Customer behaviours and online banking in New Zealand

A thesis presented in partial fulfilment of the requirements for the degree of

Doctor of Philosophy

In

Banking

At Massey University, Manawatū campus, New Zealand.

Saba Azeem

2020

Abstract

Recent technological developments in the financial sector have led to renewed interest in studying bank-customer relationships. The present study examined the effects of six demographic characteristics (i.e. age, gender, household income, education, employment and marital status) on the use of online banking in New Zealand. Three research questions were addressed: How do different personal characteristics affect customers' use of online banking? How do these characteristics interact with each other in affecting customers' use of online banking? and How do different characteristics affect the key factors that form users' perceptions of online banking usefulness?

We used a three-pronged data collection methodology including four focus group discussions an online survey and twenty-six qualitative interviews. The survey was taken by 758 respondents and the completion rate was 76%. A range of descriptive and empirical analytics were used and strong effects of customer demographics on online banking use were found. The explanatory power of the six characteristics was examined using stepwise backward regression modelling while ANOVA tests confirmed interactive effects between combinations of characteristics. Through Principal component analysis, we identified a subset of four key constructs to represent the major areas of themes where customer perceptions differ regarding the use of online banking. Ordinal logit regression determined how perceptions differ on the basis of the differences in demographics.

Academically, this research examines the predictive utility of demographic characteristics in explaining New Zealanders' use of online banking technologies from both banking and marketing perspectives. Expanding on demographic relationships as proxies for deeper drivers of behaviours, this study offers practical lessons for effective segmentation and engagement strategies. It reminds banks that understanding customer personas is the first step to effective targeting or personalization. This is critical in developing customer-centric banking in New Zealand and other regions.

Acknowledgements

My sincere gratitude goes to my main supervisor, Prof. David Tripe and co-supervisor, Associate Professor Claire Matthews. I have been extremely lucky to have supervisors who cared so much about my work, and who responded to my questions so promptly. I am grateful for everything that I have learned from them.

I thank Massey University for the tremendous opportunities for research students, such as the Three-Minute thesis competitions and PhD symposiums. My gratitude goes out to Tracey Reilly and Julia Rayner in the Graduate Research School for their support with PhD students' concerns. I would like to also acknowledge the honour of receiving Massey University's Promising Student Bursary in 2018.

I thank my friends (from Pakistan and New Zealand) for giving me the gift of friendship that I will always treasure. I would like to thank my Massey work colleagues Jamie Hooper, Tian Yang, Dianne Reilly and Silvia Hooker for sharing laughter and wiping tears. I remain indebted to Terry and Jenny McGrath (from International Education Association (ISANA)) for their kindness, care and friendship for all international students.

Thanks to my dearest sister, Fatima Azeem, whom I share parents, childhood memories and a sacred bond with. I am abundantly grateful to my dear husband, Raja Junaid Tahir for being my rock and for believing in me even when I did not believe in myself.

Thank you is a small word to express my gratitude for my mother who has made immense contributions to my success and well-being. I have nothing but the utmost appreciation and admiration for all the years my mom had spent raising her children as a single parent while working full-time as a doctor.

I dedicate this piece of work to the loving memory of my late grandfather, Ahmed Niaz, who left the world in 2013 but whose words of inspiration and encouragement will forever echo in my heart and mind. "Your BG did it", Nana.

Any omission in this brief acknowledgement does not mean lack of gratitude. God bless you all.

Thesis related research outcomes

Papers from this thesis have been presented at the following conferences:

- The 24th Annual New Zealand Finance Colloquium, 13-14 February 2020, Auckland, New Zealand.
- The 32nd Australasian Finance and Banking Conference (AFBC), 16-18 December 2019, Sydney, Australia.
- The New Zealand Association of Economists (NZAE) Conference, 3-5 July 2019, Wellington, New Zealand.
- The 23rd New Zealand Finance Colloquium, 13-14 February 2019, Christchurch, New Zealand
- The 22nd Annual New Zealand Finance Colloquium, 8-9 February 2018, Palmerston North, New Zealand.
- The PhD symposium of the 21st Annual New Zealand Finance Colloquium, 9-10 February 2017, Auckland, New Zealand.
- Paper accepted for presentation at the 10th International Conference of the Financial Engineering and Banking Society (FEBS), 6-9 August 2020, Chania, Greece. *This event has since been cancelled.*

Contents

List of Tables

List of Figures

Chapter 1. Introduction

1.1. Context

Online banking has evolved from simple information delivery into a complete financial transactions channel. Within electronic commerce, online banking has become pervasive because it enables control over personal accounts with online payments, transfers, deposits, and updates. Other benefits include reduced transactions costs and resource requirements, improved customer service, widened customer outreach, and operational efficiencies (Jayawardhena & Foley, 2000; Tam & Oliveira, 2017). While online banking leads to changes in production costs and profitability for banks, it also affects customer behaviours by improving the quality of products and services and enabling access to banking services on-the-go. This means increased convenience, flexibility, accessibility, affordability and overall better money management for bank customers (Polasik & Wisniewski, 2009; Röcker & Kaulen, 2014; Tan & Teo, 2000).

Reflecting the introduction of user-friendly technologies such as wireless Internet, the global business sector changed its business models, to now cater for more customers seeking sophisticated electronic and mobile-based service platforms (Watson, 2016). This has caused paradigm shifts in banks' value chain. According to van Deventer, de Klerk, and Bevan-Dye (2017), although the traditional banking model remains applicable in a digital age, retail banks must revisit their business models to enable innovation, manage the risks of technology adaptation and obtain an information advantage. Any solutions banks pursue must fulfil regulatory requirements and create positive bank-customer experiences (Watson, 2016). It is important to recognize that online banking services are no longer 'nice to have' but are essential to keep up with competition, regardless of the size of the financial institution (Knight, Hall, Whitmire, & Hall, 1999; Marr & Prendergast, 1994a; Tran & Corner, 2016; Woodley, 2016).

The relevance and importance of customer-focussed online banking has been studied extensively (Adapa & Roy, 2017; Berenguer et al., 2016; Hanafizadeh, Keating, & Khedmatgozar, 2014; Komulainen & Saraniemi, 2019; Lee, Chang, Lin, & Cheng, 2014; Shaikh & Karjaluoto, 2015; Veríssimo, 2016). Although the benefits of online banking are clear, there are remarkable gaps in what banks perceive as the best solution and how customers might

prefer their relationship with their bank(s) to look. Without sufficient knowledge of customer perceptions of online banking and how changes to personal characteristics can affect its use, institutions cannot successfully avail themselves of Internet-enabled service delivery channels (Sarel & Marmorstein, 2007).

Customers do not want to know about the difficulties of building top-notch customer experiences; they will switch to other banks and financial institutions if their needs are not met. The core of customer relationship management lies in the belief that unless banks understand and address customer needs, they cannot retain valued customers or develop a customer-focussed banking culture (Marr & Prendergast, 1994b; Nielsen, 2002; Sarel & Marmorstein, 2007). It is therefore vital that financial institutions understand what makes their customers happy, and are able to provide positive experiences based on in-depth analysis at transactional, attitudinal and behavioural levels (Piercy, Campbell, & Heinrich, 2011).

This research seeks to explore the relationship between banks and customers by investigating the critical elements shaping customers' decisions about using online banking platforms. Such data must be harnessed to attract and engage customers, anticipate their needs, build brand loyalty and strengthen bank-customer relationships.

1.2. Statement of the problem

The importance of customers' socio-demographic or personal characteristics in creating positive bank-customer relationships has been discussed in prior research (Milner & Rosenstreich, 2013; Seiler, Rudolf, & Krume, 2013). While prior research places the study of customer behaviour as a top priority for banking marketers, managers, strategists and policymakers, such information is often hard-to-capture in behavioural financial research due to data inconsistencies. Although banks want to identify customer needs through meaningful interactions, understanding customer behaviour is often complex in the digital marketplace.

The main problem that this research deals with is that while modern-age customers can easily spread their loyalties and bank with multiple financial institutions, creating and maintaining mutually beneficial relationships has become increasingly challenging for banks. Understanding key market characteristics has become more difficult as customers' attitudes towards banks changed. Hence, the need for a strategic focus on targeting and maintaining the right kind of customers is crucial.

1.3. Purposes: aim and objectives

This study aims to investigate the effects of personal characteristics on the use of the online banking service channel in New Zealand with a fresh perspective. It refines the current understanding of customer behaviours in the New Zealand banking industry. The following are the overarching research objectives (ROs):

RO₁: To understand how differences in customers' age, gender, household income, marital status, employment status and education influence New Zealand banking customers' ways of online banking, and

RO₂: To explore how New Zealand banking customers perceive the use of online banking.

These ROs lead to the research questions and related hypotheses, which are addressed using empirical evidence in the following chapters.

1.3.1 Research questions and hypotheses

We briefly link each research question to prior studies to identify the main themes that guide and shape this research and explore the basis of the hypotheses. Detailed review of prior studies and the rationale for each hypothesis including the choice of personal characteristics is set out in the next chapter.

Understanding customer demographics

RQ1: How do different personal characteristics[1] affect customers' use of online banking?

While prior studies in behavioural finance, bank marketing and consumer behaviour focus on consumption attitudes and intentions, there is a need to narrow the gap between intentions and consumption behaviour (Bennett, Maton, & Kervin, 2008; Carrington, Neville, & Whitwell, 2010). This research takes into account self-reported behaviours of online banking users and draws insights into their usage frequency and types of usage, having regard to their personal characteristics.

Transactional data on frequency and experience of using a banking channel is deemed a predictor of customer value; however, too much focus on transactional data diverts attention from attitudinal loyalty i.e. customers' feelings about using a product or service

---

[1] The term "personal characteristics" refers to a person's age, gender, marital status, education, employment and household income.

(Kang, Lee, & Lee, 2012). The complete customer picture cannot be ignored for mutually beneficial relationships. This research focuses both on the general usage patterns of online banking users and their perceptions of online banking to explore the complete customer picture. Closing this gap requires addressing issues that were raised by the respondents throughout this research. In the light of the foregoing discussion, the following hypotheses are developed:

> **H_1:** *There is a negative relationship between age and online banking use.*
>
> **H_2:** *Online banking use differs by gender.*
>
> **H_3:** *Online banking use differs by marital status.*
>
> **H_4:** *There is a positive relationship between education and online banking use.*
>
> **H_5:** *Online banking use differs by employment status.*
>
> **H_6:** *There is a positive relationship between household income and online banking use.*

Understanding interrelationships between personal characteristics

The second research question considers the interaction of personal characteristics.

RQ2: How do users' personal characteristics interact with each other in affecting their use of online banking?

This research goes beyond individual demographic effects to study the interrelationships between different personal characteristics that can influence online banking use. It extends the existing literature on demographic effects on online banking use by considering the interactions between different variables (Xue, Hitt, & Chen, 2011). We understand that customers make financial decisions in different life circumstances and that those decisions may result from a combination of different personal characteristics triggered by life circumstances (for example, when a fresh graduate gets a new job, when a married or co-habiting couple pools their money to handle household expenses, when parents send money to their children settled abroad etc.).

The following hypotheses evaluate the connection between the six personal factors that influence usage and the resulting changes in usage outcomes and overall behaviour of the

users. The moderating characteristics in the below hypotheses are distinct from the specific characteristic whose effects are being moderated.

H_7: One or more personal characteristics moderate the relationship between age and online banking.

H_8: One or more personal characteristics moderate the relationship between gender and online banking.

H_9: One or more personal characteristics moderate the relationship between education and online banking.

H_{10}: One or more personal characteristics moderate the relationship between employment status and online banking.

H_{11}: One or more personal characteristics moderate the relationship between household income and online banking.

H_{12}: One or more personal characteristics moderate the relationship between marital status and online banking.

Perceptions of usefulness

The third research question explores the formation of users' perceptions of online banking.

RQ3: How do different personal characteristics affect the key factors that form users' perceptions of online banking usefulness?

Prior research indicates it is crucial for banks and other financial service providers to understand customers' beliefs, attitudes and perceptions regarding their capacity to learn and use online banking to meet their financial needs (Walker & Johnson, 2006). The use of mobile devices for online banking use requires capabilities in handling the website or the app. People unfamiliar with the use of smartphones, tablets or iPhones can face issues in operating them. Once the rationale behind customers' preference for online is understood, banks can explore how customers differ in their behaviours and attitudes towards learning how to use different products and services (Coskun, 2014; Geng, Abhishek, & Li, 2015; Walker & Johnson, 2006).

H_{13}: One or more personal characteristics affect users' perceptions of learning new things in an online banking environment.

Martins, Oliveira, and Popovič (2014) discuss perceived risks as an obstacle to online banking adoption. Security risks and lack of trust in technology remain a problem for online banking users who are sceptical about the safety of the channel in accessing their financial and personal information (Boonlertvanich, 2019; McNeish, 2015). Hence, the following hypothesis is explored:

H_{14}: One or more personal characteristics affect users' perceptions of security in an online banking environment.

Numerous prior studies distinguish between factors attributable to the success of online banking over branch banking (Arora & Sandhu, 2018; Mols, 1998a; Polatoglu & Ekin, 2001). To neutralize deficiencies and maintain interactions with banking customers, these studies explored how a combination of digital and in-person banking experience can be desirable for customers. Convenience is one of the most influential factors distinguishing online banking from branch banking, while personal contact with branch staff for sensitive,

advice-related matters is still desirable (Lichtenstein & Williamson, 2006). Li, Kuo, and Rusell (1999) highlight the contributions of convenience and accessibility in moving customers from branch to digital channels. Another team of researchers find exploring specific characteristics affecting customers' intentions to shop online reveals their intention to sacrifice the "touch and feel" attributes of in-store transactions; hence their preference for convenience and customer service are the main motivators to bank on the Internet (Geng et al., 2015; Li et al., 1999). This leads to the following hypotheses:

H$_{15}$: One or more personal characteristics affect users' perceptions of the convenience of online banking.

H$_{16}$: One or more personal characteristics affect users' perceptions of the customer service features in an online banking environment.

Understanding customers' lives requires a deeper understanding of their perceptions of financial management (Komulainen & Saraniemi, 2019). Prior research finds an association between household characteristics, financial decision making and economic choices (Bertocchi, Brunetti, & Torricelli, 2014). This suggests customers' experience with online banking as a financial management tool can be multi-faceted, and a deeper understanding is required about how it improves the management of financial budget. The following hypothesis tests the relationship between personal characteristics and budget management:

H$_{17}$: One or more personal characteristics affect perceptions of budget management in an online banking environment.

Age-based attitudes permeate the online banking world, where differences in its use on the basis of age can be observed (Zhang, 2005). Improving the overall customer experience requires insights into areas where customers need personalized services to supplement the generic "one-size-fits-all" solutions available over banks' websites. Willingness to learn can also differ based on one's age or other personal characteristics (Islam, 2011; Zickuhr, 2013). This leads to the following hypothesis:

H$_{18}$: The user's age affects their attitudes towards online banking.

Personal banking experience also affects customers' choice of banking channel, and their overall satisfaction with the particular delivery channel (Karjaluoto, Mattila, & Pento,

2002; Mattila, Karjaluoto, & Pento, 2003; White & Yanamandram, 2004). The hypothesis (H_{19}) is proposed, keeping in mind customers' relationship with their banks, and how personal interactions with bank staff can affect their choice to go completely online (Aboobucker & Bao, 2018; Safeena, Kammani, & Date, 2014).

H_{19}: One or more personal characteristics affect users' preference for personal interactions at a bank branch.

Despite the accessibility and convenience of the online banking channel, there are practical challenges that can impede customers' adoption of and satisfaction with it. We talk about hardware requirements for online banking where the use of mobile phones, smartphones, tablets and other portable devices is gaining popularity against desktop or laptop-based use. This can lead to performance risk in case of breakdowns, repairs and maintenance requirements (Khedmatgozar & Shahnazi, 2018). Entry into the mobile banking environment necessitates a functional device for access to it. The overall convenience of bank websites has been found to positively and significantly affect customers' interactions with the bank, and is also a major reason for increased Internet-based interactivity (Kumar, Sachan, & Kumar, 2020). In the light of these insights, the following hypothesis is proposed:

H_{20}: One or more personal characteristics affect users' perceptions of the hardware requirements of the online banking environment.

1.4. Rationale

This section explains why we have chosen online banking channel as our focus, why we have studied demographic characteristics out of other possible variables or factors, and why we selected New Zealand as our case country.

This study is based on studying the online banking medium for three distinctive reasons: firstly, data regarding online banking was more convenient to find as it has become the most pervasive banking channel/platform. Secondly, the study of the online banking channel was deemed a current research problem, as customers' attitudes, perceptions and experiences with the use of this channel has become remarkably different. Hence, using this as our focal point, we could study customer dynamics in great breadth and depth. Thirdly, because of the global technological advancements, digitisation in banking has become inevitable. In such cases, banks or financial institutions are seeking new ways of innovating and improving

customers' digital experiences. Choosing to study the online banking channel reflects our intentions of informing bank practices and strategies for positive outcomes for banks and customers.

Our selection of age, gender, education, employment status, household income and marital status as key demographic characteristics is based on our understanding of the importance of these factors in shaping customer personas and driving their decisions. Based on our review of prior studies, we identify these demographics as the key forces or drives in the online banking environment using which banks can quickly and conveniently micro-segment their customers and develop customized banking solutions and strategies. A detailed discussion on how these six characteristics inform marketing initiatives and strategies is given towards the end of section 2.4.

New Zealand's readiness in 'capitalizing' upon the benefits of global e-commerce has rapidly increased from 2000 onwards (Evans, de Boer, & Howell, 2000; Liassides, 2019; Smith, Gibson, Crothers, Billot, & Bell, 2011; Tran & Corner, 2016). According to Nielsen's 2017 report on e-commerce, New Zealand's smartphone penetration rate was 85%. (Nielsen, 2017). We conducted this study in New Zealand because of two reasons: a) New Zealand is a small advanced economy, which makes it a reasonably suitable population frame to study about different customer segments within the banking industry, and b) New Zealand customers have been quick to take up contactless payments and Internet banking technologies. This progress, along with government and regulatory support to digitisation, are the major reasons behind the country's rising Internet banking adoption rates. This is also why New Zealand is generally a 'guinea pig' or 'testing ground' for digital companies to user-test their products and services (The Economist, 2015).

Past analyses of New Zealand's high and early adoption of EFTPOS indicates a strong degree of customer comfort in the use of and demand for Internet banking products and services (Crothers, Smith, Urale, & Bell, 2016; Evans et al., 2000; Paymark, 2019). New Zealand is a technophile country with its early adoption of the Internet, smartphone adoption, software and app development, e-commerce activity etc. This is used as a yardstick in banking against which the country's future Internet banking potential and electronic commerce performance can be determined.

1.5. Procedures

The study used three methods to collect data. Focus group discussions were aimed at generating initial themes for developing the survey and key themes were extracted from these. The main data collection strategy was an online survey administered to New Zealanders through a range of recruitment channels (face-to-face, online sampling and sampling from personal and social networks). Data were analysed using cross-tabulation and linear regressions while attitudinal, Likert-scale statements were analysed using principal component analysis, multiple and ordinal regression models. Follow-up interviews were completed with a subset of survey respondents to explore personal experiences in greater depth. A detailed discussion of the research design and methodologies is found in the third chapter.

1.6. Definitions of key terms

It is important to provide the conceptual definitions of the specialized terms used in the research.

Online banking or Internet banking is an electronic payment system that enables customers to perform transactions online via the Internet. This channel can be accessed by any individual having a bank account, a device (computer, smartphone or tablet) and an Internet connection. Some studies refer to online banking as home banking, PC banking, remote banking, virtual banking, mobile banking, phone banking etc.

Demographic or personal characteristics refer to the classifiable characteristics that differentiates populations on the basis of age, gender, marital status, education, household income, employment and other factors. These characteristics make up the social profile of customers and offer information about customer segments.

Mobile banking or phone banking refers to financial transactions done remotely through mobile phones (both Apple and Android phones) or tablets using software applications (short form: apps).

1.7. Summary of contributions

This research updates and extends earlier research on the role of personal demographics in behavioural finance and builds on that to offer a New Zealand-based perspective. It contributes to prior literature on customer characteristics and confirms their role in describing customer behaviour. Academically, this research aids in establishing a better

rationale for customers' adoption of online banking and offers in-depth insights into how New Zealand banking customers use online banking.

This paper does not only touch on the personal circumstances affecting customers' decisions to use online banking but also addresses how banks can benefit from a resulting strengthened bank-customer relationship. It makes an addition to a limited number of Australasian studies on customers' perspectives on online banking (Clemes, Gan, & Du, 2012; Lichtenstein & Williamson, 2006; Sathye, 1999), rather than an institutional focus (Rod, Ashill, Shao, & Carruthers, 2009; Watson, 2016). This adds to the value of the research in uncovering and examining the basic demographic factors that cause customers to react to online banking.

Most global research focusses on inclination to adopt or the initial adoption environment, for example Berkowsky, Sharit, and Czaja (2018), Izogo, Nnaemeka, Onuoha, and Ezema (2012), and Karjaluoto, Koenig-Lewis, Palmer, and Moll (2010). While previous studies mainly dealt with Internet adoption as a binary variable (either consumers adopted technology or have not adopted it), this research is focused on different stages of the usage continuum, involving frequency and intensity of use. Reflecting the recent importance of the online banking channel in relation to COVID-19, this research explores how banks can support cashless payments and other online services, and how creating and maintaining an online presence requires restructuring the branch-banking channel and revisiting branch-services that can now be offered online. There has been limited previous research into the intricacies involved in the 'actual' usage of technologies.

