
This node codes 4 documents.
*****
*****

```


(2 1 7 2) /Electronic banking/Internet
 /Convenient/Transactions
 *** Definition:
 References made on the ability to do many transactions at once over
 the Internet
 This node codes 3 documents.

(2 1 10) /Electronic banking/Internet /Cost
 *** No Definition
 This node codes 5 documents.

(2 1 4) /Electronic banking/Internet /Disadvantages
 *** No Definition
 This node codes 8 documents.

(2 1 4 1) /Electronic banking/Internet
 /Disadvantages/annoying
 *** Definition:
 These are incidents labelled by the respondent as annoying
 This node codes 1 document.

(2 1 5) /Electronic banking/Internet /Length of use
 *** Definition:
 Length of time the respondent has used Internet banking
 This node codes 4 documents.

(2 1 16) /Electronic banking/Internet /Limited
 responses
 *** Definition:
 You have got to have yes or no responses it is not flexible enough
 to adapt to new situations
 This node codes 1 document.

(2 1 12) /Electronic banking/Internet /Net banking
 *** No Definition
 This node codes 7 documents.

(2 1 6) /Electronic banking/Internet /Net is 'down'
 *** No Definition
 This node codes 3 documents.

(2 1 1) /Electronic banking/Internet /Online
 "assistance"
 *** Definition:
 These are issues regarding banking Online and availability of
 customer service
 This node codes 6 documents.

(2 1 25) /Electronic banking/Internet /Precision
 *** Definition:
 Internet transactions are more accurate, because they eliminate
 human error and the respondent is more meticulous
 This node codes 5 documents.

(2 1 22) /Electronic banking/Internet /Receipts
 *** No Definition

This node codes 2 documents.

(2 1 19) /Electronic banking/Internet /Security

*** Definition:

This specifically relates to Internet banking issues

This node codes 8 documents.

(2 1 13) /Electronic banking/Internet /Share trading

*** No Definition

This node codes 4 documents.

(2 1 8) /Electronic banking/Internet /Spending

*** Definition:

This is where the respondent says that they are able to observe spending, and budget with the help of the Internet

This node codes 1 document.

(2 1 15) /Electronic banking/Internet /Trial and error

*** Definition:

This refers to the use of the Internet being a matter of time and experience and constantly trying

This node codes 3 documents.

(2 1 23) /Electronic banking/Internet /Visual

*** Definition:

The ability to see one's account or transactions

This node codes 5 documents.

(2 5) /Electronic banking/PIN

*** Definition:

References made to PIN numbers and recalling them

This node codes 7 documents.

(2 2) /Electronic banking/Telephone

*** No Definition

This node codes 14 documents.

(2 2 6) /Electronic banking/Telephone/"Noting down"

*** Definition:

This involves writing down information on the telephone transactions eg the receipt number

This node codes 6 document.

(2 2 4) /Electronic banking/Telephone/Advantages

*** No Definition

This node codes 7 documents.

(2 2 9) /Electronic banking/Telephone/Convenience

*** No Definition

This node codes 2 documents.

(2 2 9 5) /Electronic banking/Telephone/Convenience/Cost

*** Definition:

In dollar values of the telephone transactions
This node codes 4 documents.

(2 2 9 3) /Electronic
banking/Telephone/Convenience/Ease

*** Definition:
How easy the transaction is
This node codes 8 documents.

(2 2 9 2) /Electronic
banking/Telephone/Convenience/Place

*** Definition:
Can do their banking anywhere if need be
This node codes 5 documents.

(2 2 9 4) /Electronic
banking/Telephone/Convenience/Speed

*** Definition:
Issues relating to how fast the transaction are
This node codes 5 documents.

(2 2 9 1) /Electronic
banking/Telephone/Convenience/Time

*** Definition:
Can do their banking beyond the regular branch hours
This node codes 4 documents.

(2 2 5) /Electronic banking/Telephone/Disadvantages

*** No Definition
This node codes 10 documents.

(2 2 1) /Electronic banking/Telephone/Length of Use

*** Definition:
Length of time respondent has been using telephone banking
This node codes 11 documents.

(2 2 8) /Electronic banking/Telephone/Limited Info.

*** Definition:
The fact that with the telephone one is only able to key in a
limited amount of information
This node codes 3 documents.

(2 2 3) /Electronic banking/Telephone/Long Winded

*** Definition:
Refers to the length of time spent carrying out transactions over
the telephone
This node codes 4 documents.

(2 2 7) /Electronic banking/Telephone/Security

*** No Definition
This node codes 4 documents.

(2 2 2) /Electronic banking/Telephone/Transactions

*** Definition:
The different type of transactions respondents conducted through the
telephone

This node codes 0 documents.

 (2 2 2 1) /Electronic
 banking/Telephone/Transactions/Account balances
 *** No Definition
 This node codes 6 documents.

 (2 2 2 2) /Electronic
 banking/Telephone/Transactions/Bill paying
 *** Definition:
 Any transactions regarding the paying of bills and credit cards over
 the phone
 This node codes 7 documents.

 (2 2 2 5) /Electronic
 banking/Telephone/Transactions/Customer service
 *** Definition:
 When respondent calls in to speak to a customer service attendant as
 opposed to doing transactions
 This node codes 1 document.

 (2 2 2 3) /Electronic
 banking/Telephone/Transactions/Funds transfer
 *** No Definition
 This node codes 6 documents.

 (2 2 2 4) /Electronic
 banking/Telephone/Transactions/Reliability
 *** Definition:
 When the consumer doubts whether the transaction conducted has
 actually occurred
 This node codes 1 document.

 (2 2 10) /Electronic banking/Telephone/Voice Prompts
 *** Definition:
 Referring to the voice response units found on telephones and
 waiting on hold
 This node codes 9 documents.

 (5) /Fees
 *** No Definition
 This node codes 0 documents.

 (5 2) /Fees/Charges
 *** Definition:
 This is specific information on the transaction charges incurred by
 the respondent
 This node codes 11 documents.

 (5 4) /Fees/Financial risk
 *** Definition:
 Risks associated with using a particular bank or a particular form
 of banking
 This node codes 2 documents.

 (5 1) /Fees/High

*** No Definition
 This node codes 7 documents.

 (5 3) /Fees/Interest rates
 *** No Definition
 This node codes 5 documents.

 (8) /General Attitude
 *** Definition:
 General opinions that consumers have about banks
 This node codes 0 documents.

 (8 5) /General Attitude/Accessible
 *** Definition:
 Consumer can easily get help and access their local branches
 This node codes 5 documents.

 (8 14) /General Attitude/Cross selling
 *** Definition:
 When banks sell other services to consumers
 This node codes 1 document.

 (8 13) /General Attitude/Differentiation
 *** Definition:
 Where the respondent see a distinct difference between the banks or
 financial institutions
 This node codes 2 documents.

 (8 7) /General Attitude/Dissatisfaction
 *** Definition:
 This is basic dissatisfaction with the banks in general and their
 services
 This node codes 11 documents.

 (8 6) /General Attitude/Easier services
 *** Definition:
 Reference to the services being easier, cash being easy to access
 and bill paying being easier
 This node codes 3 documents.

 (8 10) /General Attitude/Govt control
 *** Definition:
 Issues relating to the use of legislation and Govt control to
 increase or limit the power of banks
 This node codes 1 document.

 (8 4) /General Attitude/Inaccessible
 *** Definition:
 Accessibility of the local branch that holds your account,
 information, or customer services
 This node codes 8 documents.

 (8 15) /General Attitude/Inflexible
 *** No Definition
 This node codes 2 documents.