Exploring the relationship between customers' personal characteristics and online banking use, this research provides bank marketers with an understanding of social environment effects on customer behaviour and how they can benefit from a customer-oriented approach. It offers insights into why some customers prefer visiting branches for some financial needs and why branch-banking is still deemed useful by some, if not all, customer segments. It brings together the experiences and perspectives of online banking users to deepen our understanding of customers' motivations for adopting online banking technologies and how the migration from offline to online channels can further be reinforced.

1.8. Thesis roadmap

The organization of the remainder of this thesis is:

- Chapter 2 reviews existing research to develop the hypotheses based on past research insights and develops a conceptual framework.

- Chapter 3 outlines and discusses the methods employed to collect and analyse the data and test the hypotheses. It provides justifications for the methodological approach, discusses data collection processes in detail, describes methods of data analysis, and discusses ethics and limitations.

- Chapter 4 reports the findings of the study, which are organized according to the data collection methods employed i.e. focus groups, online survey and follow-up interviews.

- Chapter 5, the final chapter, evaluates the results, discusses their relevance to the research questions and develops an argument for the overall findings. It reiterates and summarizes the key points and discusses the limiting factors that lead to future research opportunities.

1.9. Chapter Summary

The introductory chapter has discussed how the development of information technology and digital banking channels present banks with the challenges of changing customer demographics and their effects on customer behaviour. The main problem this research deals with is the challenge for banks of developing the right tools and positioning strategies, where customers have more variety of services and features than in the traditional branch banking environment and they can easily bank with multiple providers. The main aim of this study is to examine the effects of personal characteristics on online banking use in New Zealand.

The main objectives of this research are in two key areas: a) how bank customers use online banking, and b) how bank customers perceive online banking. We develop testable hypotheses to aid the accomplishment of the research objectives. There are three research questions, each of which evaluates an aspect of customer behaviour that can be affected by the personal characteristics. We offer definitions of the specialized terms used throughout this thesis. Based on the contributions of the study, this research seeks to enrich the understanding of expectations and requirements of the bank-customer relationship and justifies the adoption of a customer-oriented approach in the development of bank marketing strategies.

Chapter 2. Prior research review and hypothesis development

This chapter discusses how online banking became a mainstream banking channel and the drivers of technological change in the sector. It explores the role of key personal characteristics that can affect customers' use of online banking. The chapter also discusses the contributions and challenges of demographic research. Literature gaps are identified in the New Zealand context, which establishes the relevance of the study. Hypotheses are developed based on an understanding of the relationship between personal demographics and online banking. Towards the end of the chapter, a conceptual framework is developed, which represents our synthesis of prior studies.

2.1. Drivers of technological change in banking

As a self-service banking channel, online banking has made it convenient for customers to perform financial transactions using their personal computers, mobile phones or smartphones and an Internet connection. According to Tan and Teo (2000), online banking first developed as an information medium for marketing banking products and services; with the passage of time, it transformed into a transactional channel enabling banks to offer a range of other functions. The development of online banking as an alternative service delivery channel was a response to profitability pressures (Martins et al., 2014; Pikkarainen, Pikkarainen, Karjaluoto, & Pahnila, 2004; Sarel & Marmorstein, 2003; Zhou, Geng, Abhishek, & Li, 2020). Xue et al. (2011) find banks have three main motives behind the digitisation of banking services: a) to provide banking services across multiple channels (such as ATMs) to cater to increasing service demands, b) to reduce service costs, and c) to boost customer satisfaction and loyalty by making banking services accessible. Online banking benefits banks by reducing costs and increasing profitability (Lerner, 2006). Aladwani (as cited in Ortlinghaus, Zielke, & Dobbelstein, 2019, p. 265) argues the objectives of cutting costs and increasing efficiency were the elementary stage of digital disruption, which most banks have crossed already.

Online banking enables banks to reach out and help the customers more speedily than branch banking (Wijewardena, 2014). Wider outreach helps banks communicate with their current and potential customers. Developing countries use online banking as an opportunity to extend banking services to financially-excluded regions (Abuga & Manyange, 2015;

Eriksson & Nilsson, 2007). In the Chinese context, literature suggests the online banking channel substitutes for physical branches, and that a Chinese bank's provision of online banking services depends significantly on its competitors who are already providing such services (He, You, Li, & Wu, 2019).

The literature stresses that online banking helps with cross-selling opportunities (Tornjanski, Marinkovic, Savoiu, & Cudanov, 2015; Watson, 2016; Weill & Woerner, 2015). Tam and Oliveira (2017) find mobile-banking provides a platform for cross-selling and upselling complex banking products and services. Contradictory studies argue that online banking can lead to a sales-oriented approach, which can be disadvantageous to bank-customer relationships (Barnes, 1994; Howcroft & Durkin, 2000). Bank staff roles can change from being order-takers to being salespeople and consultants, given that customers require assistance for high cost, high-involvement transactions (such as investment advice and lending) while using self-service technologies for routine transactions (see Marr & Prendergast, 1994a).

Changes to the financial landscape, cross-border transactions and competitiveness in a two-sided marketplace have made online banking use ubiquitous. Yet banks must not neglect the challenges of this channel, which can jeopardize service quality. Difficulty in understanding customer perspectives and decreasing customer churn are two main challenges of digital disruption. Using an omnichannel model, financial institutions can seek in-depth knowledge about their customers to understand their needs (Tornjanski et al., 2015; Weill & Woerner, 2015).

2.2. Historic developments

Online banking is a remarkable innovation in the financial sector. Self-service banking technologies evolved as ways of carrying out basic tasks. The launch of Automated Teller Machines (ATMs) in 1967 reduced the cost per transaction for banks, streamlined processes and exploited economies of scale. Another step was the development of Videotex information-delivery systems in 1970s. Videotex/home banking started offering a full spectrum of financial services to its customers from the 1980s. By 1983, more than 100 financial institutions had become involved in videotex/home banking projects including the four major banks in U.S. namely Citibank, Chemical Bank, Chase Manhattan Bank, and Manufacturers Hanover Corporation (Bouwman & Christoffersen, 2012; Cronin, 1998; Shapiro, 1999).

With the launch of an internet-banking portal by the Stanford Federal Credit Union in 1994 and a similar initiative by Wells Fargo, a new era of online banking began (Chrishti & Barberis, 2016). In 1995, Security First Network Bank (SFNB) became the U.S.'s first Internet-only bank. The following two years witnessed further growth of online banking where NetBank emerged as an Internet-only bank followed by Mobil's introduction of Speedpass in 1997 as a cashless payment option (DeYoung, Lang, & Nolle, 2007; Polasik & Wisniewski, 2009). These platforms were convenient and effective points of sale for banks. These innovations meant more payments per hour (time-savings), no cash-handling and additional security along with other synergies (Sarel & Marmorstein, 2003).

Created by IBM, the world's first smartphone was the Simon Personal Communicator (SPC) invented in 1992. This was a multi-purpose mobile device with high-resolution touch screen display and an integrated operating system. The term smartphone actually was not used until three years later (in 1995). Sony Ericsson's smartphone R830 widened the spectra of new and improved mobile-banking models. Customers were able to tap into their bank accounts and access digital banking applications on their phones to conduct financial transactions anytime and anywhere. Bank-customer interactions took place using a Short Messaging Service (SMS) with predefined texts. Global banks realised the scope and portability of smartphone-based SMS banking, and adapted their existing banking structures to the new technology (Abuga & Manyange, 2015; He et al., 2019).

Most people regard Apple's iPhone (launched in 2006) and its Android equivalent as the first smart phones. Apple's launch of its app store in 2008 reflected added convenience for managing money on the go. The apps were a new form of marketing for banks to promote their products and services in customers' personal dashboard or using push notifications. Up until 2017, consumers around the world downloaded 178.1 billion mobile apps (including financial and non-financial apps), a number that is projected to grow to 258.2 billion app downloads by 2022 (Statista, 2018).

The world found its first digital assistant in 2011. Subsequently, digital assistants such as IBM's Watson and Microsoft's Cortana boosted the market acceptance of voice-activated software in carrying out basic electronic tasks (Janarthanam, 2017). The development of the neo-banking landscape was another milestone where certain banks emerged as online-only entities with no physical branches. The first neo-bank Cashplus started in 2005; other well-

known neobanks included Fidor (2009), Revolut (2015) and Monzo (2015). The substantial growth of neobanks was driven by their easy and engaging interface and low-cost structure. Because neobanks do not have complex legal and administrative structures or regulatory requirements, banks used this model to offer full-fledged banking services on a mobile app or on other digital channels (Rosner, 2019).

China's venture into a robot-managed bank branch in 2016 spurred the automation of bank-customer interactions. This period was marked by other developments in artificial intelligence, facial recognition, and virtual reality (Statista, 2018). The Commonwealth Bank of Australia launched its first AI-enabled chatbot Ceba in January 2018. ANZ's Jamie was launched in 2018 to offer basic banking assistance to New Zealand customers. The primary objective of robotic process automation was to help banks and financial institutions streamline routine jobs and leverage the benefits of robots particularly by automating labour-intensive tasks. Messaging-based bot interaction results in cost-savings for a bank where customers can receive round-the-clock consultations in a personalized manner.

It has been predicted that the traditional banking model will be completely replaced by online banking technology by 2030 (Pollari, Bekker, & Jowell, 2019). The collaborative open banking model and neobanks are two major trends that can redefine competitive landscape in the future. The world has been predicted to witness an exponential growth in artificial intelligence and wearable devices (Pollari et al., 2019).

2.2.1 The New Zealand scene

The year 1996 marked the start of online banking services for New Zealand with the introduction of ASB's online banking platform, FastNet Classic (Chung & Paynter, 2002). Similar initiatives were taken by ASB's BankDirect online banking division in October 1997, followed by the Bank of New Zealand (BNZ) and National Bank of New Zealand (NBNZ)[2] in the late-1990s (Chung & Paynter, 2002). In 1999, ANZ launched its online banking services while Westpac Banking Group (Westpac) joined soon after and TSB Bank, in the first quarter of 2001.

The ten main New Zealand banks offering online banking are ANZ Bank NZ, ASB, BNZ, Co-operative Bank, Heartland Bank, HSBC, Kiwibank, SBS, TSB and Westpac. Online banking

---

[2] In 2003, NBNZ was sold to the Australia and New Zealand Banking Group Limited (ANZ) of Australia.

customers use different mobile communication devices and apps on their Apple or Android phones, smartphones and other devices to use online services (Matthews & Ralston, 2011; Tran & Corner, 2016). New Zealand banks offering apps include Westpac, ANZ, BNZ, the Co-operative Bank (NZ), TSB, ASB, HSBC and Kiwibank (see Appendix 1 for a description of different apps). According to Nielsen's 2017 report on e-commerce, smartphone penetration rate in NZ was 85%. (Nielsen, 2017). The increase in online and mobile banking use indicates that it has become mainstream, and both banks and customers benefit from the digitisation of banking services (Du, 2011). New Zealand's readiness in 'capitalizing' upon the benefits of global e-commerce has rapidly increased from 2000 onwards (Evans et al., 2000; Liassides, 2019; Smith et al., 2011; Tran & Corner, 2016).

With ASB bank's launch of New Zealand's first digital personal assistant Josie in 2014, business customers could set up and manage business accounts. Apple Pay was introduced in 2016 offering contactless payments via wireless terminals. In 2018, the launch of Google Pay enabled Android users to pay through their phones. Having regard to the growing demand for mobile and tablet banking, it has been predicted that the coming years will have an even larger customer base for these banking channels in New Zealand (Watson, 2016).

It is all very well for banks to make these products and delivery channels available to their customers, but the challenge for banks is to get customers to use them, so that the anticipated cost savings can be realised. The promise of superior service offerings is only a promise until such time as customers actually get to use them, and if these customers do not know or appreciate that the channels and products they currently use are deficient, why should they embrace change? A challenge that banks face, then, is to get customers to try the new offerings, and to ensure that, when they do, they work in such a way that customers enjoy the experience.

Before we discuss demographic effects and their hypothesized relationships with online banking use, it is important to explain how we define the online banking construct. Online banking construct, in this research, refers to the relationship between banks and their customers, in which the main mode of interaction and transaction is an Internet-mediated channel. This reflects all aspects using which customers use the Internet to do banking, including cash-handling, accessing and using existing bank accounts, or simply contacting bank staff. By this definition, an online banking 'user' is someone who uses the Internet to

contact or transact with their bank(s). This can mean either they are users of only online banking or use online in addition to using the in-branch services.

2.3. Personal characteristics: their effects and hypothesized relationships

Past studies stress the importance of customers' personal characteristics (i.e. age, gender, education, education, household income and marital status etc.) in their adoption and use of online banking (Arora & Sandhu, 2018; Karjaluoto et al., 2010; Kolodinsky, Hogarth, & Hilgert, 2004; Mutengezanwa & Mauchi, 2013; Samli, 2012; Wan, Luk, & Chow, 2005). We discuss each of these six characteristics separately:

Effects of age

There is a widespread agreement that age is a decisive factor in the use of online banking. Research suggests a distinct 'grey divide' is responsible for decreased Internet use by older people (see Alhabash et al., 2015; Friemel, 2016; Oertzen & Odekerken-Schröder, 2019). Aging-associated physical decline and economic and socio-cultural disadvantages can be barriers to older adults' access to Internet services and their use of technology (Lee, Chen, & Hewitt, 2011; Röcker & Kaulen, 2014; Yu, Ellison, McCammon, & Langa, 2016).

Factors that have been studied for a positive effect on older adults' Internet skills include education (see Hargittai & Dobransky, 2017; Hong, Trimi, & Kim, 2016), prior experience of technology use (König, Seifert, & Doh, 2018), income (Hargittai & Dobransky, 2017) and socio-economic status (Hargittai, Piper, & Morris, 2018), and cultural differences (Yuen, 2013). Despite the information divide, the use of smartphones and Internet-led technologies among older age groups depends on prior experience and familiarity with the platform.

The longer people use smartphones, the more adept and receptive to them they become (Hong et al., 2016). In this light, Inglehart (2015) proposes the Generational Cohort Theory for dividing populations according to generational cohorts. Because one generation's expectations and beliefs remain constant during their lifetime, it affects their purchase intentions and technology adoption (Gurău, 2012; Inglehart, 2015). People with greater Internet and computer skills, regardless of their age, report higher willingness to adopt technology (Berkowsky et al., 2018). In contrast, Alhabash et al. (2015) posit that since older people were not exposed to the same technological environment when they were young,

they did not integrate technology in their lives until after retirement. This is why millennials tend to be more tech-savvy than older people.

Some studies note that young people use mobile banking more readily and are less resistant to new technologies than older people (Laukkanen, Sinkkonen, Kivijärvi, & Laukkanen, 2007). Natarajan, Balasubramanian, and Kasilingam (2018), examining the moderating role of users' age and device type on their intentions to use mobile shopping apps, find young mobile-phone users give more importance to ease-of-use or user-friendliness of the device, whereas older customers tend to prefer use to be risk-free.

In discussing age-based effects, Anderson and Perrin (2017) highlight the methodological challenges in measuring and evaluating these effects must be acknowledged. In the absence of standardized age cut-offs, findings across different prior studies can be difficult to compare. It is also important to consider generational cohort effect is likely to diminish once the offline generation passes away and the current online generation retires and reaches old age. We propose the following hypothesis to explore the relationship between age and online banking use:

H₁: There is a negative relationship between age and online banking use.

Effects of gender

Studying gender is important for two reasons: firstly, men and women differ in their decision-making (Walczak & Pieńkowska-Kamieniecka, 2018), making gender a fundamental difference in individuals. Secondly, because gender is frequently researched (Zhou, Jin, & Fang, 2014), bank marketers appreciate its role in identifying and targeting segments. Most technology adoption studies confirm the pervasiveness of gender patterns with results showing usage rates higher in men than in women (Craig, Powell, & Brown, 2015; Goswami & Dutta, 2016; Islam, 2011; Venkatesh, Morris, Davis, & Davis, 2003), while others show the antithesis (Izogo et al., 2012; Khan & Rahman, 2016; Ladhari & Leclerc, 2013). Croson and Gneezy (2009) report ethical shortcomings in gender research. They find reporting more differences than similarities between men and women is a source of bias in prior research.

Gender differences in computer use are gradually disappearing. This means that the use of the Internet presents opportunities for men and women regardless of gender (Rainer, Laosethakul, & Astone, 2003). In the New Zealand context, Gan, Clemes, Limsombunchai, and

Weng (2006) find neither gender nor marital status influence customers' use of online banking. In a Ghanaian study, Ngcongo and Mnisi (2014) note little difference between men and women in their use of online banking, except their online security perceptions.

Richard, Aijaz, and Karjaluoto (2017) argue there are differences in the information-processing abilities of men and women, which makes gender a crucial factor in technology adoption. Experimental evidence finds women to be comparatively more risk averse, context-dependent, and flexible in social preferences than men. Other studies discuss women's lack of familiarity with financial products and services, weaker risk tolerance, debt-aversion and higher tendency to do shadow banking[3] (Bannier & Neubert, 2016; Carter, Shaw, Lam, & Wilson, 2007; Croson & Gneezy, 2009; Lusardi & Mitchell, 2008). Men are found to be more pragmatic and task-driven in their use of technology whereas women appear to be process-oriented (Zhou et al., 2014).

Women's use of computers at home can be limited because of their household responsibilities and time conflicts. This shows both men and women treat their workspaces and homes differently in regard to Internet usage (Dholakia, 2006). In terms of preferring certain banking services over others, Friedmann and Lowengart (2016) find men tend to look for functional factors (such as costs). In Taiwan, however, women tend to value cost factors while men prefer value constructs (see Tsai, Hsu, & Lin, 2011).

Malaysian research finds most women use online banking to get things done efficiently so that they can spend more time with friends and family (Yuen, 2013). Safeena et al. (2014) suggest women are less likely than men to find new banking functions useful or attractive. On the other hand, because women tend to multi-task, they generally prefer online banking because of its convenience without corresponding time and effort (Ngcongo & Mnisi, 2014). These findings suggest men and women constitute market segments that differ in their behaviours and hence, require better-fitting marketing strategies (Khan & Rahman, 2016; Mokhlis, 2009; Richard et al., 2017). Our next hypothesis is:

H₂: Online banking use differs by gender.

---

[3] In this context, shadow banking refers to unregulated or under regulated financial intermediaries or nonbank lenders who provide bank-like activities but are not subject to the same governance or regulations as depository banking.

Effects of marital status

Banking practices differ with people's entrance into cohabitation[4], child-bearing, widowhood or separation (Ngcongo & Mnisi, 2014; Pahl, 2000). Different transitions[5] can disrupt a cohabiting couple's life-cycle (Banks, Blundell, Levell, & Smith, 2015). The management and control of money in a cohabiting household is more complicated than single households due to the differences in attitudes, risk perceptions and financial budgets (Izogo et al., 2012; Love, 2009). Scholarly research finds evidence of joint decision-making for financial matters in cohabiting relationships particularly for more complex needs like investments and mortgages (Carlsson, Martinsson, Qin, & Sutter, 2013; De Palma, Picard, & Ziegelmeyer, 2011). These studies predict a rise in joint decision-making trends in the future, which is why marketing strategies should focus on couples' needs rather than single households (Kamleitner, Mengay, & Kirchler, 2017).

In terms of risky investments, Christiansen, Joensen, and Rangvid (2015) note when one person in a cohabiting couple feels confident about their knowledge of financial matters and how different banking channels work, they tend to not involve their spouse in financial decision-making. Bertocchi et al. (2014) suggest differences based on spouses' age, income and education can affect their participation in bigger economic and financial decisions. In marriage, the decision-making responsibility of the female increases if her characteristics (i.e. age and socioeconomic status) matches or exceeds her husband's (Carlsson et al., 2013; Fonseca, Mullen, Zamarro, & Zissimopoulos, 2012).

Past studies suggest joint financial management and income pooling are more observable in marriage than in de facto relationships (i.e. unmarried co-residential living or living as partners) (Sassler, 2004). Studies also suggest the financial barriers in cohabitation tend to be lower than in marriage. Future uncertainty offer little incentives for partners to pool finances (Oropesa, Landale, & Kenkre, 2003; Sassler, 2004). A study by Gibson-Davis, Edin, and McLanahan (2005) finds how low-income partners who are parents, differ in their financial practices from high-income groups. Research from earlier periods suggests widowed females tend to suffer more as a result of the financial difficulties they face with the

---

[4] Cohabiting couples, in this study's context, refers to married couples or partners living together in de facto relationships.

[5] Typical examples of family transition points include: a couple's commitment to a relationship (e.g. move in together or marry); birth of a child (and subsequent children); work/study changes; child leaving home; retirement from work; death.

involuntary termination of their relationship (Booth, 1991; Umberson, Wortman, & Kessler, 1992).

Married people tend to have joint bank accounts; therefore, at the household level, their adoption of online banking can be a joint decision. Married couples are also likely to use online banking more than single males or single females (Kolodinsky et al., 2004), perhaps because the financial needs of single people are less complex. This suggests marital status plays a confounding role in results for gender effects. Other researchers propose that because married households perform complex financial transactions, they are more likely to use online banking for its availability, accessibility and convenience features (Sohail & Shanmugham, 2003; Stavins, 2001). In contrast, since single people are generally younger, their familiarity with technology, knowledge and usage frequency is greater than cohabiting households (Janatian & Samavatyan, 2013). This supports the argument that marital status is a significant predictor of online banking use (see Izogo et al., 2012).