```

*****
*****
(8 17) /General Attitude/Loyalty
*** No Definition
This node codes 2 documents.
*****
*****
(8 12) /General Attitude/Necessary evil
*** No Definition
This node codes 5 documents.
*****
*****
(8 18) /General Attitude/Perceptions
*** Definition:
General perceptions of banks
This node codes 4 documents.
*****
*****
(8 2) /General Attitude/Powerless
*** Definition:
When consumers seem powerless, against the banks, feeling that they
have too much control
This node codes 6 documents.
*****
*****
(8 11) /General Attitude/Profit
*** Definition:
Where banks just worry about making profit and not giving back to
the community
This node codes 8 documents.
*****
*****
(8 9) /General Attitude/Satisfaction
*** Definition:
Positive information or attitudes towards banks
This node codes 3 documents.
*****
*****
(8 8) /General Attitude/Social responsibility
*** Definition:
Issues regarding investing in the community and putting some money
back into society
This node codes 2 documents.
*****
*****
(8 1) /General Attitude/Unaccountable
*** Definition:
No adequate explanation or solutions to problems
This node codes 3 documents.
*****
*****
(8 16) /General Attitude/Unhelpful
*** No Definition
This node codes 5 documents.
*****
*****
(8 3) /General Attitude/Uninformed
*** Definition:
The banks don't provide consumers with adequate information prior to
making any changes
This node codes 5 documents.
*****
*****
(6) /Motivation
*** Definition:
What encouraged the consumer to adopt electronic banking?

```

This node codes 0 documents.

(6 4) /Motivation/Account information
 *** Definition:
 When the consumer wanted information about their accounts
 This node codes 2 documents.

(6 6) /Motivation/bank statements
 *** No Definition
 This node codes 2 documents.

(6 5) /Motivation/Easy Access
 *** Definition:
 'Hassle free'
 This node codes 3 documents.

(6 3) /Motivation/Lack of
 *** Definition:
 When the consumer is not motivated to try and/or use electronic
 banking
 This node codes 7 documents.

(6 3 1) /Motivation/Lack of/Fear
 *** Definition:
 When the respondent won't try the technology due to fear
 This node codes 2 documents.

(6 1) /Motivation/No Choice
 *** Definition:
 Pushed by the bank to use electronic banking as opposed to doing it
 out of choice
 This node codes 6 documents.

(6 1 1) /Motivation/No Choice/Salary
 *** Definition:
 Where the consumer uses electronic banking because their pay go
 straight to their account
 This node codes 4 documents.

(6 2) /Motivation/Word of Mouth
 *** Definition:
 When family or friends encourage the respondent to use a form of
 electronic banking
 This node codes 6 documents.

(3) /Paradoxes
 *** Definition:
 Mick and Fournier's paradoxes of technology adoption
 This node codes 0 documents.

(3 13) /Paradoxes/Assimilation
 *** Definition:
 Human togetherness
 This node codes 8 documents.

(3 2) /Paradoxes/Chaos
 *** No Definition
 This node codes 9 documents.

(3 7) /Paradoxes/Competence
 *** Definition:
 Facilitates feelings of intelligence and efficacy
 This node codes 14 documents.

(3 1) /Paradoxes/Control
 *** No Definition
 This node codes 6 documents.

(3 1 1) /Paradoxes/Control/Control B
 *** Definition:
 This is not control as defined by Mick and Fournier but control of
 one's accounts and finances through the help of technology
 This node codes 1 document.

(3 12) /Paradoxes/Creates needs
 *** No Definition
 This node codes 5 documents.

(3 16) /Paradoxes/Disengaging
 *** Definition:
 Disconnection, disruption and passivity
 This node codes 11 documents.

(3 9) /Paradoxes/Efficiency
 *** Definition:
 Leads to less effort and time in certain activities
 This node codes 14 documents.

(3 15) /Paradoxes/Engaging
 *** Definition:
 Facilitate involvement, flow of activities
 This node codes 5 documents.

(3 4) /Paradoxes/Entrapment
 *** No Definition
 This node codes 10 documents.

(3 3) /Paradoxes/Freedom
 *** Definition:
 Independence and fewer restrictions
 This node codes 12 documents.

(3 11) /Paradoxes/Fulfil
 *** Definition:
 Leads to the fulfilment of needs and desires
 This node codes 14 documents.

(3 11 1) /Paradoxes/Fulfil/Fulfil B
 *** Definition:

This is where the consumers talk of an information need being fulfilled using electronic banking
This node codes 1 document.

(3 8) /Paradoxes/Incompetence

*** No Definition

This node codes 9 documents.

(3 10) /Paradoxes/Inefficiency

*** No Definition

This node codes 7 documents.

(3 14) /Paradoxes/Isolation

*** Definition:

Human separation

This node codes 11 documents.

(3 5) /Paradoxes/New

*** Definition:

New benefits for scientific knowledge and breakthroughs

This node codes 9 documents.

(3 6) /Paradoxes/Obsolete

*** No Definition

This node codes 7 documents.

(12) /Technology

*** Definition:

This is information containing all the general comments the respondents made about technology

This node codes 1 document.

(12 6) /Technology/Advantages

*** Definition:

General advantages of technology

This node codes 6 documents.

(12 6 11) /Technology/Advantages/Attributes

*** Definition:

These are the features associated with some of the technologies available.

This node codes 1 document.

(12 6 4) /Technology/Advantages/Choice

*** No Definition

This node codes 4 documents.

(12 6 12) /Technology/Advantages/Convenience

*** No Definition

This node codes 1 document.

(12 6 1) /Technology/Advantages/Easier

*** Definition:

When technology is said to make things easier as a whole

This node codes 10 documents.

```

*****
*****
(12 6 3) /Technology/Advantages/Extensive
*** Definition:
Much broader and greater access to information
This node codes 2 documents.
*****
*****
(12 6 7) /Technology/Advantages/Govt accountability
*** Definition:
When the organisations have to report to the Government for one
reason or another
This node codes 1 document.
*****
*****
(12 6 2) /Technology/Advantages/Information
*** Definition:
The use of the Internet means more access to information
This node codes 6 documents.
*****
*****
(12 6 10) /Technology/Advantages/Manageability
*** Definition:
Technology is easier to manager than humans and makes tasks and jobs
easier to manage
This node codes 3 documents.
*****
*****
(12 6 6) /Technology/Advantages/Medicine
*** Definition:
This includes all references made to technology advantageous for
cures and DNA things
This node codes 4 documents.
*****
*****
(12 6 8) /Technology/Advantages/More services
*** Definition:
The use of society to widen the range of services available to
consumers
This node codes 2 documents.
*****
*****
(12 6 9) /Technology/Advantages/Safer
*** Definition:
In terms of electronic banking, it is safer than carrying cash
around
This node codes 2 documents.
*****
*****
(12 6 5) /Technology/Advantages/Time efficient
*** No Definition
This node codes 10 documents.
*****
*****
(12 12) /Technology/age
*** No Definition
This node codes 3 documents.
*****
*****
(12 11) /Technology/Avoidance
*** Definition:
Strategy used to deal with paradoxes of technology adoption
This node codes 2 documents.
*****
*****
(12 4) /Technology/Comfortable

```

*** Definition:
 General information if the respondent is comfortable with the use of technology
 This node codes 3 documents.

 (12 10) /Technology/Dependence
 *** Definition:
 Issues relating to the dependence on technology and the consequences
 This node codes 3 documents.,

 (12 7) /Technology/Disadvantages
 *** Definition:
 General disadvantages of technology
 This node codes 6 documents.

 (12 7 1) /Technology/Disadvantages/Communication loss
 *** Definition:
 This are all the references made to inability to communicate or loss of communication skills brought about by technology
 This node codes 3 documents.