Non-cohabiting people tend to reject mobile banking based on not having a bank account, hardware functionality or Internet connectivity issues, social pressures and lack of interest in learning about new online banking features (Iddris, 2013). Gan et al. (2006), on the other hand, do not find a significant relationship between marital status or gender and customers' penchant to use online banking. Because household behaviours result from its members' personalities, cultures, perceptions and attitudes, future research should incorporate family dynamics resulting from changes in marital status. This leads to us to the next hypothesis:

H₃: *Online banking use differs by marital status.*

Effects of socio-economic status

Prior studies suggest a positive relationship between factors such as education, employment and income (Ameme, 2015; Han, 2008; Jayawardhena & Foley, 2000; Karjaluoto et al., 2002; Milner & Rosenstreich, 2013). Higher education is likely to lead to a high-status job or higher perceived employment status, which generally comes with higher net income. We now briefly discuss the individual effects and role of education, employment status and household income.

Oumlil and Williams (2000) contend that from marketers' perspective, education plays a central role in increasing customers' purchasing power. Education improves decision-

making and leads to personal satisfaction and greater control over economic goals (Mattila et al., 2003; Nasri, 2011; Oumlil & Williams, 2000; Teo, 2001). These authors suggest higher education encourages logical thinking and rational decision-making. People with higher education generally have better information-processing and computer-handling skills because of expanded thinking capabilities (Talafha & Abu-Shanab, 2015). Anderson and Perrin (2017) find smartphone and tablet ownership is positively correlated with educational achievement. They also explore the effects of household income and education in customers' use of technology.

Mature and educated bank customers take an active role in the learning and discovery process, and are more able to absorb financial information they request (Nielson & Curry, 1997). Weijters, Rangarajan, Falk, and Schillewaert (2007) contend people with higher level qualifications are more likely to use technology at work for financial transactions and other activities. Low-income families tend to have lower levels of both financial literacy and education, often reflected in financial stress, which affects their financial decision-making processes (Kim, Gutter, & Spangler, 2017). French, McKillop, and Stewart (2020) suggest smartphone apps such as those that provide budgeting and spending meters and trackers for financial goals play a vital role in improving the financial literacy of the users. Talafha and Abu-Shanab (2015) suggest educated people perceive online banking as a new way of performing financial transactions, and generally know where to look if something does not work. Highly educated people are more likely to adopt and accept new technologies such as online banking as opposed to uneducated people (Izogo et al., 2012; Nasri, 2011; Polatoglu & Ekin, 2001; Talafha & Abu-Shanab, 2015).

Palestinian research reasons university students are generally more exposed to technology while studying, so their propensity to adopt and use online banking tends to be greater than people who do not receive formal education (Salem, Baidoun, & Walsh, 2019). College students and new professionals are also seen as profitable consumer segments (Josefowicz, 2003), whose banking needs should be met effectively. In Hong Kong, moderate education is associated with online banking adoption, along with personal characteristics like moderate wealth and middle-age (Wan et al., 2005). This implies high-educated or high-income groups are more likely to prefer relationships with the bank staff. The probability of adopting Internet banking amongst Greek university students is found to be higher than other

educational levels (Giordani, Floros, & Judge, 2014). A recent study finds that highly educated or high-income customers can be non-users of online banking because of sophisticated needs that require personalized services and interaction with the bank staff (Jiménez & Díaz, 2019). The following hypothesis is developed to explore the relationship between education and online banking use:

H4: *There is a positive relationship between education and online banking use.*

Less attention is devoted to employment status in prior studies, despite its effects on customer behaviour. This is identified as a literature gap by several researchers (Ameme, 2015; Chawla & Joshi, 2018; Gerpott, Thomas, & Weichert, 2013; Islam, 2011), which warrants future research. Full-time professionals who do Internet shopping prefer this because they do not have the time to visit shopping malls and their motivations to do online shopping are time-saving and cost-effectiveness (Vrechopoulos, Siomkos, & Doukidis, 2001). Similarly, these people are likely to be more interested than others in online banking because they are unable to visit a physical bank branch during working hours (Ameme, 2015; Lichtenstein & Williamson, 2006). Most technology adopters tend to work longer hours and earn higher incomes; they are more accepting of change than non-adopters (Howcroft, Hamilton, & Hewer, 2002). Unemployed people generally have less need for online banking due to a lack of monetary resources (Mattila et al., 2003).

Research suggests full-time managers generally spend more time at their desks than non-managerial employees (such as construction workers etc.) (Teo, 1998). Because employees in sitting-jobs are able to access a computer at their workstations, they can spend more time online than people working in non-sitting or physically-demanding jobs (Ameme, 2015). Internet availability at the workplace is also a strong predictor of its use for banking and other activities. In Australia, people are found to get uninterrupted Internet access at work, which encourages them to do more things online, such as moving money between accounts (Lichtenstein & Williamson, 2006). The situation is different for young users who may not be full-time employed. These people may face financial hardships impacting their use of online and mobile banking technologies, and in some cases, limiting them to cheaper hardware devices to access the Internet (Gerpott et al., 2013). Another interesting finding is that non-IT employees tend to use the Internet more than IT-employees, which indicates that Internet usage may not be limited to technical people or those who know how to use it.

Rather, it speaks of an interest in Internet use even by the general, less knowledgeable population (Teo, 1998). This study is supported by Wan et al. (2005), according to whom, type of occupation is a major determinant of online banking use in Hong Kong.

Tai and Zhu (2013) assess university students' use of Internet and find this group engages in social sharing using social networking platforms, online shopping and online banking. Online service fees may not be on these students' priority list as they prefer a convenient experience even if it entails costs (Tai & Zhu, 2013). An Australian study highlights university students' expectation of steady employment prospects on the completion of their educational qualification (Pont & McQuilken, 2005). Banks are incentivised to tap into these students' financial needs, considering their potential as high-paid, full-time employees. Although there is limited scholarly research on employment status effects, our understanding is that employment status can drive the use of the online banking channel. Therefore, the following hypothesis is developed:

H_5: Online banking use differs by employment status.

A positive correlation between income and online banking use is discussed in various studies (Arora & Sandhu, 2018; Howcroft et al., 2002; Kolodinsky et al., 2004; Mattila et al., 2003; Salem et al., 2019; Xue et al., 2011). As customers' household income increases, their use of online banking tends to increase (Mattila et al., 2003). Upper-middle class and customers with high-level employment are considered heavy online banking users (Hussain & Wong, 2015; Karjaluoto et al., 2010) while low-income households perceive income as a barrier to the adoption of online banking (Jiménez & Díaz, 2019; Laukkanen, 2016; Mann & Sahni, 2012). Prior research identifies typical technology users as high-income earners, who work longer hours, move houses frequently and are more open to change than the non-adopters (Howcroft et al., 2002; Polatoglu & Ekin, 2001).

Education and income cause a positive effect on customers' adoption of innovative banking technologies. Higher-income groups tend to possess greater information-processing capability which opens them to receiving, evaluating and using new information. This positively affects their openness to learning in the online banking environment (Homburg & Giering, 2001; Kolodinsky et al., 2004). The socioeconomic status of lower-income customers is such that they are typically financially insecure. They have limited ability to save, invest and engage in positive financial behaviours because their assets and income are limited. This

tends to permeate their money-handling practices (Daly, 2017) and their use of banks for financial management (Servon & Kaestner, 2008). More privileged users tend to possess more skills and derive more benefits from use of the Internet (Hargittai et al., 2018).

A feature of low-income households is their inability to differentiate between financial products and to evaluate inherent risks of economic decisions. As discussed earlier (effects of marital status), the income effect is more prominent in civil union or de facto relationships where income pooling and joint money management is less common (Gibson-Davis et al., 2005). Access to financial information varies between households with low-income families tending to rely on friends and family for their advice and experience of online banking (Braunstein & Welch, 2002; Hogarth & Swanson, 1993). This can limit their ability to make sound decisions because of reliance on informal networks for financial information. Because of their lower capacity to withstand financial losses, lower-income groups are less willing to perform online transactions independently (Hernández, Jiménez, & José Martín, 2011).

High-income earners tend to prefer offline to online channels to interact with bank staff, mitigating risks associated with complex transactions or investments (Gutiérrez, Izquierdo, & Cabezudo, 2010; Jiménez & Díaz, 2019; Smith & Sivakumar, 2004). They tend to perform bigger transactions, preferring face-to-face advice from bank staff to minimise risk (Howcroft et al., 2002). Kolodinsky et al. (2004) explain the importance of income measures (such as household expenditures, future expectations of a rise in income levels and income categories: high, middle and low-income groups) in online banking adoption, whereas Veríssimo (2016) does not find income to be a factor encouraging the use of mobile banking apps. In countries with high income equality such as Finland, income has no significant effect on customers' use of online banking (Laukkanen, 2016).

Some prior studies also find income affects customers' initial contact with the Internet (in managing set-up costs etc.), but this effect reduces in the later stages. Infrastructure requirements and costs of accessing the Internet further complicate people's perceptions of risks, based on their income levels (Porter & Donthu, 2006). These trends are changing with the Internet becoming more affordable and offering different alternatives for price-conscious users. These insights collectively suggest there are differences between low and high-income groups in their use of online banking. Hence, we posit the following hypothesis:

H₆: There is a positive relationship between household income and online banking use.

We learnt from the preceding discussions how the six demographic characteristics help marketers in a timely prediction of customer needs. They are also important in matching customers with the right banking channel at the right time. For example, married or cohabiting couple's home buying or retirement saving intentions can be more substantial as compared to single persons'. Age- and gender-gaps in technology uptake can show banks different patterns within their target markets where standardised products and technology solutions might not work. Because high educated and often high-income earners tend to prefer complex financial products, banks can capitalize on their demographic advantages (such as expanded thinking capability, high information-processing skills, or financial literacy etc.) to be proactive in fulfilling these customers' banking needs. Marketing strategies for customers may also differ depending on their employment levels. Those who have busy lives may be more interested in efficient budget management apps or just-in-time services rather than long-haul, labour-intensive banking interactions. Married or cohabiting people can be relatively reliable income sources (because if one person loses their job, the other would step up and provide cushion) than single households, which may reflect as a good credit score for bank loans. People earning relatively higher income can be more interested managing personal finance, money, borrowing, and investing hence, the need for relevant financial advisory services. These six measures are also predominantly involved in shaping customers' sense of identity, individuality, and autonomy.

Finding and helping such customers would mean they will be able to avoid potential financial pitfalls. While other demographic factors such as ethnicity, language, migration status etc. are equally important, the six characteristics that we chose for our study are especially useful in depicting major population dynamics that banks would not want to ignore.

2.4. Interactions effects

No personal characteristic exists in isolation from others; hence, a study on the effect of personal characteristics is incomplete and inconclusive without considering the interactions between them (Andersson, Cuervo-Cazurra, & Nielsen, 2020; Henrique & Matos, 2015; Onyia & Tagg, 2011). Some personal characteristics might not affect customer behaviours as separate variables, but when combined with other characteristics, they can have a significant impact on how customers behave in the online banking environment (Xue et al., 2011).

Prior research on the interaction of demographic variables is generally not extensive (La Barbera & Gürhan, 1997; Norton, Wang, & Ai, 2004; Yang-Wallentin, Schmidt, Davidov, & Bamberg, 2004). This study therefore takes a more comprehensive approach towards personal characteristics research by exploring both the main and interaction effects of age, gender, education, employment, household income and marital status in the prediction of online banking use. Our hypotheses for testing the interaction effects between the six personal characteristics are:

H_7: One or more personal characteristics moderate the relationship between age and online banking.

H_8: One or more personal characteristics moderate the relationship between gender and online banking.

H_9: One or more personal characteristics moderate the relationship between education and online banking.

H_{10}: One or more personal characteristics moderate the relationship between employment status and online banking.

H_{11}: One or more personal characteristics moderate the relationship between household income and online banking.

H_{12}: One or more personal characteristics moderate the relationship between marital status and online banking.

2.5. Personal characteristics research: contributions and criticisms

Prior research emphasizes the contributions of personal characteristics in informing customer needs, perceptions and attitudes towards the adoption and use of online banking (Arora & Sandhu, 2018; Karjaluoto et al., 2010; Kolodinsky et al., 2004; Mutengezanwa & Mauchi, 2013). The role of demographics in predicting customer traits is a critical determinant of customer behaviour (Lee, Jeong Cho, Xu, & Fairhurst, 2010). Individual-level customer data enable marketers to better analyse customers' needs (Wedel & Kannan, 2016), gain higher customer value, bolster loyalty, and strengthen business competitiveness (Kumar & Pansari, 2016). Deeper understanding of individual-level data reduces inertia. Explaining mature consumers' consumption behaviour in financial markets, Milner and Rosenstreich (2013)

highlight the usefulness of demographic characteristics in identifying potentially valuable customers. When customers know their needs are being taken care of, they are less likely to switch to another bank. This positively affects bank profitability (Jakšič & Marinč, 2019; White & Yanamandram, 2004).

Traditional consumer behavioural research discusses the effects and contributions of personal demographics, mainly in a positive light. However, some criticisms emerge that warrant attention from academicians and practitioners.

In economic behavioural research, the use of demographics in studying customer behaviours has received scholarly criticism. Researchers contend it is easy to over-estimate demographics which may result in inconsistent and inaccurate research outcomes. According to Harrison (1995), demographic segmentation does not tell the whole story, and can be treated as "*segment descriptors*" rather than "*segment predictors*". This means that while demographic variables can predict segment size, market structure and composition, their role in measuring behaviours is contestable. To address this concern, this study does not describe customer behaviours based on demographic characteristics rather it describes the associations between them. Additionally, the main idea behind the study is not to predict specific behaviours based on demographic composition but to be able to explain how varying demographic characteristics can lead to different behavioural attributes.

From the banking perspective, changes to customers' financial needs require greater understanding of their life journeys. Different transitions in a family's life affects every member of the household, and can disrupt the normal life cycle (Banks et al., 2015). Without considering all possible changes to contemporary life stages, appropriate intervention is difficult (Wagner & Hanna, 1983). Marketers and strategists must examine customer perceptions without ignoring their demographic and socioeconomic makeup (Rugimbana, 1995). On the other hand, Lees, Winchester, and De Silva (2016) challenge previous strategic literature and support brand segmentation by variables other than demographics. Increasing heterogeneity in demographic characteristics, particularly in modern family-life transformations (type, timing and sequence) limits the development of a best fit model to aggregate these heterogeneities. Despite the criticisms, prior research advocates the development of better marketing strategies through the understanding of customers' socio-demographic factors (Henrique & Matos, 2015; Seiler et al., 2013).

2.6. Customer perceptions in the online banking environment

Customers' demands and expectations, individualism and diversity drive changes to their banking behaviours (Hedley, White, Petit dit de la Roche, & Banerjea, 2006). The focus of Internet banking research has shifted from technological development in its early phase to user-focussed research currently (Adapa & Roy, 2017; Wang, Wang, Lin, & Tang, 2003). Tam and Oliveira (2017) suggest customers' shift from the initially local-centric (bank branches and ATMS) to place-centric (home banking) and now to equipment-centric (accessibility anywhere) banking enable them to avoid queues at branches, save time, access services remotely, and enjoy spatial convenience (Mols, 1998b; Sayar & Wolfe, 2007; Tam & Oliveira, 2017). From customers' perspective, technology helps them in choosing, comparing, making or breaking relationships with the banks (Hedley et al., 2006; Lang & Colgate, 2003). Convenience is perceived as the main factor behind customers' decision to go completely online or use branch banking (Gu & Kannan, 2017; Lichtenstein & Williamson, 2006).

Our review of prior research surrounding customer perceptions in online banking reveals a set of important factors or themes. These themes are crucial because they drive how customers think, react and behave in the online banking space.

Perceptions of learning new things

It is important to examine technology paradoxes within online banking to evaluate how customers perceive their learning abilities and confidence in using self-service banking channels. Prior research has not sufficiently addressed the hesitation, frustration, chaos and paradoxical nature of customers' experience with online banking which may influence their evaluation of its usefulness (Johnson, Bardhi, & Dunn, 2008). The tendency of self-service technologies to complicate simple tasks is a source of frustration and resistance for most customers. Previous research finds if technology does not operate according to customer expectations, it negatively impacts their perceptions of its usefulness (Meuter, Bitner, Ostrom, & Brown, 2005). This can further impact learning inclination to explore new ways of doing things online. Sarel and Marmorstein (2003) conduct group discussions with users and non-users of online banking services. They find non-users are characterised by a general low interest in learning about online banking, lack of enthusiasm, perceptions that the online banking channel is not useful, and a preference for face-to-face interactions at the branch.

Lee, McGoldrick, Keeling, and Doherty (2003) identify the role of exclusion risk (i.e. the risk that the new technology cannot be adopted because it is complex and exclusive) in inhibiting customer adoption of mobile banking. Another critical factor is prior experience. If a prior experience with mobile banking use was negative and unfulfilling (i.e. failed to carry out the intended task), customer perception of using the same technology in the future is likely to be negative (Lee et al., 2003).

Different personal characteristics can affect individuals' willingness to use the service. Computer coding and lack of experience causes disparities between users of different age groups in terms of their confidence and enthusiasm with use of computer-aided technologies (Buse, 2009; Lang & Colgate, 2003). Gender differences in technology use, however, are gradually disappearing and more people understand the time saving and increase in convenience with the use of online service channels (Chatzoglou et al., 2014; Rainer et al., 2003). We posit the following hypothesis in the light of the foregoing discussion:

H_{13}: *One or more personal characteristics affect users' perceptions of learning new things in an online banking environment.*

Security perceptions

Banking using smartphones, tablets and other devices increase customer mobility and real-time access (Servon & Kaestner, 2008). However, Natarajan et al. (2018) find the security and privacy concerns with mobile devices can hinder customers' acceptance and use of mobile banking. They also ascertain a positive computer (desktop-based) experience may not transfer easily to smartphones due to the perceived security risks. According to Hedley et al. (2006), banking customers have not only become discerning and tech-savvy (with the use of the online banking channel), but also more distrustful of banking services. Research suggests the perceived security of online banking websites and the credibility of the online banking provider remain cornerstones of a successful bank-customer relationship (Chatzoglou et al., 2014; Ochuko, Cullen, & Neagu, 2009).

In the South African context, women appear to be generally more trusting than men and assume that their online banking provider is secure. On the other hand, because South African men are more likely to be the bread winners, they find it difficult to trust online banking since parting with their money engenders risks and financial consequences for the

entire family (Ngcongo & Mnisi, 2014)[6]. The adverse impacts of privacy and security concerns on customer behaviour support a need for further research (Phelps, Nowak, & Ferrell, 2000). We posit the following hypothesis on how changes to such perceptions differ according to customers' personal characteristics:

> H_{14}: *One or more personal characteristics affect users' perceptions of security in an online banking environment.*

Perceptions of convenience

Previous researchers find a positive relationship between customers' perceptions of convenience and online banking use (Gerrard & Barton Cunningham, 2003; Lassar, Manolis, & Lassar, 2005; Polatoglu & Ekin, 2001; Wang et al., 2003). The original idea behind online banking was to allow customers to use online banking services that were already offered, responding to their preference for convenience and accessibility (Evdokimova, Shinkareva, & Bondarenko, 2019). Chawla and Joshi (2017) suggest banking websites and apps have improved convenience for customers because of drastically lower transaction costs and 24/7 availability. Products such as e-insurance and e-wallets add to convenience for online banking users. Vilhelmson, Thulin, and Elldér (2017) apply the efficiency argument to online service channels (including online banking) and find customers use these to perform similar tasks that would take up more time using traditional or offline channels such as branch visits (Evdokimova et al., 2019; Vilhelmson et al., 2017). In light of this, we propose the following hypothesis:

> H_{15}: *One or more personal characteristics affect users' perceptions of the convenience of online banking.*

Perceptions of customer services

Prior research explores bank customers' perceptions regarding the quality of online banking services to find a difference between customers' expectations of the performance of the banking channel and their evaluation of the services received (Gan et al., 2006; Jun & Cai, 2001). Poor customer service can lead bank customers to switch to a different provider or terminate service temporarily. While different researchers have identified different

---

[6] This may not reflect the current realities in South Africa where women are more likely to be employed due to the Employment Equity Act (Ngcongo & Mnisi, 2014).

dimensions to online banking's service quality, almost all agree with the notion that dissatisfied customers are likely to switch to other service providers in search of better service provision and efficiency (Watson, 2016). The importance of service quality in online banking use builds on a bank's ability to differentiate its services and create a competitive advantage in the industry. Research also identifies, as opposed to traditional service quality measures (such as human contact), online banking service quality emphasizes the role of technological facilitators (Herington & Weaven, 2007).

Many authors stress the role of variety or service differentiation, convenience, accessibility, e-trust, financial security, faster service delivery and the quality of the overall web experience are crucial elements affecting how customers bank (Avkiran, 1999; Gu & Kannan, 2017; Jiang, Yang, & Jun, 2013; Sudman, 1980; Tam & Oliveira, 2017). All these dimensions affect customers' evaluation of bank services, which may not be triggered by poor online banking service alone, but which are critical in ensuring that customers do not switch and remain loyal to the same service provider (Corrocher, 2006). Research discusses how different dimensions of service quality are perceived differently by different people (with demographic differences) such as males' perceptions of online banking's performance and usefulness being generally different than that of females (Yousafzai & Yani-de-Soriano, 2012). Age-based differences in perceptions and differences in customer behaviour due to education and income have been widely studied (Oyeleye, Sanni, & Shittu, 2015; Polatoglu & Ekin, 2001). We develop the following hypothesis addressing how customers' perceptions of services or of service quality can be influenced by their personal characteristics:

H_{16}: *One or more personal characteristics affect users' perceptions of the customer service features available in an online banking environment.*

Perceived budget management

In a digital age, customers have the opportunity to purchase goods and services and make payments using a growing array of payment mechanisms. From the 1980s onwards, scholarly research focussed on the effects of cashless payment methods on consumer spending and purchase behaviours. The tangibility of cash is linked with an increased awareness of the actual transaction cost, something that is not present within the cashless payment mechanisms. However, using mobile payment options, one is not exposed to the

immediate experience of the amount spent. This is why research suggests customers are more aware and conscious of the price of a product or service if they pay with cash rather than with debit/credit cards or using a smartphone (Milkau & Bott, 2015). According to research on the effects of cashless payment mechanisms on spending behaviours, customers are found to consider the retrospective evaluation of past consumption patterns (i.e. purchases) and experience rather than looking forward (Soman, 2001).

Because debit cards purchases are limited by what consumers already have in their accounts, expenditures made using a debit card may be more conscious and regulated than the payments from a credit card (Caskey & Sellon, 1994). According to some studies, use of prepaid debit cards offer inexpensive payment services for customers and enable more secure transactions than those done with cash (Caskey & Sellon, 1994). Daly (2017) confirms the effects of income and education on money matters of households, and notes that spending cannot be studied without understanding the complexities of money handling in low-income versus high income households, or between educated and uneducated groups. Other studies realise the benefit provided to customers with the use of cashless payment methods that ensures constant monitoring of spending and payments (Bátiz-Lazo, Haigh, & Stearns, 2014; King, 2012). The diffusion of payment cards and cashless payment mechanisms among U.S. households shows a rising trend of using cash for small-scale payments while credit cards for bigger and perhaps riskier transactions (Evans & Schmalensee, 2005). Reflecting these insights, we posit the following hypothesis to further analyse how customers perceive the effectiveness of the online banking channel in managing personal finances and budget:

H₁₇: One or more personal characteristics affect perceptions of budget management in an online banking environment.

Age-related attitude formations

We find age affects perceptions in different ways, as discussed in section 2.4. Different prior studies touch upon the negative perceptions and resistance to new technologies found especially among older people (Choudrie, Junior, McKenna, & Richter, 2018; Laukkanen, Sinkkonen, & Laukkanen, 2008). Performance expectations, self-confidence and social influences are frequently discussed reasons for differences in online banking, mobile

shopping and e-commerce use between the young and the old. However, this digital divide, according to some researchers, is diminishing and there is a high likelihood that the online competencies of older adults will increase (Lian & Yen, 2014). Previous experience with technology use affects older customers' perceptions of its benefits and efficiency in meeting their needs. Similarly, older adults' interest in learning varies with product experience and perceptions of the risks associated with trying new technologies. In other studies, we note that older adults' assessment of their health and physical deficiencies affect their computer anxiety, self-confidence, and perceptions of the channel's usefulness (Mitzner et al., 2010; Ryu, Kim, & Lee, 2009).

In studying age-based attitude formation for online banking, one cannot ignore access to technology for older people. Physical illness or age-associated disabilities can impair their daily lives, which also contributes to alienating these people from online banking (Lee et al., 2011). On the other hand, based on the same disabilities and physical limitations, older adults may be the market segment to benefit most from online services (because they can either not visit a branch in person or have other immobility that restricts their access to banking services) (Hargittai & Dobransky, 2017). Prior studies explore the negative influence of age on technology anxiety, as a result of which many older people believe either they are too old to learn about new technologies, or their assessment of their cognitive capabilities remain restricted (Hertzog & Dunlosky, 2011). Based on these insights, we are interested to find what customers belonging to varying demographics think about the effect of their age on attitudes toward online banking:

H_{18}: *Age of the user affects their attitudes toward online banking.*

Preference for personal interactions

The balance between personal interactions (through branch banking) and self-service technology is extensively discussed in scholarly research (Howcroft & Durkin, 2000; Jakšič & Marinč, 2019; Marr & Prendergast, 1990, 1994a; Parasuraman, 2000; Prendergast & Marr, 1995; Yakhlef, 2001). In New Zealand, e-commerce is predicted to witness significant growth in coming years (Paymark, 2019). However, it is not likely to replace in-branch interactions, which is still crucial for banks in maintaining relationships with their customers. In a multichannel environment, research finds little or no human contact erodes customer loyalty

and impacts the behaviours of multichannel customers who usually have higher expenditure levels (Corrocher, 2006; Neslin et al., 2006).

Previous studies identify gender, education and income as personal characteristics that alter customers' preferences for interacting face-to-face with bank staff as opposed to seeking assistance via online means. Recent research highlights high-income and highly educated customers are generally the recipients of high-cost, high-touch branch transactions and activities such as advice and information. These groups tend to recognize the social and collaborative aspects of banking, and prefer relationship-based over arms-length interactions (DeYoung et al., 2007; Jiménez & Díaz, 2019).

Human contact or personal interaction appears to be an important determinant of customer satisfaction (Corrocher, 2006; Marr & Prendergast, 1994a; Pilcher, 2012). Prior studies explore how older people tend to be more attached to traditional branches, a main reason for their preference for human interaction and their enjoyment of visits to a bank nearby (Al-Ashban & Burney, 2001; Avkiran, 1999). Lang and Colgate (2003) discussed if customers are pushed away from person-to-person contact towards more of the Internet-mediated channels of banking, their relationship with their banks suffer. Consequently, those who are unable to use online banking channel as much as they would want to, regardless of personal interactions, tends to also consider their relationships with their bank have weakened. This is why, as the authors suggested, it is important to track customer preferences with regard to how they would like to interact with their bank, and to be able to offer them hassle-free interactional opportunities (Lang & Colgate, 2003).

In an entrepreneurial context, a prior study discusses how entrepreneurs with more personal wealth are less likely to have financial problems, and their preference for human contact may thus be less crucial than for entrepreneurs with less personal wealth. This is attributed to the tendency of high-income entrepreneurs to be more educated and thus, able to find solutions to their financial management problems using online channels (Han, 2008). These insights suggest the core functions of traditional banking cannot be entirely replaced by online channels. We posit the following hypothesis to evaluate how customers' perceptions and preferences for face-to-face interactions with the bank staff are affected by their characteristics. This hypothesis will help us understand the demographic effects on

preferences for in-branch interactions, and whether or not certain customers would like to have interactional opportunities on top of the online banking services.

H[19]: One or more personal characteristics affect users' preference for personal interactions at a bank branch.

Perceptions of the hardware requirements

The expanded use of smartphones and tablets, along with other devices, has radically increased the demand and acceptance of mobile-based banking services. An exponential increase in smartphone-based payments and purchases have led banks to understand customers' preference for technological devices and their perceptions of the adoption of innovation (Dauda & Lee, 2015). Berenguer et al. (2016) discuss the ubiquity of smartphones among elders, clearly identifying age-based differences in their use for accessing online banking services. In discussion related to smartphone use, mainly subjective, technological and situational barriers have been discussed (Berenguer et al., 2016; Mathieson, Peacock, & Chin, 2001; Pang, Vu, Zhang, & Foo, 2015).

Age effects in smartphone adoption are commonly debated and discussed in research, while some studies also discuss gender effects (Vallespín, Molinillo, & Muñoz-Leiva, 2017). Meuter et al. (2005) find technology or process failures, poor hardware design or complex devices are a source of customer dissatisfaction. Research also confirms the moderating role of gender in smartphone adoption (Kang, Hur, & Son, 2014). In light of this, we want to test the relationship between all six personal characteristics and their effects on customers' perceptions of the hardware (i.e. device-based) requirements of online banking.

H[20]: One or more personal characteristics affect users' perceptions of the hardware requirements of the online banking environment.

2.7. Literature gaps in New Zealand context

In a mature online banking market like New Zealand, there is a substantial literature gap in consumer behaviour and bank marketing research with regard to customers' use of and satisfaction with online banking. Very little is known about how New Zealanders use online banking and whether their adoption of it is derived from their life circumstances and characteristics. In the last 11 years there have only been five notable published studies about online banking in New Zealand, of which four were journal articles (see Table 1). The evidence

for the relationship between customers and online banking is therefore inconclusive. Only two scholarly sources out of these five attempted to investigate customer behaviour in online banking.

Table 1: Review of published prior studies on online banking in New Zealand

Key authors/work	Literature type	Year published	Area of focus
Rod, Ashill, Shao & Carruthers, 2009	Journal article	2009	Effects of the dimensions of service quality on overall internet banking service quality
Matthews & Ralston, 2011	Conference Proceedings	2011	Prevalence and acceptance of mobile banking
Clemes, Gan & Du, 2012	Journal article	2012	Factors influencing customers' Internet banking adoption
Xin, Techatassanasoontorn & Tan, 2015	Journal article	2015	Role of consumer trust and its antecedents in determining consumers' intention to adopt mobile payment
Watson, 2016	Journal article	2016	Digital disruption of banking and its impacts on financial system stability

Given the digitisation and digital trends in global banking, this general lack of research contributes to major knowledge gaps. Since, according to an Economist Intelligence Unit Survey, changing customer behaviour and demands is one of the most impactful trends for retail banking in Asia-Pacific (Woodley, 2016), its empirical investigation is as critical for New Zealand as for other regions.

The table above summarizes the key prior research on online banking in New Zealand context. Although these studies were related to online banking, most were bank-focussed rather than customer-focussed. It is evident from these works that not much research has been conducted from a New Zealand perspective, especially reflecting the customers' side. While Rod et al. (2009) explore the effects of service quality dimensions on the overall service quality of Internet banking using self-administered questionnaires, Clemes et al. (2012) examine how different functions of convenience and demographic characteristics impact customers' Internet banking in New Zealand through a mail survey. Matthews and Ralston (2011) investigate trends underlying the prevalence and acceptance of mobile-based banking using an online survey. Watson (2016) outlines digitisation effects on New Zealand's core banking systems. Apart from Clemes et al. (2012), no other scholarly source explored demographic influences on customer behaviour, and it would be reasonable to expect that

attitudes might have changed since that research was undertaken. The impact of the spread of smartphones and related apps has also intensified since 2012, which is why it is important to revisit bank-customer relationships and how New Zealanders adopt and use online banking.

Through this study, we address existing literature gaps and provide an updated New Zealand account of the role of personal demographics in driving customer behaviours. We extend prior research in this field and reduce uncertainty about bank customers' behaviours. We conduct demographics-based investigation of both perceived and self-reported usage, thus covering their effects on individuals' thoughts and actions.

2.8. Research focus and conceptual framework

In the light of the insights obtained from this review of prior research, the demographic variables – age, gender, marital status, employment, education, and household income are hypothesized to affect the use of online banking. Hence, this study focusses on how each of these six personal characteristics influence customer behaviours in using online banking. The following is a brief description of what each personal characteristic means in this study:

Table 2 Definitions of personal characteristics used in the study

Personal Characteristics	Definitions
Gender	Male, female or gender-diverse[7]
Age	Measured in years
Income (Household)	Total yearly post-tax income of a household (in New Zealand dollars)[8]
Education	Highest level of educational award
Employment	Nature of work commitment
Marital Status	Single (unmarried), married, de facto relationship, living with a partner, civil union, separated or widowed

Building on prior studies, a conceptual framework is designed. According to Miles and Huberman (1994), a conceptual framework is referred to as a layout of the key variables and constructs, which presumes a relationship between them. Its main purpose is mapping out

---

[7] Findings relating to gender-diverse have been omitted for very low responses.
[8] Those who did not disclose their household income have been excluded from the income analyses.

the required actions for the research, based on previous knowledge and observations on the topic (Jabareen, 2009). Motivated by the previous insights, the following framework depicts the relationship between each personal characteristic and online banking use:

Figure 1: Conceptual Framework of the current study
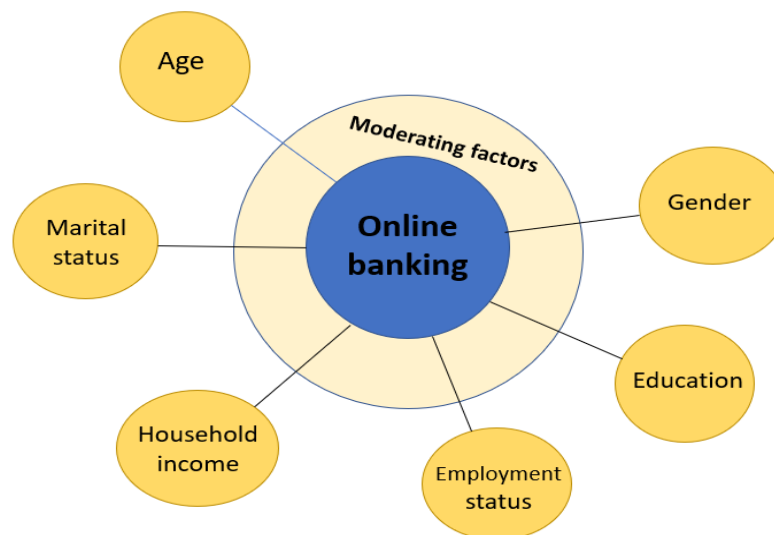
This conceptual framework illustrates the connections of each characteristic with online banking use. The moderating factors' layer surrounding online banking denotes one or more personal characteristics may moderate the relationship between online banking use and the other personal characteristics. The straight lines connecting each personal characteristic with online banking denote a relationship of influence on one another.

2.9. Chapter Summary

By reviewing prior studies, we first understand the key drivers of technological change in the banking sector followed by an exploration of the main benefits or synergies that banks share with their customers by providing them with online banking solutions. Discussion of historic developments in the banking sector further illustrate the underlying drivers of banking innovations and explain how banks get customers' buy-in to the transformations in service delivery. Banks' perspectives on digitisation in banking shows significant shifts over time. The transition from traditional to online banking was driven by the motivation to reduce costs; however, an awareness of customer centricity evolved later. The importance of providing positive customer experiences through an omnichannel banking model is highlighted. The rapid proliferation of online banking in New Zealand is acknowledged along

with examining how the uptake of digital banking technologies challenges banks to know their customers more closely.

We also shed light on previous studies on personal demographic factors and how they affect customer behaviours. Studying each of six personal characteristics separately, we find these characteristics contribute to customers' use of online banking in unique ways. We also find some characteristics such as employment status are relatively underexplored, which warrants further investigation. We also discuss the impact of these characteristics on how customers think, behave and react. A section on the contributions and criticism of personal demographic research reminds of its importance in shaping and measuring customer behaviours and ensuring a customer-centric banking culture.

We learn from our prior research review that personal demographics are an important line of research; however, we come across some prior studies where their predictive utility is questioned. Through this research, we build on the existing body of knowledge by investigating six personal demographic characteristics and extending past studies through revisiting their predictive ability in depicting customer behaviours. We find at the customer level, perspectives are greatly driven by convenience and accessibility of the online banking channel, although prior research does not predict a complete replacement of branch banking anytime soon.

Through a discussion of customer perceptions in online banking, we learn that personal characteristics have a role in shaping how customers think, behave and react to online banking offerings. This exploration establishes what we now know and offers suggestions for ongoing research. Lastly, we return to the main focus of this study and develop a conceptual framework that lays out the connection between the personal characteristics, the moderating factors and online banking use. This framework represents a synthesis of the literature and maps out the overall picture of the study.

Chapter 3. Research methodology and data

This chapter describes the methods used for collecting and analysing data. Data was collected in three steps: firstly, focus group discussions were conducted to develop initial themes for the online survey questionnaire; secondly, an online survey was distributed to banking customers and finally, qualitative interviews were conducted with a subset of the survey respondents. The aim of each of these data collection approaches is explained along with its focus, process, ethical considerations and limitations.

3.1. Overview

We used a three-pronged (qualitative-quantitative-qualitative) methodology for data collection and analyses. This approach, also known as triangulation or mixed methods research, assists in collecting data from diverse perspectives and helps where a single methodology is not sufficient (Creswell, 2003). In a sequential procedure, the mixed methods approach augments the quantitative, statistical data and enhances the quality of the research findings. Using a range of both quantitative and qualitative findings ensures that the data is both precise and reliable, and rich and comprehensive at the same time.

Mixed methods design increases the breadth and depth of findings by allowing qualitative and quantitative findings to merge at either data collection or analysis stage (Tariq & Woodman, 2013). Triangulation takes two forms: simultaneous or sequential triangulation. In simultaneous triangulation, there is limited convergence of data collection sources during the initial collection stage, but the findings from each source complement each other during analysis. In contrast, sequential triangulation requires that the findings of one data collection method are obtained before planning the next method (Creswell, 2003). This study adopted a sequential triangulation approach using a quantitative method (i.e. online survey) followed by a qualitative method (i.e. structured interviews). For data collection, it employed a three-stage approach to develop a valid and robust instrument of depicting online banking use as driven by New Zealanders' personal characteristics: focus group discussions, online survey and follow-up interviews. Figure 2 shows the main data collection steps.

Figure 2: Main data collection instruments of the study

Step 1: Focus Group Discussions
• Survey Instrument Development

Step 2: Online Survey
• Main data collection method

Step 3: Qualitative Interviews
• Follow-up with a subset of survey participants for in-depth experiences

3.2. Data Collection 1: Focus groups

Focus group discussions enable the collection of in-depth understanding of social issues by purposely selecting individuals for a group discussion. The interpersonal and interactive nature of focus group discussions is preferred over individual interviews because it provides richer information than interviewing a single respondent (Greenbaum, 1998; Guest, Namey, & McKenna, 2017).

Focus group discussions allow in-depth information and insights into complex human behaviours (Garrison et al., 1999; Nassar-McMillan & Borders, 2002). Due to its dynamics, it aids in the construction of new knowledge, discovering new dimensions to existing knowledge, interpretation of people's culture and examination of contrasting viewpoints (Gibbs, 2012; Morgans, 2010). A disadvantage of focus groups is that the participants' voice can be overridden by the dominant person in the group, leaving less opportunities for equal participation (Greenbaum, 1998). Additionally, group homogeneity is crucial for focussed group composition to ensure that the participants are unfamiliar with each other (Corfman, 1995; Sagoe, 2012).

The main aim of focus group discussions for this study was to refine previously known information on the topic and explore themes and ideas for the online survey development. Thus, the contribution of focus group discussions was to aid the instrument (i.e. online survey) design and construction by means of ethnographic interviewing.

For this study, each focus group interview comprised a set of main and sub-questions focussed on public views of online banking in New Zealand. Some of the key questions examined the duration of customers' use of online banking, and the mediums of use such as desktop, smartphones etc. The interview supplied basic discussion topics such as reporting of security breaches, differences in households' use of online banking, customer experiences with the bank, and the reasons for preferring one banking channel over another. The researcher's role was that of a moderator to ensure smooth running of the discussion, managing dynamics and process, supplying initial discussion topics and ensuring that the agenda of the discussion is achieved.

Focus group discussions are saddled with several limitations and constraints. Acquaintances in focus groups can inhibit free-flow of opinions and viewpoints and can damage the group dynamics. Scholarly research acknowledges the role of focus groups in generating new ideas and hypotheses where participants' stories and responses can be turned into survey questionnaires (Carey & Asbury, 2016; Fern, 1982). However, the presence of many people in a group setting can compromise the confidentiality of the session and can lead to oversharing of personal stories (Gibbs, 2012). The use of carefully-planned, artificial environments also affect participants' responses, which further undermines its external validity. Adequate planning, recruitment and selection of participants and moderator's role are crucial considerations for focus group discussions (Sagoe, 2012). Other limitations associated with this research method are discussed in section 3.10.

3.3. Process

The number of focus groups was limited to four because according to Guest et al. (2017), almost 90% of the themes for a research topic are discoverable within three to six focus groups. The first focus group comprised staff from Massey University (Manawatū campus), the second one targeted local people from Palmerston North city, the third group discussion was held with staff from New Zealand Credit Union Baywide (NZCUB)[9] Porirua branch and the final one with NZCUB customers in Hastings. Because it stimulates dialogues, it is desirable to conduct focus groups with people who may not have thought about the topic

---

[9] NZCUB is a New Zealand-based, not-for-profit, credit union that offers banking and financial services.

so much, and hence, themes and new insights could be developed (Barata, Gucciardi, Ahmad, & Stewart, 2006).

A total of fourteen participants agreed and participated in the focus group discussions. Prior research suggests the recruitment of about six to nine participants is encouraged for group-discussions while the minimum number should not be below three, with an anticipated no-show rate of 10-20% (Fern, 1982; Garrison et al., 1999; Stewart & Shamdasani, 2014). Table 3 shows the key characteristics of the four focus group discussions.

Table 3: Key characteristics of focus groups

Focus Group protocols	Group 1	Group 2	Group 3	Group 4
Respondent Type	Staff from Massey University (Palmerston North)	Residents/ citizens from the city (Palmerston North)	Staff from NZCUB (Porirua)	Customers from NZCUB (Hastings)
Number of participants	6	3	2	3
Age range	35-65	30-42	35-50	35-45
Method of Recruitment	Word-of-mouth and flyer distribution	Word-of-mouth and flyer distribution	Supervisors' contacts	Promotions by NZCUB staff and flyer distribution
Venue	Social Science Tower, Massey University	Palmerston North city library	NZCUB Porirua branch	NZCUB Hastings branch

The first step was to decide on the size of the focus groups and recruit participants for it. Initially, the promotions focussed on inviting participants with different demographic characteristics. However, recruiting randomized participants was a daunting task due to a low response rate. In this case, snowball sampling, a network-based strategy where existing participants recruit future participants from amongst their personal and professional networks, was adopted as a recruitment strategy. During this stage, initial contacts with Massey staff were established for the first focus group interview, simply because they were easy to find and naturally inclined to engage in research-related activities. The second focus group discussion happened to be with two New Zealand citizens (one of them was a Massey staff person) and one non-resident, international student. Two other participants could not attend due to sickness after initially agreeing to participate. The third and fourth focus group discussions held with NZCUB staff and customers and were organized with the assistance

from the co-supervisor. In short, all focus group discussions relied heavily on snowball sampling, and randomized sampling could only be achieved to some extent.