 (12 7 9) /Technology/Disadvantages/Deceiving information
 *** No Definition
 This node codes 1 document.

 (12 7 7) /Technology/Disadvantages/Differentiation
 *** Definition:
 This is where business all seems the same on the Internet. Therefore, you can't tell the reputable, from the dealers who are not reputable
 This node codes 1 document.

 (12 7 2) /Technology/Disadvantages/Empathy
 *** Definition:
 These are all the references made to lack of understanding of others
 This node codes 1 document.

 (12 7 12) /Technology/Disadvantages/Government control
 *** Definition:
 The agencies having access to all the information available on you
 This node codes 1 document.

 (12 7 5) /Technology/Disadvantages/Incomprehensible
 *** Definition:
 This is where technology is see to move so fast such that it seems incomprehensible to the human mind
 This node codes 7 documents.,

 (12 7 13) /Technology/Disadvantages/Information
 *** Definition:
 When technology gives consumers access to too much information
 This node codes 1 document.

 (12 7 4) /Technology/Disadvantages/Law
 *** Definition:

This is where the technology is seen to grow or advance faster than the authorities or regulation.

This node codes 1 document.

(12 7 4 2) /Technology/Disadvantages/Law/Fine print

*** Definition:

Information like disclaimers found on the Internet

This node codes 1 document.

(12 7 4 1) /Technology/Disadvantages/Law/Hackers

*** Definition:

Reference made directly to hackers or people who may unlawfully access you information on the Internet

This node codes 2 documents.

(12 7 10) /Technology/Disadvantages/Limited services

*** Definition:

There is only so much one can do with certain forms of technology

This node codes 1 document.

(12 7 3) /Technology/Disadvantages/Literacy gap

*** Definition:

The speaker seems to identify a gap a knowledge gap between those who are computer literate and those are not

This node codes 2 documents.

(12 7 8) /Technology/Disadvantages/Security

*** Definition:

Information regarding security on the Internet

This node codes 7 documents.

(12 7 6) /Technology/Disadvantages/Self destruction

*** Definition:

References made to the wiping out of the human race due to the use of technology

This node codes 3 documents.

(12 7 11) /Technology/Disadvantages/Untrustworthy

*** No Definition

This node codes 0 documents.

(12 2) /Technology/Extensive

*** Definition:

Use computers and other forms of technology all the time

This node codes 2 documents.

(12 9) /Technology/Future of banking

*** Definition:

All the predictions that the consumers make about banking in the future

This node codes 2 documents.

(12 9 5) /Technology/Future of banking/ATMs

*** No Definition

This node codes 1 document.

```

*****
*****
(12 9 6) /Technology/Future of banking/Cash
*** No Definition
This node codes 1 document.
*****
*****
(12 9 2) /Technology/Future of banking/Cashless
society
*** Definition:
The push to using cards instead of cash or paper money
This node codes 6 documents.
*****
*****
(12 9 4) /Technology/Future of banking/Good service
*** Definition:
This refers to the personalised service received in the Brick and
Mortar branches
This node codes 2 documents.
*****
*****
(12 9 1) /Technology/Future of banking/Internet
*** Definition:
Information about there being a push to use Internet banking
This node codes 4 documents.
*****
*****
(12 9 3) /Technology/Future of banking/Telephone
*** No Definition
This node codes 2 documents.
*****
*****
(12 8) /Technology/Jobs
*** Definition:
These are all the references made to people loosing their jobs
because they are being replaced by machines
This node codes 6 documents.
*****
*****
(12 3) /Technology/Limited Use
*** No Definition
This node codes 4 documents.
*****
*****
(12 5) /Technology/Ownership period
*** Definition:
Length of time the respondent has had a computer
This node codes 2 documents.
*****
*****
(12 5 1) /Technology/Ownership period/'Grown with'
*** Definition:
When 'growing up' with technology or computers is seen as a factor
to technology adoption
This node codes 6 documents.