The second consideration was to organize logistics for each interview, and to promote it. While Massey campus was an obvious priority for the first focus group interview, the second interview was held at the Palmerston North Central Library due to the centrality of its location and easy access for local people. The third and fourth focus group discussions were held at the Porirua and Hastings branches respectively, as per the preferences of NZCUB customers and staff. Each discussion commenced either during lunch breaks or after working hours (during weekdays) for maximum convenience.

Recruitment of participants, aside from snowball referrals, was carried out through flyers and word-of-mouth promotions. In total, there were five regions (Palmerston North, Feilding, Hastings, Porirua, and Levin) targeted for the focus group discussions. Flyers were distributed at the Palmerston North library, Feilding library, Saturday morning markets, and at shopping centres in Levin. However, visits to Levin and Feilding remained unsuccessful in recruiting focus groups participants. Refreshments were provided to the participants as an acknowledgement of their time and participation.

Another consideration was to set rules governing participation and outline the key discussion protocols. A consent form and an information sheet were prepared for this purpose. While the consent form outlines their rights as participants, the information sheet introduces the researcher, describes the project, demonstrates the identification and recruitment process, and outlines the project procedures and data management protocols (see Appendix 2).

Each focus group session started with a brief introduction of the moderator (researcher) and the participants, before the research topic was introduced. A definition of online banking was provided that remained applicable throughout the discussion. These questions are given below along with brief explanations why they were asked:

The first question was aimed at investigating the experience and familiarity with the online banking channel to realise the scope of the group and their capacity to respond to specific online banking-based questions.

1. How long have you been using online banking?

The second question explored general preferences and evaluated how online banking made a difference to the participants' money-handling practices and financial management.

2. What do you like most about online banking and what it is that you do not like?

The third question gauged online banking usage patterns, along with understanding the preferences for certain devices.

3. Have you got any financial app in your phone and what for? How is this better than using online banking on desktop?

The main objective of the fourth question was to examine how customers perceived online banking in terms of its accessibility, availability and range of services. This question led to other questions based on the responses.

4. Has there been any changes in the frequency or intensity of your banking transactions (and use of other services) since you've adopted the new technology/channel?

The fifth question initiated general conversation about the topic and evoked further discussion about bank-customer relationships.

5. Is there any noteworthy incident in your banking relationship with your service provider that you want to share?

In addition to these key questions, other topics were also explored (see Appendix 3 for the full list of focus group questions).

3.4. Data Collection 2: Online survey

The main aim of an online survey is to provide an easily understandable platform for respondents where they can share their opinions and experiences about online banking. Familiarity of respondents with an online survey is deemed advantageous for this type of study as it allows a sneak peek into their confidence and ease of using the Internet.

The focus of the online survey for this study was to explore how customers make their decisions regarding the use or non-use of online banking, and how much of this decision-making is influenced by their personal characteristics. Informed by past research works where an online survey is found to be more flexible, customizable, and confidential (Dillman, Smyth,

& Christian, 2014; Millar & Dillman, 2011), it is preferred over mail surveys and other traditional methods of data collection. With technological advances as more people are able to access the Internet using smartphones and tables, the convenience offered by online surveys is multiplied (Evans & Mathur, 2005). Prior research indicates usually, more people respond to an online survey than telephone and mail surveys (Ilieva, Baron, & Healey, 2002). Online surveying software such as Qualtrics reformat survey questions to suit the devices used to access them (Evans & Mathur, 2005), which is not possible with conventional research instruments. On the downside, the skewed attributes of the Internet population such as lack of online experience, technological changes, sample selection and implementation can threaten the efficacy of the survey instrument (Peytchev, Baxter, & Carley-Baxter, 2009). Research shows those who complete online surveys using smartphones are more inclined to drop out of them, provide shorter responses and straight-line in grid questions that undermines the quality of survey data (Ilieva et al., 2002; Wenz, 2017). Privacy and security concerns associated with online surveys restrict some respondents from giving out complete personal information, which is why prior research emphasizes a well-articulated privacy policy for survey administration (Ilieva et al., 2002).

Based on certain limitations, online surveys are often questioned for their sampling bias and lack of representativeness. It is hard to specify the frame population and extract a representative sample using surveys. Another challenge with the online survey methodology is poor response rate or low-quality responses. Accessing remote and challenging populations (such as the elderly and the vulnerable people who might not have access to a computer) is often a challenge with online surveys. The development of survey instrument needs to be carefully planned. Unclear answering instructions, privacy and security issues and impersonal tone of survey questionnaire are potential weaknesses that undermine surveys' credibility in the research realm (Evans & Mathur, 2005). Other limitations associated with online surveys are further discussed in section 3.10.

3.5. Process

The first step in developing the online survey was to convert the focus group insights into themes (Appendix 3). Research studies support the use of focus group discussion in survey development to inform key customer behaviours and perceptions (Guest et al., 2017; Nassar-McMillan & Borders, 2002). Responses were anonymized and identifying information

about the participants was omitted in reporting the themes. This section briefly discusses how the key focus group findings helped in developing the online survey. For the complete online survey questionnaire, see appendix 4.

In each group discussion, the participants divided themselves on the basis of their use of branch or online banking. This was why survey questions for each user segment needed to be developed. In the first section of the survey, the "screener", six general questions were asked about respondents' choice of branch and/or online banking. They were then divided into "users" and "non-users" of online banking based on their responses. These questions were mainly derived from how the focus group participations differentiated between the use of online versus offline (branch) banking such as accessibility and convenience, recent visit to a branch and main reasons for either going to a branch or banking online. The focus group participants' continuous comparison of online over branch banking channel suggested each channel's usefulness in managing personal finance should further be investigated. This was why in the online survey, once the respondents were directed to the relevant parts of the survey questionnaire, there was an additional set of questions asking them about their purpose for using online banking or not and their comments on whether it was useful for them.

Focus group participants had suggested their use of banking differed on the basis of the device they used, the time and place of using online banking and related usage patterns. Hence, the second part of the online survey explored how respondents use online banking in terms of devices, experience (in years) and preferred time/place of using online banking. The effect of the online banking channel on personal finances and spending was a major conversational topic of the focus groups. In the words of one of the participants:

"……plastic money is difficult to manage…it's like a tap of water flowing all the time. Goes overdraft when there's no money. Cash helps you live within means especially in bigger family [sizes]."

In this light, a section of the online survey was dedicated to finding how online banking affects customers' spending and consumption patterns. This was done using nine Likert-scale statements where respondents' perceptions and opinions were obtained using a 5-point response scale.

Most focus group participants belonged to the age group of 35 to 65 years. The majority of them indicated their use of online banking was different from their households. This suggested a section on household use of online banking must be included in the survey where household financial decision making, and self versus households' frequency and reasons for online banking use were examined. To capture the preferences of non-users, a separate section was included in the survey on the advice of the focus group participants.

Several themes emerged from the focus group discussions mainly around customers' perceptions of the inherent risks and security issues of online banking. These issues, combined with convenience and accessibility of the channel, learning new things, hardware requirements, navigational issues of bank websites, giving out personal information on the Internet, preference for personal interactions with bank staff and other opinions led to the development of Likert-scale statements in the online survey.

The final survey section contained demographic questions (i.e. age, gender, education, employment status, marital status and annual household income). This was important for the research, where customers' personal profile was required to determine how these affect behaviours. After demographics, the survey sought consent for follow-up interviews and contact details and availability of the participants interested in doing the interview. The last part of the survey outlined the terms and conditions of a draw which was designed for all participants who completed the survey and provided their email addresses after the completion.

The survey was built in Qualtrics, a market research software. The questionnaire was pre-tested to confirm its construct and content validity prior to its launch. It was piloted with 10 people who provided constructive feedback on different aspects of the survey. Piloting was carried out in two stages: between 9th and 18th October 2017, and then again between 20th October and 5th November 2017. Following were some of the questions asked in addition to the general comments about the draft:

- o Did you like the layout?
- o Are you happy with the content?
- o Was it easy for you to navigate through the survey?
- o Were the questions easy to access?

o Did you (in any way) feel embarrassed during the survey?

o Any suggestions you would like to provide to improve the survey?

At first, four personal contacts were invited to take up the survey and provide general comments. Three of them responded commenting on the length, structure and terminologies used. In the second phase, some other comments were obtained from six respondents about the survey's content and understandability. The feedback helped in improving the final version of the survey in the following ways:

o Addition of options under demographics headings such as "student" and "retired" under the section about employment status.

o Re-wording questions about the competency of people over 65 years because it appeared that the survey was assuming competency levels decrease with increasing age. This could cause embarrassment to the potential respondents.

o Simplification of survey language and removal of technical terms were suggested. Concerns regarding survey instructions and content were addressed, and sentences were re-worded to support neutrality.

Once these concerns were addressed, the next step was to improve the survey using in-built 'ExpertReview' function in Qualtrics, which examined the questions, layout, duration, logics etc., and recommended ways of improvement. A recommended action was to reduce the duration to 10 minutes or less, which could not be achieved because of the amount of information required. It further examined matrix questions' layout and suggested an overuse of matrix questions should be avoided for data quality purpose. Relevant changes were incorporated as much as possible to ensure that the final score remained within the acceptable Expert Review Score range (i.e. good [10]).

After finalizing the survey form, sampling strategy and design were planned. Snowball sampling was developed by Coleman (1958–1959) and Goodman (1961) to be used in qualitative research, where existing participants recruit future respondents from amongst their acquaintances, relatives and friends (Goodman, 2011; Katz, 2006). Marcus, Weigelt, Hergert, Gurt, and Gelléri (2017) find snowball sampling to be a cost-efficient method of

---

[10] The highest Expert Review Score (Qualtrics) on a survey is excellent.

indirect recruitment that leads to the hidden population by approaching personal contacts which are relatively easily accessible, known in literature as seeds of the snowball sample.

The use of contemporary recruitment approaches using the Internet and social media in addition to in-person or traditional methods are stressed in literature to maximize outreach and improve the selection process of snowball samples (McRobert, Hill, Smale, Hay, & van der Windt, 2018). Cook, Heath, and Thompson (2000) find personalised contact strategies to be useful in boosting response rates. However, some biases in data collection such as sample bias, sampling error and response bias undermines the quality of data from snowball sampling. Explanation of these biases is given in the succeeding sections 3.9 and 3.10 on ethics and limitations.

The survey went live on 12th March 2018, when it was activated for responses in Qualtrics. The survey was officially active until 15th May 2018 (i.e. for two months); however, it was kept open for access until 15th June 2018. The next phase was the recruitment of respondents and survey promotion. A low-cost, multi-modal recruitment strategy was developed for participant recruitment comprising traditional and online recruitment strategies along with an intercept surveying technique.

Initial contacts were established through personal and professional networks and asking friends, colleagues and acquaintances to be involved in the online survey. This personal network recruitment was, however, a biased sample as most initial contacts comprised females and student families willing to assist in the research project out of interest and association with similar field, age-group or qualification/program of study. To improve the recruitment process, Social Networking sites (SNs) were used to virtually recruit survey participants. In virtual online sampling using SNs, a random process was undertaken to contact people without knowing their personal demographics, choices or shared interest. Online recruitment offers benefits such as time and cost savings, wider geographic outreach, speed of data collection and convenience of anonymity of responses (Brickman, 2012). Facebook was used as a sample frame because it facilitates online sharing and interactivity and allows greater outreach to diverse populations. It has around 2.45 billion monthly active users as of the third quarter of 2019 (Clement, 2019).

Research findings of O'Connor, Jackson, Goldsmith, and Skirton (2014) and McRobert et al. (2018) support the use of social media website 'Twitter' in loosely targeting participants of a particular interest, institution or academic discipline through personal and group invitations. As a downside of contemporary methods however, it is critical to protect information that the respondents share across these SNs, and follow-ups with virtual respondents are hard-to-carry as compared with traditionally-recruited respondents because they tend to disappear in the future (Bajardi et al., 2014). An over-reliance on the pre-existence of a functioning and diverse social network dampens the chance of accessing non-Internet users (McRobert et al., 2018; O'Connor et al., 2014).

We developed a targeted social media strategy for this study. Facebook pages and groups were used for cost-free posting of survey invitations. Massey's Twitter account was used for connecting with the wider audience (such as professionals). Other forms of social sharing of invitations included personal invites to friends and family and using Massey's internal mailing system to target staff and colleagues.

Intercept surveying is a part of convenience sampling methods where respondents are intercepted during activity at shopping malls, in morning markets, in the high streets and other public places (Burns & Bush, 2000; Joseph, Bush, & Ortinau, 2006). The main benefit of recruitment using intercepts is accessibility to a large number of people in a short time period and lower costs (Bush, Bush, & Chen, 1991). Also, there are greater chances of engaging with real people and obtain real-time data unlike online intercepts. On the other hand, the drawbacks include the need for permission to conduct intercepts on private property, probability of low response rates in areas with less foot traffic and difficulties in approaching passers-by, interrupting their busy lives (Joseph et al., 2006; Sudman, 1980). During intercept sampling for this study, random passers-by were handed a postcard with instructions regarding accessing the survey, a Quick Response (QR) code for mobile and smartphone users, web link, participating protocols, details for entering the Draw and relevant contact details. The QR code was generated to allow mobile users convenient access to the online survey. The flexibility and convenience of QR codes has been emphasized in prior studies (Ozkaya, Ozkaya, Roxas, Bryant, & Whitson, 2015; Probst & Brokaw, 2012). However, only sixteen respondents completed the survey using a QR code which reflected less preference for accessing the survey on a mobile device (see Appendix 5 for survey postcard with the QR code).

A mobile whiteboard was held along with survey postcards to invite potential respondents to come and talk to the researcher, who then gave them a postcard with all necessary conditions mentioned. All surveying stations were public properties, preferably places where there were more people to intercept. The areas used for intercept surveys included Manawatū Flea market and Hokowhitu Village Farmers' Market in Palmerston North, and on the periphery of the main shopping mall in Palmerston North, business streets in the Lambton Quay and other commercial areas in Wellington, and in and out of the North City Shopping Centre in Porirua. Response rates were found to be higher in the busiest streets and in morning markets, although many people preferred to grab the postcard rather than engaging with the researcher to find out what it was about.

The use of a whiteboard to present hand-written, brief information on the survey was an effective way of recruiting and engaging with prospective respondents. Observations of this recruitment method were similar to that noted by Deutsch and Goulias (2009) during intercept surveying in California. Many people were found to be busy during office hours, and hence, refused without giving any particular reason. Some people stopped and voiced their concerns by mentioning the fear of online scams if they open the survey link and lack of time to verify the researcher's details.

Necessary measures were undertaken to allow respondents to choose the electronic medium they want to use for the surveys (i.e. desktop/laptop computer, smartphone or tablet). Quick response codes were developed and integrated into various promotional tools (such as Tweets, Facebook posts, messages for Facebook groups, and postcards and flyers) to facilitate participation using smartphones and tablets. Using Facebook as the main social networking site for survey promotion, personal messages were sent to local friends and acquaintances to invite them to the survey as well as to request their assistance with future recruitments in a snowballing manner.

One of the other and most frequently used ways of Facebook-based promotion was postings in closed Facebook groups with large numbers of members (such as community friendship groups, student societies, and various interest clubs/forums). The Facebook groups used for this purpose were "Massey University Students' Association", "Otago University Students' Association", "Old Feilding Friends", "Wellington LIVE Community", "Christchurch Mothers Group", "Graduate Women Manawatu", "Livin' in Levin" and "Kiwis being Kiwis".

An opportunity was provided during snowballing by a friend who worked as a volunteer at Radio Control 99.4 FM, supported by the Massey University Student Association (MUSA). The opportunity entailed co-hosting a radio show to promote the survey to Palmerston North's local population. The radio show ran for about two hours and involved talking about the online banking scene in New Zealand, its current challenges and opportunities while introducing the online survey. In the end, the survey web link was verbally shared and repeated a few times to assist radio-listeners who might be interested in taking the online survey.

Inherent features in Qualtrics offered regular and real-time updates on "recorded responses" and "responses in progress". Each recorded response provided the IP location of the respondent, time taken for completion, finish status (i.e. true for 'complete finish', false for 'partial completions' or 'total non-response') and recorded date and time. Such analytics were helpful in terms of keeping track of the survey progress.

The terms and conditions of the Draw, gift card details and process of winner notification were provided at the end of the survey. There were three $50 gift cards whose winners were selected via random number generation procedure in the presence of the co-supervisor. Survey participants could only enter the Draw if they took the survey. Hence, the objective was to encourage motivation and reward it at the end. Winners were notified in an email giving them 10-days deadline to respond with their physical addresses. Each winner was given the option to choose one from a range of New Zealand retailers (including Mitre 10, JB Hi-fi, Bunnings Warehouse, New World, Kathmandu and Farmers) whose gift card they preferred. The notifying email informed winners that if they did not respond within 10 days, the prize money would be deemed unclaimed, and another winner would be selected. Once the responses were obtained, the gift cards were mailed to them in the post. Written acknowledgement of the receipt of gift cards was received in a couple of days.

A total of 758 responses were collected. Out of these, 575 were complete, usable responses - a completion rate of 76%. The other 183 respondents either withdrew from the survey right in the beginning or partially attempted it. As per the key characteristics shown in Table 4, the respondents were disproportionately females (67%). There is a reasonable distribution of respondents across the age groups particularly between 20-29 years, 30-39 years and 40-64 years. 28% of respondents had a Bachelor as their highest educational

qualification while 44% of them were paid, part-time employees. A large majority of respondents were either married, living with a partner or in civil union. The question about marital status was only asked from the users of online banking, and not from the non-users.

Table 4: Demographic profile of survey respondents

	Frequency	Percent (%)	NZ Comparatives (%)[11]
AGE			
15-19 years	24	4.0	
20-29	136	22.5	41.1
30-39	152	25.1	
40 to 64 years	234	38.7	41.2
65+ years	59	9.8	17.7
GENDER[12]			
Male	189	31.2	48.9
Female	405	66.9	51.1
EDUCATION			
High school or equivalent	98	16.2	42.9
Certificate/diploma/trade qual.	117	19.3	10.0
Bachelor	168	27.8	16.3
Master	135	22.3	6.9
Doctorate	66	10.9	0.9
Others	21	3.5	23.1[13]
EMPLOYMENT STATUS[14]			
Student	121	20.0	15.0
Part-time	66	10.9	21.4
Full-time	267	44.1	48.0
Self-employed	64	10.6	9.3
Retired	38	6.3	2.7[15]
Unemployed	49	8.1	7.1
HOUSEHOLD INCOME[16]			
$40,000 or less	148	24.5	39.8
$ 40,001 - $70,000	121	20.0	14.6
$ 70,001 - $100,000	104	17.2	18.0
$100,001 or more	151	25.0	27.6
MARITAL STATUS			
Never married	188	29.0	24.8
Married/partnered	393	60.6	62.6
Divorced / Separated	51	7.9	7.7
Widowed	17	2.6	4.9

---

[11] New Zealand Comparatives denote national population estimates based on 2013 Census and retrieved from Stats NZ. Source:
http://archive.stats.govt.nz/browse_for_stats/population/estimates_and_projections/NationalPopulationEstimates_HOTPAt30Jun14.aspx

[12] Gender percentage does not make up 100% as it excludes 1.9% of the other respondents who were either gender-diverse or did not disclose their gender.

[13] This percentage includes people with no qualification (approx. 21% in 2013) and overseas secondary school qualification.

[14] NZ comparatives for employment status do not make up 100% as some people could be studying and working at the same time or held both full-time and part-time jobs.

[15] Only includes people on NZ Super or Veteran's pensions, and annuities.

[16] Income percentage does not make up 100% as it excludes those who did not disclose their household income.

An average demographic composition of the survey respondents was a female, aged between 40 and 64 years, either married or cohabiting with a partner, with bachelor's degree as their highest educational qualification and full-time employed with an annual household income of $100,000 or more.

The process of data cleaning and preparation requires careful screening, detecting and editing the abnormalities in the data set. Data anomalies can be detected by having a closer look at the data set and checking responses which differ from expectations on the basis of "experience, inferences from pilot tests, evidence from prior research or common sense" (Van den Broeck, Cunningham, Eeckels, & Herbst, 2005, p. 967). Missing data affects survey analyses by decreasing the statistical power, losing important information, and creating bias and standard errors. A common source of missing data is item non-response where the participant takes the survey but does not provide a response to one or more survey items (Dong & Peng, 2013).

Incomplete survey responses were partially included in the analysis. However, partial response was only to be considered in the analysis if the respondent had provided complete demographic information and had chosen their status as an online banking 'user' or 'non-user' (question 6). This action resulted in 30 additional usable questionnaires, increasing the completion rate to approximately 80%.

In order to prepare the data for analysis, the wordings of survey questions were shortened to form codes for SPSS. A data codebook was made (Malhotra, 2019) as a reference guide to assign codes to the variables. The codebook includes variable names and description, and the codes indicating missing data and non-response (Sue & Ritter, 2012). Responses based on a Likert-scale were re-coded from one to five to allow easy readability. Dichotomous variables such online banking users or non-users were re-coded as 0 or 1.

3.6. Data Collection 3: Follow-up interviews

Qualitative interviews construct new knowledge and in-depth learning from participant experiences, introduce new issues, explore contrasting viewpoints, interpret people's cultures, generate specific recommendations and empower marginalised groups (Kendall, 2008). The main aim of the qualitative interviews is to supplement and support the survey findings with in-depth, "first-person accounts of the participants' social reality" (Schultze &

Avital, 2011, p. 3). The acquisition of rich and dense information through qualitative interviews is often the main motivation of most researchers (Kim, Sefcik, & Bradway, 2017). However, during standardized open-ended interviews, researchers come across issues with sifting through detailed narratives to find out relevant bits of information (Turner, 2010).