*****
*****
(12 1) /Technology/Society
*** Definition:
The impact the respondent think technology has had on humanity.
Regardless of the type of technology
This node codes 2 documents.
*****
*****
(12 1 3) /Technology/Society/complacent
*** Definition:

```

Where users of technology are said to become complacent as a result of reliance on technology

This node codes 7 documents.

(12 1 2) /Technology/Society/Decay

*** No Definition

This node codes 7 documents.

(12 1) /Technology/Society/Fear

*** No Definition

This node codes 7 documents.

Appendix D: Survey Cover Letter and Questionnaire

SURVEY COVER LETTER

Dear Mrs. Smith,

Re: ATTITUDES TOWARDS ELECTRONIC BANKING

The following is a questionnaire seeking your attitudes towards electronic banking transactions, which include the use of Automatic Teller Machines (ATM), Electronic Funds Transfer at Point of Sale (EFTPOS), Telephone banking and Online (Internet) banking. The aim of the study is to determine consumers' attitudes towards electronic banking and the extent to which these attitudes affect their levels of satisfaction and/or dissatisfaction with electronic banking services.

As the questionnaire doesn't identify you as an individual your anonymity and confidentiality are guaranteed. The questionnaire should take approximately 10 minutes to complete. Upon completion, please return it in the prepaid envelope that has been provided by 31 May 2001.

Thank you for your time and co-operation. Should you have any queries regarding the questionnaire please do not hesitate to contact either Ms Catherine Munene, School of Marketing, Tourism and Leisure, Edith Cowan University, Churchlands campus, Telephone: [REDACTED] E-mail: c.munene@ecu.edu.au or Dr. Katherine Mizerski, Senior Lecturer, School of Marketing, Tourism and Leisure, Edith Cowan University, Churchlands campus, Telephone: (08) 9273 8517, E-mail: k.mizerski@ecu.edu.au.

Yours Sincerely,

Catherine Munene

QUESTIONNAIRE

EFTPOS

1. Do you use EFTPOS machines?

(Please tick the appropriate box)

Yes No ☞ go to Q4

2. How often do you use EFTPOS machines?

1 – 4 times a month.

5 – 12 times a month.

More than 12 times a month.

Other _____

3. Listed below are a series of statements. Please indicate the extent to which you agree or disagree with each of the statements by circling the number that best describes your feelings.

	Strongly Disagree			Strongly Agree		
a) EFTPOS transactions are easy	1	2	3	4	5	6
b) EFTPOS transactions are fast	1	2	3	4	5	6
c) The cost of EFTPOS transactions is high	1	2	3	4	5	6
d) EFTPOS facilities are always available when I need to use them.	1	2	3	4	5	6
e) I sometimes make mistakes during EFTPOS transactions.	1	2	3	4	5	6

AUTOMATIC TELLER MACHINES (ATMs)

4. Do you use ATMs?

Yes ☞ go to Q6 No ☞ go to Q5

5. Why don't you use ATMs?

☞ go to Q9

6. How often do you use ATM machines?

- 1 – 4 times a month.
- 5 – 12 times a month.
- More than 12 times a month.
- Other _____

7. What do you use ATMs for?

(Please tick ALL categories that apply)

- | | |
|---|--|
| <input type="checkbox"/> Cash withdrawal | <input type="checkbox"/> Check account balance |
| <input type="checkbox"/> Cash deposit | <input type="checkbox"/> Cheque deposit |
| <input type="checkbox"/> Transfer funds | <input type="checkbox"/> Bill payment |
| <input type="checkbox"/> Order account statements | <input type="checkbox"/> Other _____ |

8. Listed below are a series of statements. Please indicate the extent to which you agree or disagree with each of the statements by circling the number that best describes your feelings.