Face-to-face in-depth interviews foster learning about individual perspectives and can lead to invaluable contributions in the form of rich insights. During individual in-depth interviews, an interviewer should be prepared to deviate from the pre-planned course of actions, and ask questions as per the themes emerging during the conversation (DiCicco-Bloom & Crabtree, 2006; Kim, Sefcik, et al., 2017). While focus groups offer greater breadth and insights to the research, individual interviews facilitate studying the topic in depth and detail. This implies the participants are more likely to share their views on sensitive or personal topics during individual interviews rather than in group discussions (Guest et al., 2017). Rubin and Rubin (2011) discuss in-depth interviews as opportunities for exploring personal and social complexities in the real world by allowing an examination of contradictory perspectives on issues.

Designs of the online surveys and interviews can cause respondents to respond differently under different circumstances. This is because where on one hand, survey questionnaires are largely structured and do not evoke involvement and engagement as much as an interview, interviews trigger more affective or emotional responses, especially on sensitive topics (Kendall, 2008; Rubin & Rubin, 2011). Interviews are generally time-consuming and labour-intensive. There are obvious geographic limitations with face-to-face interviews which is often why interviewees prefer to be interviewed over the phone or Skype (Deakin & Wakefield, 2014; Janghorban, Roudsari, & Taghipour, 2014). However, qualitative interviews, in the absence of a face-to-face connection, have certain challenges. It can be difficult to build rapport, encourage honest responses and avoid technical problems such as poor internet connectivity in rural regions (Brewis, 2014; Patton, 1990).

For this study, interviews were used as a complementary method to follow-up with respondents for a detailed investigation of their banking experiences. The aim was to drill into the details to find out what online banking users think about the effects of their personal characteristics and life circumstances (such as being single, married or separated) on online banking use (see Appendix 6 for follow-up interview questions). Interviews helped in

evaluating how people bank differently using the online channel and how their use of technology is making a difference in their household financial decision-making and money management.

The interviewees were asked for consent for a second interview to further evaluate how their perceptions and thoughts might have changed since the survey was taken. However, they were informed that the second interview might not happen if there was enough information collected from the first interview round. A judgemental sampling method was used to recruit the respondents who were online banking users and belonged to different demographic groups.

Despite the richer understanding gleaned from qualitative interviews, their use is often cautioned due to certain limitations. Qualitative interviews are subjected to low credibility in policy-making as they tend to ignore the cultural and social constructions of the research problem (Rubin & Rubin, 2011). Interviews are effective in studying in-depth understanding of the thoughts, behaviours and motivations of selected individuals. However, their execution requires more time and expertise, which is why it is less frequently used as a standalone data collection method. Section 3.10 discusses other limitations associated with qualitative interviews.

3.7. Process

Twenty-six qualitative interviews were conducted with a sub-set of the survey respondents. A question at the end of the survey form asked, "Do you consent for a follow-up interview?". A range of options regarding available time slots (morning, afternoon, evening), medium of contact (phone or email), and days (weekends or weekdays) were provided to allow convenience and encourage flexibility. There were no incentives offered to the interviewees unlike the online survey participants.

Once the survey was closed, a complete list of all the respondents who had provided either phone numbers or email addresses, was exported as an Excel sheet. The total number of survey respondents who agreed to participate in the follow-up interview was 166. Obviously, not everyone could be interviewed. The candidates were divided into a few groups based on a mix of their demographics, especially age and gender. Their preferences were noted to sort the timings when they can be contacted. For example, a person who wished to

be contacted on a Tuesday afternoon at 3 pm was put on the list in front of the person wanting to be contacted on a Friday morning at 10 am and so on. Each group of respondents was sent an e-vite for the interview. Initially, only those respondents who had provided an e-mail address were approached as this simplified the contact process. The candidates were able to either ignore the email if they were not interested or inform the researcher about their non-availability by responding back with a quick email.

Past studies were reviewed to determine how many interviews were adequate. According to Morgan (2002), only the first five to six interviews inform the most research findings, and 80% to 90% of concepts are generally identifiable within the first ten interviews. Guest, Bunce, and Johnson (2006) note what researchers call "it depends" philosophy to support the idea that different research topics/issues merit different methodological designs and so, the number of the interviewees cannot be generalized. However, it was also noted in this study that 12 interviews account for 92% data saturation which means after the twelfth interview, no new data is generally identifiable, and researchers can then round-off analysis and stop sampling for more participants. In another study, 13 interviews are suggested to be enough before data saturation is reached in an inductive approach while 8 are considered enough to reach saturation in a deductive study (Guest et al., 2006). Another study recommends that between 16 and 24 interviews are adequate to develop "richly textured" understanding of the research problem and aspects (Hennink, Kaiser, & Marconi, 2017). Considering the objectives of this research, 25 was decided as the final number of interviews. However, in the end, 26 interviews were conducted because one of them did not provide enough information.

The first three to five minutes of the conversation were based on "warming-up" where brief questions were asked to gather primary information. At the end of the warm-up conversation, another nine questions were asked that depicted individual behaviours, household habits and general preferences for the interviewee with regards to online banking use. Questions following the warm-up session were customized based on the information gathered during the warm-up (see Appendix 6: follow-up interview questions). For example, one of the participants told during the warmup that she did not remember using anything except online banking since the time she has started managing her money. In this case, the first question was altered to ask her if she thinks a relationship with banking personnel would

play any role in the digital world. Similarly, respondents who identified as a single person in a flat were not asked about household differences in online banking use. Instead, they were asked if they remembered any differences in its use by parents, friends or past flatmates.

Purposive or judgement sampling strategy was used at this stage. The use of personal judgement in choosing potential participants for the follow-up qualitative interviews is less time-consuming, and effective with regards to the study design, the intended outcomes of the interviews, and the research aim and objectives (Oliver-Hoyo & Allen, 2006). This type of sampling considers the intentional selection of the participants based on their qualities or characteristics. To ensure maximum variability, participants with the most diverse characteristics (heterogeneous) were selected. The idea was to support participation across a broader spectrum based on the study objectives (Fricker, 2008; Malhotra, 2019).

Out of the first group of 20 people, only three people informed that they were unavailable. The reasons were mostly travel or health related. The remaining 17 candidates agreed to participate in the interview. From the second group, only three out of 20 responded. Out of the third group, six candidates out of ten responded back with an agreement to participate. This way the targeted number was conveniently achieved. Each interview was scheduled as per interviewee convenience of date and time, and all requests were properly addressed. All follow-up interviews were completed within 5 weeks.

The participants were given three locations to choose from: 1) Massey University, 2) Palmerston North city library, or 3) any other location of their choice. Participants who preferred meeting at a physical location chose one of the first two options. Providing locations that were easily accessible and central to the town encouraged a higher agreement rate since the participants did not have to invite the researcher to their personal property or flat, hence doubts about personal safety and security were kept to a minimum. The meeting room at the Manawatū campus of Massey University was located on a quiet floor and was available after business hours. A similar environment was used at the city library. The participants were also given the options of taking the interview over the phone or using Skype if they could not be effectively reached in person.

All interviews were audio-recorded, and field-notes were taken during the conversations. The name of the interviewee, date and duration of the interview and any type

of non-verbal cues or information that could lead to new questions, were part of the field notes. Some respondents named their banks to refer to their experiences, and so, the bank names were also noted down to come back to refer to specific bank experiences during data analysis stage. Sundin and Fahy (2008) contemplate how thick data (personal accounts) from interviews can arouse emotionality and self-feelings for the participants. Therefore, the main interest was to source direct quotations (anonymously) from each interviewee based on their feelings and perceptions, which informed the influence of variables such as age, gender, education, employment, household income or marital status. To protect anonymity and ethical protocols, every interviewee was assigned a unique pseudonym to refer to their statements through the data analysis and discussion stages.

The key respondent characteristics are given in Table 5. Out of the 26 respondents, seven took the interview by phone, one interview was done via Skype video-calling while the remaining were conducted in-person. As can be seen in Table 5, the sample was disproportionately female (61.5%), most respondents belonged to the age groups of either 30 to 39 years or 40 to 64 years (27% each) and were mostly married or cohabited with a partner (61.5%).

Table 5: Demographics of interviewees and comparison with survey respondents

	Frequency	Percent (%)	Online Survey respondents (%)
AGE			
15-19 years	5	19.2	4.0
20-29 years	1	3.8	22.5
30-39 years	7	26.9	25.1
40-64 years	7	26.9	38.7
65+ years	6	23.1	9.8
GENDER			
Females	16	61.5	66.9
Males	10	38.5	31.2
EDUCATION			
High school completion or equivalent	2	7.7	16.2
Certificate/trade qualification/diploma	4	15.4	19.3
Bachelor's	3	11.5	27.8
Master's	6	23.1	22.3
Doctorate	8	30.8	10.9
Others	3	11.5	3.5
EMPLOYMENT STATUS			
Not currently in paid employment	1	3.8	8.1
Paid full-time	11	42.3	44.1
Paid part-time	7	26.9	10.9
Retired	1	3.8	6.3
Self-employed	4	15.4	10.6
Student	2	7.7	20.0
HOUSEHOLD INCOME			
$40,000 or less	8	30.8	24.5
$40,001 - $70,000	4	15.4	20.0
$70,001-$100,000	4	15.4	17.2
$100,001 or more	10	38.5	25.0
MARITAL STATUS			
Never Married	7	26.9	29.0
Married/partnered	16	61.5	60.6
Divorced / Separated	2	8.0	7.9
Widowed	1	3.8	2.6
N	**26**		**575**

3.8. Data Analysis

Different data analysis methods were used to test the hypotheses. Figure 3 shows the main steps undertaken for analysing the data collection from the three methods, as discussed in the previous sections.

Figure 3: Steps of data analysis

Step 1: Focus Group	Step 2: Online Survey	Step 3: Follow-up Interviews
• Transcription, review of field notes and audio recordings for recurring topics and themes	• Descriptive statistics (frequency distributions and crosstabulations) • Stepwise regression • Principal Component Analysis • Ordinal logit regression	• Collection of personal stories, experiences and opinions

To provide descriptive properties, one-way frequency distributions and cross-tabulations were used. According to prior research, these two methods provide summary statistics, which helps the researcher in better understanding average responses and establishing familiarity with the types of responses obtained (Burns & Bush, 2000; De Vaus, 2013). For categorical, independent personal characteristics groups (age, gender, education, employment, household income and marital status), cross-tabulations specify a better model choice for testing causal relationships (De Vaus, 2013). Cross-tabulation helps in studying the relationship between and among variables (Joseph et al., 2006). Following best practice of marketing research, a suitable starting point is to use respondents' demographic characteristics in developing initial cross-tabulations. In doing so, research objectives are considered to avoid the possibility of having endless cross-tabulations with less or no specific contributions to the study (Joseph et al., 2006).

A stepwise regression method using the backward elimination process was used to test the effects hypotheses (H_1 to H_6). In marketing research, regression analysis is useful to make predictions about the probable effects of one variable over another (Field, 2017). Variables that have a true relationship with the dependent variables in terms of statistical significance are known as authentic variables while variables in the model which do not have any actual relationship with the dependent variables are called noise variables. Stepwise regression tests the data until noise variables are removed from the model to produce a subset of most

authentic variables that share actual significant relationships with the dependent variables i.e. $p < 0.005$. Based on this, stepwise regression allows a better glimpse of authentic relationships within the data (Seber & Lee, 2012).

As a goodness-of-fit measure, the use of R^2 or the coefficient of determination obtained from stepwise regression output, is important to measure the percentage of the variation in the dependent variable which is explained by variations in the independent variables taken together (Schroeder, Sjoquist, & Stephan, 2016). R^2 cannot be treated as the ultimate model quality determinant nor it can be used to compare different samples (Kennedy, 2003).

The online survey comprised 56 statements whose responses were based on 5-point Likert-scale statements, whose responses are based on ordered categories running from 'strongly disagree' to 'strongly agree'. These statements were broken down into composite (summated) scale scores or variables. The process of preparing Likert-statements for analysis involved a) recoding any negatively worded single items/statements, and b) obtaining a summated scale score by categorising individual Likert-items into summated scales (see section 3.8.1 for summated scales construction).

In Likert-scaling terminology, negatively worded statements are reverse-coded by running the numerical scoring scale in the opposite direction (i.e. changing the negative statements from '1=strongly disagree to 5=strongly agree' to '1=strongly agree to 5=strongly disagree'). This helps obtain a meaningful (total) scale having statements in the same direction of agreement-disagreement (Swain, Weathers, & Niedrich, 2008). Reversed items in a survey questionnaire offer better coverage of the construct being measured, and controls for acquiescence (i.e. tendency of showing positive connotations) and non-substantive responding (Weijters & Baumgartner, 2012). Other researchers suggest item reversals reduce the psychometric quality of different items, and create an unbalanced scale design (Roszkowski & Soven, 2010; Van Sonderen, Sanderman, & Coyne, 2013). The disadvantages of item reversals are measurement errors, overall mis-response, item verification difficulties and respondent fatigue. Nonetheless, its contribution to determining scale validity has been discussed and a careful use of reverse coding is advised (Józsa & Morgan, 2017).

The total scale scores were obtained by identifying the key themes within the Likert-scale items that when combined, measured a particular attitude related to users' perceptions

of online banking use. Likert-scale measurement methodology follows the principle of aggregation (Dittrich, Francis, Hatzinger, & Katzenbeisser, 2007), in which the scores obtained from a scale are summed and analysed as multiple items on a summated scale rather than using single-items (Joshi, Kale, Chandel, & Pal, 2015). As per prior research (Boone & Boone, 2012; Joshi et al., 2015; Sullivan, Artino, & Anthony, 2013), the minimum number of individual Likert-items under each total scale score was set at four statements. A composite score is considered more reliable in discussing a complex result than single-item responses. For response frequencies of each summated scale, see Appendix 12.

Because all the summated scales measured the same theme i.e. users' perceptions of online banking, there might have been some correlation between them. We used Spearman's Rank Correlation or Spearman's rho (r_s), which is a nonparametric measure of how strongly a relationship exists between two variables measured on an ordinal scale (Schober, Boer, & Schwarte, 2018). Because Spearman's rho is the Pearson correlation's equivalent for ordinal data, it was suited to determining relationships for this type of data. The results from r_s output indicate only the associations between the scales and does not indicate causal relationships (Mukaka, 2012; Schober et al., 2018).

Once these scales were developed, an ordinal logistic regression (ordered logit model) was used to test the effects of the customers' personal characteristics on perceptions of online banking use. The main objective of this testing was to find out how well the responses against different statements could be predicted by responses to other questions, and how our independent variables (i.e. personal characteristics) had a statistically significant effect on the dependent variables (i.e. Likert statements) (Malhotra, 2019).This type of regression is designed for ordinal dependent variables where survey items or statements were answered using a Likert-scale.

In the second phase, the individual Likert-scale statements were reduced to fewer constructs using a data reduction technique known as principal component analysis (PCA) (Jolliffe & Cadima, 2016; Tabachnick & Fidell, 2007). Although often used interchangeably with Factor Analysis (FA), the basic objective of PCA as an exploratory data analysis tool (Jolliffe & Cadima, 2016), differs from that of FA. Psychometricians contend PCA is run when one has to reduce the number of correlated observed variables into a small number of independent composite variables (Grau, 2007; Pett, Lackey, & Sullivan, 2003; Uluman &

Doğan, 2016). As noted by Beavers et al. (2013), FA is not a single methodological technique rather it is a combination of similar statistical methods that share the same functionality. This technique helped in confirming whether the constructs depict the same themes or variables as the aforementioned scale construction and any other aspects that might be important to note. Rachel and Summers (2019) describe PCA in a simplistic yet effective way:

"Principal components analysis (PCA) is a statistical procedure that summarizes the information in the correlated data series with a smaller set of mutually uncorrelated variables. The components are ordered in such a way that the first explains the highest share of variance in the data" (p.7).

The reliability of the PCA constructs was tested using Cronbach's Alpha (Grau, 2007). The goal behind reliability testing was to test the internal consistency of the survey. With the objective of determining the model's overall fit, multiple regression is run to explain the relative variations of each component to the total variance (Field, 2017; Rajab, MatJafri, & Lim, 2013).

Cronbach's alpha determines how well a group of items focuses on a single construct or idea (George & Mallery, 1994). It is used to check the reliability of variables in measuring a single construct. The value of Cronbach's alpha should lie between 0.6 to 0.7 (i.e. the acceptable range) (DeVellis, 2016; Hair, Black, Babin, Anderson, & Tatham, 2006; Kline, 2015). A low value of alpha can be attributed to poor inter-relatedness between items, a smaller number of questions in the survey or heterogeneous constructs.

Before conducting multiple regression, the data generates index variables whose role in social sciences is to operationalize abstract subjects and develop research analyses tools (Chao & Wu, 2017). Data exploration plays a vital role in index construction in which PCA presents with the generation of unidimensional components/factors out of the several items entered in the model (Abeyasekera, 2003). For this research, sum scores by factor method was applied to generate the index variable according to PCA loadings. The sum scores by factor method took into account the items that combined together (i.e. have face validity to measure what they intend to measure) as a PCA-based index measure, being a simple and robust way of studying the effects of the variables of interest (Krishnan, 2010; Uluman &

Doğan, 2016). PCA determines the empirical relationship between the items that can be included in the index to ensure their unidimensionality.

For follow-up interview analysis, a thematic analysis was carried out. It is a widely-used, qualitative method which is used "for identifying, analysing and reporting patterns (themes) within data" (Braun & Clarke, 2006, p. 79). Thematic analysis is a flexible approach for analysing personal experiences. It facilitates the social distribution of perspectives on the researched topic and enables in-depth analyses in comparison with overview-oriented qualitative methodologies (Flick, 2018).

3.8.1 Construction of summated scales

A smaller number of new variables, referred to as the summated scales, were extracted from the inventory of 56 Likert-scale statements. Each summated scale comprised multiple items or indicator statements which were combined to measure the same construct. The summated scales were constructed based on the researcher's intimate understanding of the subject matter, supplemented by focus group findings and prior research reviews. It was ensured that the statements had the ability to faithfully reflect either a favourable or unfavourable attitude to be measured.

For combining statements, we distinguished a series of statements measuring the same theme or addressing the same topic and separated them under a specific summated scale. For example, statements depicting age-based behaviours were taken together to form the summated scale of "age-related attitudes (AA)" while those exploring customers' perceptions of the value of personal interactions were combined under the summated scale "preference for personal interactions (PI)". The responses to these scales implied various scores arranged consistently from the highest to the lowest (5= strongly disagree, 4= disagree, 3= neither agree nor disagree, 2= agree and 1= strongly agree).

Next, we discuss what the summated scales measured and the items or indicator statements[17] within each summated scale. Descriptive statistics are given in Appendix 11.

Budget management (FA):

---

[17] In all cases, the statements marked with an asterisk (*) mean they have been reverse-coded.

The first summated scale, "budget management", measured attitudes or opinions about online banking's contributions to spending patterns and budget management. The following are the nine indicator statements that made up this summated scale. The first and the fifth statements are negative in the studied context and so are reverse-coded.

1. *I am now spending more money with the use of online banking.

2. I am now more aware of my fund flows (in and out) with the use of online banking features.

3. I check available funds before deciding to spend my money.

4. I feel I can easily purchase anything now because of online payment methods.

5. *My use of online banking is influenced by past consumption patterns and experiences.[18]

6. My use of online banking is influenced by current funds available.

7. Knowing how much money I have, means that I spend less.

8. Spending has increased substantially in younger generations with the use of the online banking channels.

9. I prefer using online payment methods rather than cheque and cash.

Based on the response frequencies, around 62% of the respondents agreed with the indicator statements, which means more people perceived online banking use leads to better budget management. Appendix 12 shows response frequencies for the summated scales using stacked bar graphs.

Age-related attitudes (AA):

The second summated scale, "age-related attitudes", measured the characteristics that can influence customers' learning and/or use of online banking due to their age. The following are the seven indicator statements that focused on age-based attitudes.

1. My age affects how I learn and use online banking.

2. * I am less willing to learn about online banking than people younger than me.

3. I am more willing to learn about online banking than people older than me.

---

[18] This statement implies online banking use depends on customers' previous expense routines or perceptions of past spending patterns rather than on the current funds available. Therefore, it is reverse coded to drive the statement in the same direction as that of statement 6.

4. *Physical deficiencies faced by people over 65 years of age can serve as an impetus for them to learn how to use online banking.*

5. **People aged 65 or older do not use online banking extensively because they don't know how to use it.*

6. *People aged 65 or older are more inclined to learn new ways of banking through online and mobile platforms.*

7. *I am more willing to provide personal information on online banking than those older than me.*

Based on the response frequencies, we note that the difference between disagreement (39.6%) and agreement (37.4%) with the statements was relatively smaller, which means that overall, mixed responses were received for the perceptions of age-related attitudes.

Learning new things (LI):

"Learning new things" was the third summated scale for the survey, whose main focus was to examine how customers' perceived their learning abilities or confidence in using online banking.

1. **I hesitate in learning about online banking apps.*

2. **I am usually distressed when I face difficulty in learning how to use online banking.*

3. *I feel confident in searching for information about banking and its products through search engines.*

4. *I am usually enthusiastic about using new technologies.*

5. *An educated person is likely to be a quicker learner of online banking than an uneducated one.*

6. **I feel frustrated at the complexity of login procedures for online banking.*

7. **I often feel overwhelmed by the glut of information available online.*

The response frequencies for this summated scale show that 59% of the total respondents (who either strongly agree or agree with the statements) perceived positive self-interest for learning new things about online banking.