	Strongly Disagree			Strongly Agree		
a) I am forced to use ATMs.	1	2	3	4	5	6
b) ATMs are easy to use.	1	2	3	4	5	6
c) The cost of ATM transactions is high.	1	2	3	4	5	6
d) It is easy to find an ATM when I need to use one.	1	2	3	4	5	6
e) I fear being attacked when using an ATM.	1	2	3	4	5	6

	Strongly Disagree					Strongly Agree
f) I sometimes make mistakes during ATM transactions.	1	2	3	4	5	6
g) ATM transactions are fast.	1	2	3	4	5	6
h) It is risky to deposit money through an ATM.	1	2	3	4	5	6
i) Help is readily available when an ATM is not working.	1	2	3	4	5	6
j) I only use my bank's ATMs.	1	2	3	4	5	6

TELEPHONE BANKING

9. Do you use Telephone banking?

Yes ☞ go to Q11 No ☞ go to Q10

10. Why don't you use Telephone banking?

☞ go to Q16

11. How often do you use Telephone banking?

- 1 – 4 times a month.
- 5 – 12 times a month.
- More than 12 times a month.
- Other _____

12. Where do you do most of your telephone banking from?

(Please tick ALL categories that apply)

- Home
- Work
- Other (Please specify) _____

13. When do you do most of your telephone banking?

(Please tick ALL categories that apply)

- 12.00am – 7.59am
- 8.00am - 11.59am
- 12.00pm – 4.59pm
- 5.00pm – 8.59pm
- 9.00pm – 11.59pm

14. What do you use telephone banking for?

(Please tick ALL categories that apply)

- Check account balance. Credit card payment
- Transfer funds. Bill payment (Bpay).
- Check last 5 transactions. Order account statement.
- Change security code Order a Cheque book.
- Other _____

15. Listed below are a series of statements. Please indicate the extent to which you agree or disagree with each of the statements by circling the number that best describes your feelings.

	Strongly Disagree					Strongly Agree
a) The cost of telephone banking transactions is high.	1	2	3	4	5	6
b) Telephone banking is easy.	1	2	3	4	5	6
c) I always listen to all the voice prompts during telephone banking.	1	2	3	4	5	6
d) The voice prompts in telephone banking take too long.	1	2	3	4	5	6

	Strongly Disagree				Strongly Agree
e) I always write down my receipt number after telephone banking.	1	2	3	4	5 6
f) I sometimes make mistakes during telephone banking.	1	2	3	4	5 6
g) Telephone banking mistakes are difficult to correct.	1	2	3	4	5 6
h) Help is readily available when I make mistakes during telephone banking.	1	2	3	4	5 6

ONLINE BANKING

16. Do you use Online banking?

Yes ☞ go to Q18 No ☞ go to Q17

17. Why don't you use Online banking?

☞ go to Q24

18. How do you access your Online bank accounts?

(Please tick ALL that apply)

- Through my bank's Internet Web site.
- By downloading to my computer software provided by my bank.
- Other _____

19. How often do you use Online banking?

- 1 – 4 times a month.
- 5 – 12 times a month.
- More than 12 times a month.
- Other _____

20. Where do you do most of your Online banking from?

(Please tick ALL that apply)

- Home
- Work
- Other (Please specify) _____

21. What time do you do most of your Online banking?

(Please tick ALL categories that apply)

- 12.01am – 7.59am
- 8.00am - 11.59am
- 12.00pm – 4.59pm
- 5.00pm – 8.59pm
- 9.00pm – 11.59pm

22. What do you use online banking for?

(Please tick ALL that categories that apply)

- | | |
|--|---|
| <input type="checkbox"/> Check account balance. | <input type="checkbox"/> Credit card payment. |
| <input type="checkbox"/> Transfer funds. | <input type="checkbox"/> Bill payment (Bpay). |
| <input type="checkbox"/> Order account statement. | <input type="checkbox"/> Order a Cheque book. |
| <input type="checkbox"/> Change security code | <input type="checkbox"/> Credit card application |
| <input type="checkbox"/> Change of address | <input type="checkbox"/> Stop a Cheque |
| <input type="checkbox"/> Make periodical payments | <input type="checkbox"/> Add a frequent biller |
| <input type="checkbox"/> Order an Interest statement | <input type="checkbox"/> Order a new deposit book |
| <input type="checkbox"/> Other _____ | |

23. Listed below are a series of statements. Please indicate the extent to which you agree or disagree with each of the statements by circling the number that best describes your feelings.