Preference for personal interactions (PI):

An individual's attitude towards bank-customer relationships is defined by their experiences with the branch staff. This summated scale measured customers' experiences of

engaging with bank staff. These nine statements measured the nature of these personal interactions and their importance for bank-customer relationships.

1. *I enjoy spending time talking to bank staff at the branch office.*
2. *My relationship with the bank branch is more for getting advice and information than for getting money in and out.*
3. *I like the personal customer services obtained at the branch.*
4. *I am connected to bank staff through LinkedIn.*
5. *I think branch banking is a good way for people to interact with bank staff and develop relationships.*
6. *I keep traditional business cards of bank staff to be able to make contact when necessary.*
7. **I feel my banking issues are resolved more rapidly using online complaint/feedback process than through branch staff.*
8. ** I do not feel the need to speak to a bank representative to resolve my banking problems.*
9. **Having online banking strengthens my relationship with the bank.*

Based on the response frequencies for this summated scale, we note that in totality, the respondents felt indifferent about their preference for personal interactions.

Security perceptions (SEC):

The next summated scale, comprising ten statements, measured customers' perceptions of how "safe" online banking is, and what are some of the risks involved in online banking use.

1. *I am usually careful when using ATMs and banking Kiosks in public spaces (for e.g. observe safety while entering PIN codes etc.).*
2. *When I make online transactions, I always ask for a physical address I can check.*
3. *I am generally careful in sharing personal information online.*
4. *I do not give my card details to someone over the phone unless I initiated the call and know the organization is trusted and reputable.*
5. *I try to only use ATMs that are attached to physical bank branches.*
6. **I feel safe doing banking on a public computer like at a library or in the university.*

7.   *I prefer to use my cellular network instead of Wi-Fi for online banking.*

8.   *I think that providing additional security around online banking transactions is of particular importance.*

9.   *It is a good idea to keep some cash on hand to get through an emergency (for e.g. earthquake).*

10. *I have set-up notifications to see when somebody logs in to my account from a new device.*

The response frequencies show that 72% of respondents perceived security risks in their use of online banking. Through the follow-up interviews, we find these security perceptions compelled most users to exercise caution in performing online transactions and giving out personal information.

Perceptions of customer service (SERV):

Four statements in the survey related to general perceptions about online banking services. Hence, this summated scale is named "customer service" for its focus on service quality and its effect on customers' switching inclinations (from one bank to another).

1.   **I am likely to switch from one bank to another in search of better online banking services.*

2.   *In my experience, online banking in New Zealand is better than online banking offered by other countries (e.g. swifter, more responsive, more variety in services etc.).*

3.   *There are other banks providing better online banking services than mine.*

4.   *I rely on word-of-mouth from friends about new apps.*

Based on the response frequencies, we note that 41% of respondents held neutral opinions (neither agree nor disagree), while the other 36% disagreed with the scale. During the interviews, one of the interviewees shared that he wanted to switch their current bank because of dissatisfaction with features and services provided:

"If [bank name] did not provide me with an envelope system for my eight checking accounts, I would have switched to [bank name] because they offered the total money thing and I was determined that was the best way to saving. Hence, I stayed with [bank name] because it's quite a hassle moving your mortgage and everything" (A17).

Perceptions of hardware requirements (HAR):

Through the summated scale titled "perceptions of hardware requirements", we assessed the basic experience of the users with regard to smartphone-based online banking, and whether or not users perceived a certain degree of dependence on their phones or laptops for learning how to use online banking.

1. *I do not use online banking because I do not have the latest smart devices to use it on.*

2. *Due to the small screen size on mobile devices, I make larger transactions using online banking through my PC or laptop.*

3. *There have been changes to my use of online banking since I upgraded my phone/tablet.*

4. *My use of online banking has increased since I bought a smartphone.*

As shown in the stacked bar graph (Appendix 12: Figure 26), most respondents either strongly disagreed or disagreed with the scale which means overall, they did not perceive changes to their use of online banking due to their use or non-use of smartphones or other devices.

Perceptions of online banking convenience (CONV):

As the name suggests, this summated scale "online banking convenience" measured customers' perceptions of whether the ease and accessibility of online banking had changed the users' overall banking experience, and how it had affected their banking practices.

1. *The nature of my work enables me to access online banking easily (for e.g. more desk work, access to computers, use a work phone etc.).*

2. **I like to keep some cash for places (such as morning markets or other small traders) where EFTPOS is not available.*

3. *I have set up regular payments through my online banking account.*

4. *I want to live independently and that is why online banking is more useful for me to do things on my own.*

5. **I often feel frustrated at having to click past promos pitching bank products on apps.*

Based on the response frequencies, 55% of the respondents either agreed or strongly agreed with the scale which implies they perceived the online channel as a convenient way of banking.

3.8.2 Measurement

This section discusses the survey items that are used in the online survey analyses. Table 21 and Table 23 presents the results for nine survey items on the basis of which the effects of and interactions between demographic characteristics were determined. Here we describe briefly what each of these items or facets mean for online banking use, which will simplify the understanding of the findings.

Use of online channel for banking: This facet is based on Q6 of the survey questionnaire in which respondents are divided into "users" or "non-users" of online banking based on their response. This item, hence, measures respondents' choice of banking channel (i.e. someone who is a 'user' rather than a 'non-user' based on their response) for performing banking transactions.

Differences in households' frequency of online banking use: This facet is based on Q22 of the survey questionnaire. A measure of households' frequency differences provides the understanding of within-household differences in banking customers' frequency (i.e. number of times) of using the online banking channel.

Differences in households' reasons of online banking use: This facet is based on Q23 of the survey questionnaire. It represents within-household differences in reasons of using the online channel for banking.

Both the facets (differences in frequency and reasons) talk about how members of the same household/family can have different behaviours or usage patterns.

Recent branch visit: Question 1 measures if customers' last visit to a branch which reflects a connection they would have with in branch banking in addition to or on top of using online banking.

Interview insights as well as the next question (Q2) explain why these customers would visit a branch and whether they are using branch for services or transactions that are not easily possible in the online environment.

Preference for human contact: Based on Q3 of the survey, this question measures the importance of human contact for banking in customers' views. This measures customers' opinions regarding the value they place in the role of branch-based human contact in bank-customer relationships.

Experience (in yrs) with online banking: Based on Q13 of the survey, this facet measures the length of time customers have been using the online channel for, which implies their familiarity with the online banking channel.

Preferred time (place) for online banking use: Based on Q14 of the survey, this facet or item measures customers' preference for a certain place (home, workplace or when out and about) thus, implying their preferred time of the day. The details of this question (for example the main reasons behind why respondents would choose "at home" rather than "at work") were sought in the follow-up interviews.

Likelihood of keeping cash: This facet corresponds to Q5 of the survey questionnaire finds customers' cash-handling propensity based on how many days of the week they would like to keep cash. This facet builds on the thought that those who prefer using cashless payment methods (which is an extension of online banking services), would not keep a lot of cash on a regular basis.

Learning interest: This was Q29 of the survey that is based on respondents' learning inclinations for new apps or existing features added to new apps. This measure addresses respondents' interest in more information about different online banking products and services, which is an important behavioural tendency.

For discussion on the survey items (i.e. eight perceptual categories) for perceptions hypotheses (H_{13} to H_{20}), see section 1.3.1.

3.8.3 Level of proof for hypotheses acceptance/rejection

For the acceptance or rejection of a hypothesis, we have applied certain criterion to be applicable for all types of findings (see tables 34-36 for results syntheses). For research questions 1 and 2 (corresponding to hypotheses H_1 to H_{12}), the following conditions apply:

- For a hypothesis to be *supported*, the studied variable (demographic characteristic) needs to be a significant predictor of at least one facet or feature of online banking use.

- For a hypothesis to be *rejected*, the studied variable needs to be an insignificant characteristic for at least one feature of online banking use.

- If a characteristic is not significant for all but one item, the resulting relationship is *partially supported*. Similarly, if a characteristic is significant for all but one item, the resulting relationship is considered *partially rejected*.

For research question 3, the above criterion is slightly different:

- If at least one demographic characteristic shows significant effects on a perceptions hypothesis (H_{13} to H_{20}), the resulting outcome is a *supported* relationship.

- Similarly, in case no demographic characteristic shows any effect on a perceptions category, the resulting outcome is a *rejected* relationship*.

- There is no condition for partial support or partial rejection for H_{13} to H_{20}. They can either be supported or rejected depending on the significant predictors obtained from the analysis.

3.9. Ethics

This research underwent an ethical review as per the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants (Massey University). This code provides a comprehensive guideline in consistency with the Section 161 of the Education Act 1989 to ensure researchers' adherence to appropriate ethical processes throughout the research journey.

Strategies such as informed consent and voluntary participation were adopted to avoid ethical breaches. Full transparency regarding the collection, use, disclosure and disposal of data has to be maintained (Morgan, 1996). It is vital to include possible information regarding participation and incentive system in the informed consent so that respondents are able to understand the consequences of their choice (Ambuehl & Ockenfels, 2017). Participants were duly warned about limitations to control over disclosed information. Information regarding recording of responses was made available and the participants could access the summary of research findings upon request.

Group cohesion is difficult to maintain in large focus groups (Garrison et al., 1999). This was an advantage to the focus group discussions conducted for this study because the group sizes were manageable. Most of the ethical concerns were avoided with the recruitment of professional and educated people as participants because they were aware of the protocols of focus group discussions, and how to share their opinions and feelings while being respectful of others' viewpoints.

Incentivizing respondents in online surveys is not a new practice; however, the ethical issue with incentives is that it can lead to coercive or undue inducement. While prior studies suggest survey respondents may have qualms about the real intention of offering incentives (Ambuehl & Ockenfels, 2017), stringent informed consent requirements can resolve the issue. Quality control measures are imperative because if the respondents like the incentive, there is a fair chance they will want to participate in the survey multiple times to try to win the prize. However, such quality control was done by Qualtrics by restricting duplicate participation using in-built filters and IP-locaters. Head (2009) discusses the possibility of skewed Internet sampling because more low-income people tend to participate in a survey for monetary returns. This issue was resolved using reasonably-valued gift cards so as not to appear overly attractive to the economically disadvantaged groups.

As per the ethical committee recommendations, direct quotes from Facebook posts and other social media sites (at the online survey stage) and from interviews were deliberately eschewed to avoid easy data traceability. The interview data was kept confidential and anonymous by using pseudonyms to avoid disclosing identifying information for the interviewees. Participants' right to participate or withdraw from the interview was disclosed in the consent form (see Appendix 7). The interview proceeded only after the consent form was read and signed. For Skype-based or phone-based interviews, a similar process was followed, and the respondents signed off the consent form and sent it before the interview via electronic means.

3.10. Limitations

Despite the usefulness of the findings from each focus group discussion, their potential use was limited to questionnaire development and could be used to supplement formal data collection. Some of the respondents might have been used to giving out personal information in group settings, as many of them claimed to have participated in similar interviews before.

It was challenging to recruit people with different personal characteristics, and it was found younger people (usually under 35 years) were hard to find. Lack of response from respondents manifested into smaller than expected group sizes. The smaller size of focus groups reflects inadequate representation of the larger groups, and snowball sampling restricts the inclusion of diverse opinions about online banking use (Stewart & Shamdasani, 2014). Over-disclosure can cause issues in focus groups in the presence of many people at the same time. There is no guarantee of ensuring absolute confidentiality and privacy in focus groups (Greenbaum, 1998). The stress of over-disclosure is difficult to reduce in the presence of many people in a single group discussion but is comparatively easier to control during individual interviews.

As far as the survey limitations are concerned, the response rate could not be calculated because the online survey did not identify the frame population. Recruiting participants through snowball sampling and virtual online sampling methods made it difficult to enumerate the set of persons that were invited to take the survey prior to the selection of the sample. The representativeness of the sample may be affected by variations in technology accessibility and competence (Bethlehem, 2010). This is known as coverage error, which means a mismatch between target population and frame population that threatens inferences from surveys and limits generalizability. Empirical evidence suggests the Internet samples are only diverse and not necessarily representative of the general population (Best, Krueger, Hubbard, & Smith, 2001). Lack of measuring survey participation due to the use of multiple social media routes is another concern. While Twitter and Facebook pages had some insights or analytics reporting the numbers of likes on a post and post view counts, there were gaps in determining the exact route the respondents took to access the survey.

Sample bias is another issue on the basis of under-coverage of the population and self-selection (Evans & Mathur, 2005; Fricker, 2008). This occurs when individuals select themselves for the survey hence reducing the ability of the survey to cover aspects or opinions of individuals who chose not to participate (Bethlehem, 2010). This bias complicates the interpretations of market research, and as a result, reduces the representative value of the survey. With regards to intercept techniques used for this study, one of the biggest drawbacks was the lack of rapport-building opportunities in the public space. People who were intercepted in the streets to hand out postcards might have perceived it to be privacy intrusion; hence, quicker dissuasion was observed. As a precautionary measure, people were

not forcibly interrupted rather a whiteboard containing participation details was held in the streets and shopping areas where people could easily read the board and collect the postcards. This, to some extent, reduced the chances of unwanted interruption or distress during the approaching phase. The use of Likert-scale statements in the survey provided limited response choices to the respondents. The respondents tend to avoid choosing the extreme options on a Likert-scale due to negative connotations tied with extreme answer option (Heeringa, West, & Berglund, 2017). Hence, the responses to Likert-scale statements might have been influenced by the participants' inclination to be socially desirable.

There were a number of limitations that we came across during the qualitative interviews. Lack of information about respondents' survey inputs at the time of the interview was a limiting factor. This could lead to inaccuracy in data reporting as the respondents could have answered the survey and the interview differently. Since follow-up interviews required recalling historic accounts and events, some participants might have given inconsistent or contradictory responses due to poor memory or lack of time to recall events in detail.

Sample bias existed because the interviewees were selected as per researchers' choice and assessment of diversified demographics. A few respondents treated the interview as an opportunity to vent their disappointments against banks. Their answers reflected their dissatisfaction with the banking system in particular, rather than general insights. Caution has been exercised to interpret their views.

One interviewee preferred to be interviewed via Skype for its convenience. It was observed that this person juggled a few other chores such as making a coffee, talking to their spouse, or even switching tv channels during the interview. Deakin and Wakefield (2014) advise emailing respondents several times before the interview to build rapport, and compiling checklists for respondents (such as ensuring a quiet room, confirming stabilized Wi-Fi connectivity etc.) in mitigating such issues. Such measures were exercised to keep the distortions to a minimal.

The interview sample was dominated by people of age groups 40 and above. Hence, there were struggles with recruiting younger people or those with diverse characteristics. Some interviewees misunderstood the questions and prompts, which were basically taken from the survey. This raised the likelihood that they might also have misunderstood the

survey items. Some might have manipulated their answers to be more socially-acceptable, as a direct effect of social-desirability bias (Booth-Kewley, Edwards, & Rosenfeld, 1992). Alternatively, the fear of appearing uninformed or outdated may have compelled respondents to conjure up opinions, to look like they know all the answers. Spontaneity and honesty of responses might have been affected due to the fact that they knew the interviews were audio-recorded.

As noted by Rindfuss, Choe, Tsuya, Bumpass, and Tamaki (2015), respondents' demographics and life-style circumstances are major reasons for non-response. Family and work commitments reduce people's willingness to participate in surveys because of time pressures or work-life imbalances (Vercruyssen, Roose, Carton, & Putte, 2014). Some respondents were initially contacted for a follow-up interview but refused to participate owing to work-related reasons and family circumstances (such as one prospective interviewee was pregnant at the time she was contacted while another was moving to a new house).

3.11. Chapter summary

The methodological approach was based on a sequential triangulation combining three-pronged data collection methods based on a qualitative-quantitative-qualitative combination. Firstly, the use of focus group discussions was as a tool to generate relevant themes for development of the survey instrument. The main purpose of the focus group discussion was to identify themes and issues that could be converted into an online survey. The survey questionnaire was built in Qualtrics and piloted with ten people over two phases. Traditional snowballing, virtual online sampling and intercept surveying techniques were employed to recruit potential survey respondents. Promotional tools such as Facebook group and public posting, Tweets, postcards and flyers were used containing a QR code to allow access to the survey on smartphones and other mobile devices. The completion rate was 80%.

The next step involved collecting personal accounts through follow-up interviews with a small sub-set of the survey respondents. The use of judgement sampling technique allowed the deliberate selection of the participants on the basis of their characteristics. Twenty-six interviews took place in the form of face-to-face interactions or phone and Skype-based conversations. In the course of data analysis, the preliminary causal relationships between variables and summary statistics were obtained through one-way frequency distributions and cross-tabulations. To test the effects hypotheses, a stepwise backward regression method

was used to produce the best subset of the regression model with all the remaining statistically significant variables. An ordinal logistic regression (ordered logit model) was used to test the effects of the customers' personal characteristics on perceptions of online banking use. As a data reduction technique, principal component analysis was used to obtain a pragmatic summary of the data set into a set of constructs that explained customers' perceptions of online banking use. The internal consistency of the constructs was examined using Cronbach's alpha. For the purpose of identifying, analysing and reporting insights from qualitative interviews, a thematic analysis was adopted which was based on finding repeated themes, patterns and ideas by examining the data closely.

Prescribing to the Code of Ethical Conduct for Research, Teaching and Evaluations involving Human Participants (Massey University), this study underwent an ethical review. Ethical considerations arising from informed consent, voluntary participation, information disclosure, group cohesion issues, incentivizing participants, need for quality control measures, the skewness of the Internet sample, use of pseudonyms to protect identity and anonymity and disclosure about participants' right to participate or withdraw from the interview were discussed.

Some methodological limitations arose with the use of different data collection methods that could affect the data quality and sample representativeness. These limitations included challenges in recruiting people with different personal characteristics, small focus group size and its effect on coverage of topics/themes, inability to calculate response rate for online survey in the absence of a frame population, coverage errors and sampling bias, social-desirability influences and the pros and cons of intercept techniques such as participant dissuasion and need for rapport-building. The possibility of inconsistent or contradictory responses were discussed along with evaluating how personal life circumstances of the prospective interviewees prevented them from taking the interview and contributed to a low interview response rate.

The next chapter reports the empirical findings from the online survey and follow-up interviews on the basis of the research hypotheses.

Chapter 4. Results

This chapter discusses key empirical results for the data collected from the online survey and interviews. A combination of quantitative and qualitative approaches is used for data analyses including statistical modelling to determine the significance of the results. Responses to the online survey are analysed using descriptive and inferential statistics. The tests employed to seek the relationship between the dependent and independent variables are reported and discussed in detail in separate sub-sections. This chapter has three main areas of analysis: 1) testing effects hypotheses, 2) testing interactions hypotheses, 3) perceptions hypotheses. The follow-up interview insights supplement the understanding of the analyses by providing personal accounts and experiences of the interviewees.

4.1. Descriptive findings

This section discusses the descriptive findings obtained from the online survey whose development and content are discussed in chapter 3 (section 3.5). To understand the basic properties of the data, we used frequencies and cross-tabulations.

The first set of questions, called the screener, divided the respondents into two categories: users and non-users of online banking. We find 98% of the sample were users while 15 respondents identified themselves as 'non-users' of online banking. A strong preference of the survey takers towards online banking was implied. This preference needs to be interpreted with caution because an online survey is likely to attract more Internet users than non-users. Table 6 shows the survey respondents' demographic composition.

Most non-users were older people and were more likely to be self-employed, retired or unemployed than the users. In addition, the non-users were more likely to be less educated (i.e. had high-school or diploma as their highest qualification) in comparison with the online banking users. However, with the small numbers of non-users, these points of difference were not statistically significant and do not provide any conclusive information about the differences between online banking users and non-users.

Table 6: Demographic differences between online banking users and non-users

Demographic variables	Users (%)	Non-users (%)
Age		
15-19 years	4.1	0
20-29	23.0	0
30-39	25.2	23.1
40-64	38.0	69.2
65+ years	9.8	7.7
Gender		
Male	31.3	30.8
Female	67.1	61.5
Education		
High School	16.0	23.1
Cert/Diploma/Trade	19.3	23.1
Bachelor	28.0	15.4
Master	22.3	23.1
Doctorate	11.0	7.7
Others	3.4	7.7
Employment status		
Student	20.4	0
Paid part-time	11.0	7.7
Paid full-time	44.1	46.2
Self-employed	10.5	15.4
Retired	6.1	15.4
Not currently in paid employment	7.9	15.4
Household income (annual)		
40,000 or less	24.3	30.8
40,001-70,000	20.1	15.4
70,001-100,000	17.6	0
100,001 or more	24.8	30.8
Marital status[19]		
Never married	29.0	n/a
Now married/civil union/living with a partner	60.6	n/a
Divorced / Separated	2.6	n/a
Widowed	7.9	n/a

Visiting a branch

The first survey question, following the screener, asked when the respondents last visited a bank branch. We find irrespective of characteristics, few people reported last visiting a branch more than six months ago. The cross-tabulated findings suggest people have a connection with the branch, regardless of age. Those aged 40 years and above visited a branch

---

[19] Marital status percentages for non-users are marked "not applicable (n/a)" because only users of online banking were asked about this characteristic.

within the last month, similar to the 15- to 19-year-olds. A chi-square test of independence, however, did not show significant association between age and last branch visit (χ^2=21.03, p=.18). Combining these findings, we find the proportion of respondents who reported visiting a bank branch is not likely to differ by age.

The cross-tabulations suggest no striking difference between unmarried and married people regarding last branch visit (Table 7) except that those whose marriage had been dissolved due to widowhood, divorce or separation, had mostly visited a branch within the last month. However, this finding can be a reflection of their age. The chi-square test however, indicated the likelihood of customers' branch visits to be affected by their marital status (χ^2=20.81, p<.05). None of the other characteristics reported a significant association with last branch visit. Table 7 shows the cross-tabulations in detail. The figures in bold in this table onwards, highlight the highest frequencies (in percentage) of the response choices.

Table 7: When was the last time you went to a bank branch?

		<1m	1-6m	6m - 1y	>1yr.	Unsure	N
Age	15-19 years	**37.5%**	33.3%	20.8%	4.2%	4.2%	24
	20-29 years	27.9%	**47.1%**	14.0%	7.4%	3.7%	136
	30-39 years	30.9%	**34.2%**	21.7%	11.8%	1.3%	152
	40 to 64 years	**37.6%**	35.5%	14.1%	8.9%	3.9%	234
	65+ years	**44.1%**	28.8%	10.2%	13.6%	3.4%	59
Gender	Male	34.4%	**38.1%**	17.5%	8.5%	1.6%	189
	Female	34.2%	**36.5%**	15.3%	10.3%	3.7%	406
Education	High school	**38.8%**	36.7%	12.2%	9.2%	3.1%	98
	Cert/Dip/Trade	**39.3%**	34.2%	16.2%	9.4%	0.9%	117
	Bachelor	33.9%	**36.9%**	14.9%	10.7%	3.6%	168
	Master	28.6%	**43.0%**	16.3%	9.6%	3.0%	135
	Doctorate	**33.3%**	**33.3%**	22.7%	7.6%	3.0%	66
	Others	**33.3%**	28.6%	14.3%	9.5%	14.3%	21
Employment status	Student	36.4%	**39.7%**	16.5%	4.9%	2.5%	121
	Part-time	**36.4%**	34.9%	16.7%	9.1%	3.0%	66
	Full-time	29.2%	**38.9%**	17.2%	11.2%	3.4%	267
	Self-employed	**46.9%**	42.2%	6.3%	3.1%	1.6%	64
	Retired	**47.4%**	23.7%	13.2%	10.5%	5.3%	38
	Not employed	**28.6%**	26.5%	20.4%	20.4%	4.1%	49
Household Income	$40,000 or less	**40.5%**	31.1%	16.2%	7.4%	4.7%	148
	$40,001-$70,000	31.4%	**44.6%**	15.7%	6.6%	1.6%	121
	$70,001-$100,000	**36.5%**	34.6%	16.4%	11.5%	1.0%	104
	$100,001 or more	30.5%	**39.1%**	15.2%	11.9%	3.3%	151
Marital status	Never married	27.6%	**43.1%**	19.7%	5.9%	3.7%	188
	Married/partnered	35.9%	**36.4%**	14.7%	10.9%	2.0%	393
	Divorced/separated	**41.2%**	29.4%	5.9%	11.7%	11.7%	17
	Widowed	**41.2%**	27.5%	15.7%	9.8%	5.9%	51
Total		35.4%	36.5%	15.7%	9.2%	3.1%	

Reasons for branch banking

The four most frequently cited reasons for visiting a branch were depositing cash, dealing with foreign currency, opening new accounts and ordering new debit/credit cards (Table 8). It was noted that most of the reasons for visiting a branch were related to services that the customers could not have obtained on-line.

Respondents who chose 'others' as their answer elaborated on their response by giving us the reasons why they usually go to a branch. These reasons included "asking for advice with credit cards and travel insurance", "adding signatories to a bank account for a charitable institution", "discussing life insurance policies", "help for sponsorship for mother's visit", "changing some cash into other denominations", "confirmation of account for Studylink

student allowances", "making final payment on deceased mother's credit card", "proof of account number for WINZ", "password replacement (was not available online)", "discussion related to KiwiSaver account", "name change after getting married" etc. It was interesting to find that some respondents commented they only visited a branch when the required service either did not work online or was not available using an online banking account. We also noticed some of the services mentioned could have been arranged online, but the customers chose to go out to a branch and interact with the bank staff.

Table 8: For what reasons do you visit a bank branch? Please choose all that apply.

		Percent
	Deposit cash	**24.10%**
	Deal with foreign currency	**19.90%**
	Open new account(s)	**17.00%**
	Order new debit/credit card(s)	**13.50%**
	Others	12.50%
	Withdraw cash	12.30%
	Obtain home loan advice, information or application	12.00%
	Deposit a cheque	10.60%
Reasons for visiting a bank branch	Make large transactions	6.70%
	Manage my credit and debit cards	6.20%
	Obtain investment advice, information and management	6.10%
	Seek assistance/information regarding online banking	5.30%
	Get a bank account balance	2.90%
	Manage term deposits	2.50%
	Pay other people (e.g. family or friend)	2.20%
	Resolve debit/credit card decline issues	1.70%
	Make additional loan payments	1.30%
	Transfer money between my accounts	1.30%
	Make bill payments	1.20%
	Reporting scams	1.10%
	Make final repayment of loan	0.50%
	Make tax payments	0.30%

Reasons for online banking

Based on the response frequencies (Table 9), we find the top three reasons for using online banking were payment related i.e. transferring money between accounts, paying bills and paying other people.

Table 9: What do you use online banking for? Please select all that apply.

		Percent
Reasons for online banking	Transfer money between my accounts	**85.50%**
	Pay other people (e.g. family or friend)	**83.50%**
	Make bill payments	**83.10%**
	Get an account balance	**81.30%**
	View or print electronic statements	55.90%
	Manage my credit and debit cards	44.20%
	Open new accounts	26.80%
	Make tax payments	26.30%
	Order new debit/credit cards	21.00%
	Make additional loan payments	17.20%
	Manage term deposits	15.40%
	Provide feedback and complaints	13.20%
	Set-up message alerts	10.70%
	Resolve debit/credit card decline issues	8.70%
	Obtain home loan advice, information or application	8.30%
	Buy or sell foreign currency	7.50%
	Obtain investment advice, information and management	6.50%
	Report scams	6.50%
	Others	2.10%

Useful features of online banking

Regarding the most useful features of online banking (see Table 10), the majority of the respondents appreciated the availability and overall convenience of the online banking channel other than its accessibility and service promptness.

Table 10: What features of online banking do you find useful? Please select all that apply.

		Percent
Useful features of online banking	24/7 availability	**86.30%**
	Convenience	**84.20%**
	Accessibility	**79.80%**
	Prompt service	**60.40%**
	Secure transactions	58.00%
	Reliable and consistent bank service	50.90%
	Green banking (avoiding printing)	41.40%
	Control over spending	37.50%
	Better service charges and rates	27.40%
	Variety of services and features	25.90%
	Customized services to make them how I like them	21.20%
	Zero liability policy over contact-less payment methods	10.00%
	Others	0.70%

Respondents were asked to elaborate on why they find online banking useful or not. Forty-five percent of the sample had similar comments, mainly referring to online banking as

an *"extremely helpful, very convenient, fast, easy, handy, secure, available (24 hours), and enabling"*[20] channel. One of the commenters found online banking useful mainly because he is *"elderly and have no transport"*. On the other hand, another participant had a different perspective:

"I can do things when it suits me, especially in the evenings when I have more time. The nearest bank branch is in town, difficult to get parking and I don't have enough time to get there and back in my lunch half-hour."

Despite the usefulness of the online banking channels in simplifying banking transactions and adding convenience to banking practice, some of the interviewees had stories of dissatisfaction to share:

"Sometimes I get frustrated when the names of the companies are not very clear on the transactions list. Like the company that runs the traffic at the [shopping mall name] is some random name so you look into your transactions and you can't tell which company is this. Then you have to ring the bank. Often I call them when I cannot sort out the name of the company or merchant to which money has been paid or received" (A22).

The interviewee referred to this incident as a 'negative encounter' because she felt less independent in resolving problems on her own.

Preference for human contact at a branch

Face-to-face interaction with bank staff is a distinguishing feature of traditional branch-based banking. Respondents were asked to express how important human contact at a branch is, for bank-customer relationships using the 5-point Likert scale (see Table 11). Across the overall characteristics, the majority of the respondents felt that personal interactions with bank staff are important.

According to the chi-square statistics, there was a statistically significant association of age (χ^2=26.66, p<.05) and household income (χ^2=36.29, p<.05) with preference for human contact. The cross-tabulations indicated the majority of the people perceived human contact to be important for banking relationships, regardless of their age. Similarly, there were

---

[20] Throughout the thesis, respondents' comments without an identifying code are from the online survey.

marginal differences between different income groups with regard to their responses to this question, and the majority of the people thought human contact was important.

Table 11: How important is human contact for banking relationships?

		Very imp	Imp	Neutral	Unimp	Very unimp	N
Age	15-19 years	8.3%	**41.7%**	33.3%	16.7%	0.0%	24
	20-29 years	14.0%	31.6%	**36.8%**	14.0%	3.7%	136
	30-39 years	25.0%	**34.9%**	27.6%	11.2%	1.3%	152
	40 to 64 years	29.5%	**34.2%**	20.5%	12.0%	3.9%	234
	65+ years	28.8%	**37.3%**	23.7%	8.5%	1.7%	59
Gender	Male	26.5%	**29.6%**	27.0%	12.7%	4.2%	189
	Female	22.4%	**37.2%**	26.1%	12.1%	2.2%	406
Education	High school	20.4%	**36.7%**	29.6%	11.2%	2.0%	98
	Cert/Dip/Trade	27.4%	**32.5%**	25.6%	9.4%	5.1%	117
	Bachelor	19.1%	**35.1%**	26.8%	16.7%	2.4%	168
	Master	31.1%	**32.6%**	23.7%	10.4%	2.2%	135
	Doctorate	19.7%	**39.4%**	28.8%	9.1%	3.0%	66
	Others	28.6%	23.8%	**33.3%**	14.3%	0.0%	21
Employment Status	Student	19.8%	**37.2%**	28.1%	12.4%	2.5%	121
	Part-time	22.7%	21.2%	**34.9%**	19.7%	1.5%	66
	Full-time	21.7%	**34.5%**	27.0%	13.1%	3.8%	267
	Self-employed	32.8%	**34.4%**	21.9%	7.8%	3.1%	64
	Retired	26.3%	**44.7%**	18.4%	7.9%	2.6%	38
	Not employed	34.7%	**36.7%**	24.5%	4.1%	0.0%	49
Household Income	$40,000 or less	23.7%	**33.1%**	29.1%	12.2%	2.0%	148
	$40,001-$70,000	**33.1%**	31.4%	28.9%	4.1%	2.5%	121
	$70,001-$100,000	23.1%	**33.7%**	26.0%	10.6%	6.7%	104
	$100,001 or more	17.9%	**37.1%**	21.2%	21.2%	2.7%	151
Marital status	Never married	20.7%	**34.0%**	30.3%	11.2%	3.7%	188
	Married/partnered	24.9%	**35.1%**	25.7%	11.2%	3.1%	393
	Divorced/separated	**35.3%**	23.5%	29.4%	5.9%	5.9%	17
	Widowed	19.6%	**37.3%**	17.7%	21.6%	3.9%	51
Total		24.1%	34.4%	26.2%	11.8%	3.4%	

Around 40% of respondents elaborated on their response to the question. For one of them, interacting with bank staff was a source of feeling important:

"I like to feel important, not just a number. I like to have a relationship with the banking consultant, so they get who you are, your dreams and goals."

It is interesting to note that most comments on the importance of human contact favoured the services provided, and considered these an important facet of bank-customer relationships:

"If I'm home, the only time I have any kind of human contact with bankers is either when I call because I've forgotten my access number or when I go into the bank to collect a new card. The employees are always lovely and respond well to my questions. They give me more confidence in my banking experience because, in a world of internet banking, oftentimes I feel like I have to navigate it all on my own."

For some customers, the inability of online banking to provide customized information and advice was why they approached their local branch:

"It is important in getting complex information tailored to your situation for example home loan. For many, human contact with a knowledgeable professional is hugely beneficial especially for mortgages and personal advice."

Another comment highlighted how preference for personal interactions at a branch can be influenced by one's personality traits:

"I think depends on personalities. I am people's person so in all my dealings I prefer to talk and make connections rather than do it online. Yet people are different as some don't feel comfortable."

Another participant reasoned why online banking should not substitute branch banking:

"Online banking is a convenience tool only, but it should never replace the value associated with human contact exchanges in banking. Sadly, banks have capitalised on technology and used it as an excuse to close branches and diminish the contact that customers have with real people as agents of the bank."

The interview insights are consistent with these preliminary findings and comments. An interviewee acknowledged that some banking transactions cannot be completed using self-service channels, and explained why they think it happens:

"There is a lot of law involved in banking and what they can or cannot allow you to do without speaking to someone in person. For example, I want a mortgage top-up; they review my income to decide it's not enough because the reserve bank tells them what my income has to be[21] in order for me to have the top-up so I have to go in the branch and see them; it's just a fact of life" (A22).

Keeping cash

We asked respondents about how many days per week they were likely to keep cash with themselves. The common tendency of the majority of our respondents of keeping cash was once a week.

As shown in Table 12, those aged 65 years or more, were likely to keep cash throughout the week. Our age-related results align with a Reserve Bank of New Zealand public survey, which suggests cash use increases with age. Almost 40% of New Zealanders used cash once or twice in the previous seven days (RBNZ, 2019), which is consistent with our findings. The chi-square statistics confirmed a statistically significant association between the two variables, (χ^2=58.4, p<.001).

Similarly, we find around 44% of those with a PhD as their highest educational qualification and around 63% of the retired people were likely to keep cash all week. There was a significant relationship of education with the respondents' propensity of keeping cash per week. More educated people were likely to keep cash for more days in a week, (χ^2=74.6, p<.001).

A significant relationship between employment status and cash-keeping practice was observed (χ^2=64.72, p<.05). The only real difference was for the retired, which suggests this was just an age factor.

Table 12: How many days per week are you most likely to keep cash with you?

		Not likely	1/wk	2/wk	3/wk	4/wk	5/wk	6/wk	7/wk	N
Age	15-19 years	0.0%	**45.8%**	12.5%	0.0%	4.2%	4.2%	4.2%	29.2%	24
	20-29 years	0.7%	**57.4%**	11.0%	2.9%	2.2%	5.2%	1.5%	19.1%	136
	30-39 years	0.7%	**59.9%**	6.6%	7.2%	2.6%	0.0%	0.7%	22.4%	152
	40 to 64 years	2.6%	**42.7%**	6.0%	4.3%	2.6%	4.7%	1.3%	35.9%	234
	65+ years	1.7%	30.5%	3.4%	1.7%	1.7%	5.1%	1.7%	**54.2%**	59

---

[21] While this represents the interviewee's opinion, it should be noted that this does not reflect the actual criteria in New Zealand for home loans.

Gender	Male	1.6%	**46.0%**	3.7%	4.2%	2.1%	3.2%	0.5%	38.6%	189
	Female	1.2%	**50.5%**	9.1%	4.4%	2.5%	3.9%	1.7%	26.6%	406
Education	High school	1.0%	**44.9%**	15.3%	2.0%	2.0%	7.1%	2.0%	25.5%	98
	Cert/Dip/Trade	0.0%	**50.4%**	1.7%	6.0%	4.3%	3.4%	4.3%	29.9%	117
	Bachelor	0.6%	**51.8%**	7.1%	7.1%	2.4%	3.6%	0.0%	27.4%	168
	Master	2.2%	**55.6%**	6.7%	1.5%	1.5%	0.7%	0.0%	31.9%	135
	Doctorate	3.0%	36.4%	3.0%	4.6%	1.5%	6.1%	1.5%	**43.9%**	66
	Others	9.5%	**42.9%**	19.1%	0.0%	4.8%	0.0%	0.0%	23.8%	21
Employment Status	Student	0.8%	**51.2%**	9.9%	0.0%	3.3%	2.5%	1.7%	30.6%	121
	Part-time	0.0%	**54.6%**	10.6%	3.0%	6.1%	3.0%	1.5%	21.2%	66
	Full-time	1.5%	**49.8%**	7.1%	4.9%	1.5%	4.1%	0.8%	30.3%	267
	Self-employed	0.0%	**50.0%**	3.1%	9.4%	1.6%	6.3%	1.6%	28.1%	64
	Retired	2.6%	29.0%	5.3%	0.0%	0.0%	0.0%	0.0%	**63.2%**	38
	Not employed	6.1%	**49.0%**	4.1%	10.2%	4.1%	4.1%	4.1%	18.4%	49
Household Income	$40,000 or less	0.7%	**48.0%**	8.1%	2.0%	4.7%	6.1%	2.7%	27.7%	148
	$40,001-$70,000	1.7%	**49.6%**	5.8%	4.1%	0.8%	3.3%	0.0%	34.7%	121
	$70,001-$100,000	1.0%	**50.0%**	6.7%	5.8%	1.9%	2.9%	2.9%	28.9%	104
	$100,001 or more	2.0%	**46.4%**	8.0%	8.0%	1.3%	3.3%	0.7%	30.5%	151
Marital status	Never married	0.5%	**53.7%**	7.5%	2.1%	3.2%	5.3%	2.1%	25.5%	188
	Married/partnered	1.3%	**49.4%**	7.4%	4.6%	2.8%	3.1%	0.8%	30.8%	393
	Divorced/separated	0.0%	**41.2%**	0.0%	17.7%	5.9%	0.0%	0.0%	35.3%	17
	Widowed	5.9%	**45.1%**	5.9%	5.9%	0.0%	2.0%	2.0%	33.3%	51
Total		1.7%	50.4%	7.2%	4.2%	2.7%	4.1%	1.1%	28.6%	

Devices used to access online banking

Respondents were asked what devices they used for banking online. To this question, the majority of users (approximately 76%), irrespective of personal characteristics, indicated their use of smartphones for performing online banking transactions. The cross-tabulated results further show that the respondents with Doctorate as their highest educational qualification were likely to use laptops for online banking while those who were retired and/or aged 65 years and above reported using desktops for online banking purpose. Apart from these characteristics, the use of smartphones across all groups was fairly popular for performing online banking transactions. For cross-tabulations, see Table 13.

The follow-up interviewees talked about their comfort with using smartphones and tablets in accessing banking services: "*I have rarely ever done a direct deposit into the bank so that's not really an experience and I appreciate banking a lot more with the screen [pointing towards an iPhone] which means I am more comfortable with it*" (A20).

Table 13: What device(s) do you use for online banking? Please choose all that apply.

		Laptop	Desktop	Smartphone	Tablet	N
Age	15-19 years	62.5%	16.7%	**91.7%**	4.2%	24
	20-29 years	73.5%	28.7%	**97.8%**	11.8%	136
	30-39 years	67.1%	38.3%	**91.9%**	19.5%	149
	40 to 64 years	68.0%	49.3%	**76.0%**	29.3%	225
	65+ years	55.2%	**63.8%**	46.6%	32.8%	58
Gender	Male	69.7%	48.6%	**82.2%**	22.2%	185
	Female	66.6%	39.4%	**83.2%**	22.4%	398
Education	High school	60.0%	31.6%	**87.4%**	20.0%	95
	Cert/Dip/Trade	63.2%	40.4%	**77.2%**	23.7%	114
	Bachelor	65.1%	39.2%	**88.6%**	18.7%	166
	Master	74.2%	51.5%	**81.1%**	18.9%	132
	Doctorate	**80.0%**	47.7%	73.8%	36.9%	65
	Others	65.0%	40.0%	**85.0%**	25.0%	20
Employment Status	Student	71.9%	30.6%	**91.7%**	6.6%	121
	Part-time	61.5%	35.4%	**78.5%**	20.0%	65
	Full-time	72.0%	44.1%	**84.7%**	28.0%	261
	Self-employed	64.5%	59.7%	**80.6%**	21.0%	62
	Retired	52.8%	**66.7%**	44.4%	38.9%	36
	Not employed	55.3%	25.5%	**87.2%**	21.3%	47
Household Income	$40,000 or less	68.1%	31.9%	**83.3%**	15.3%	144
	$40,001-$70,000	65.5%	42.0%	**81.5%**	16.8%	119
	$70,001-$100,000	65.4%	47.1%	**81.7%**	18.3%	104
	$100,001 or more	72.1%	49.0%	**84.4%**	38.8%	147
Marital status	Never married	69.1%	31.4%	**91.0%**	13.8%	188
	Married/partnered	65.4%	47.1%	**81.9%**	27.0%	393
	Divorced/separated	**64.7%**	52.9%	58.8%	35.3%	17
	Widowed	68.6%	35.3%	**72.5%**	15.7%	51
Total		66.6%	41.1%	84.0%	22.5%	

Experience (in years) with online banking

The cross-tabulated findings for online banking experience (in years) simply show that online banking has now become ubiquitous. Most people who have been using online banking for more than ten years belonged to the older age-groups. Hence, the length of their experience might be because they have had longer to use online banking. The chi-square statistics confirmed a statistically significant association of age with online banking experience (χ^2=123.14, p<.001).

Online banking experience was likely to differ by gender (χ^2 =14.96, p<.05). Based on the cross-tabulated findings, male respondents were more likely to be using online banking for much longer than the female users. The cross-tabulated findings for household income

are consistent with the findings of RBNZ (2019) that the use of online channels to meet financial needs tends to increase with income. Those earning $100,001 or more were likely to have longer experience with online banking than people from lower income groups. This was confirmed by the chi-square statistics with a statistically significant association of household income with online banking experience (χ^2=91.31, p<.001). The proportion of respondents who reported being more experienced with the online banking channel differed by marriage (χ^2=61.28, p<.001). Married or cohabiting households have been using online banking for longer than unmarried people, which can be attributable to age.

Online banking experience was likely to differ by employment status (χ^2=87.74, p<.001). However, we do not find any apparent differences in online banking experience at different employment levels