	Strongly Disagree			Strongly Agree		
a) Online banking is easy.	1	2	3	4	5	6
b) Online banking transactions are fast.	1	2	3	4	5	6
c) I always print my receipt after Online banking.	1	2	3	4	5	6
d) I always write down my receipt number after Online banking.	1	2	3	4	5	6
e) Online banking transactions are secure.	1	2	3	4	5	6
f) I sometimes make mistakes during Online banking.	1	2	3	4	5	6
g) I like Online banking because I can see my accounts.	1	2	3	4	5	6
h) The cost of online banking transactions is high.	1	2	3	4	5	6
i) Online banking mistakes are easy to correct.	1	2	3	4	5	6

GENERAL BANKING QUESTIONS

24. The following is a series of statements regarding the use of EFTPOS, ATM, telephone and/or Online banking (Electronic banking). Please indicate the extent to which you agree or disagree with each of the statements by circling the number that best describes your feelings.

	Strongly Disagree			Strongly Agree		
a) I am forced to use electronic banking.	1	2	3	4	5	6
b) I like electronic banking because it allows me to manage my own money.	1	2	3	4	5	6
c) I always remember my Personal Identification Number (PIN).	1	2	3	4	5	6
d) I find it easy to pay my bills electronically.	1	2	3	4	5	6

Strongly **Strongly**
Disagree **Agree**

- | | | | | | | |
|--|---|---|---|---|---|---|
| e) Electronic banking allows me to make sure my transactions are done correctly. | 1 | 2 | 3 | 4 | 5 | 6 |
| f) It is difficult to get help using electronic banking. | 1 | 2 | 3 | 4 | 5 | 6 |
| g) I can get the information I need easily using electronic banking. | 1 | 2 | 3 | 4 | 5 | 6 |
| h) Electronic banking allows me to avoid waiting in lines. | 1 | 2 | 3 | 4 | 5 | 6 |
| i) Electronic banking gives me access to other Financial Institutions. | 1 | 2 | 3 | 4 | 5 | 6 |

DEMOGRAPHICS

25. What is your age?

- | | |
|---|---|
| <input type="checkbox"/> 18 to 25 years | <input type="checkbox"/> 46 to 55 years |
| <input type="checkbox"/> 26 to 35 years | <input type="checkbox"/> 56 to 65 years |
| <input type="checkbox"/> 36 to 45 years | <input type="checkbox"/> 66 years and over. |

26. What is your gender?

- Male
- Female

27. What is your highest educational qualification?

- | | |
|---|--|
| <input type="checkbox"/> Primary School | <input type="checkbox"/> Completed Year 12 |
| <input type="checkbox"/> Undergraduate degree | <input type="checkbox"/> Diploma |
| <input type="checkbox"/> Postgraduate degree | <input type="checkbox"/> Trade certificate |
| <input type="checkbox"/> Other (please specify) _____ | |

29. What is your annual income before tax?

- Less than \$ 9 999
- \$10 000 to \$ 19 999
- \$20 000 to \$29 999
- \$30 000 to \$39 999
- \$40 000 to \$49 999
- \$50 000 to \$59 999
- \$60 000 and over.

29. Which of the following best describes your occupation?

- Manager and Administrator
- Professional
- Paraprofessional
- Tradesperson
- Clerk
- Sales and Personal services
- Plant and Machine operator
- Labourer
- Homemaker
- Student
- Other (Please specify) _____

30. General Comments:
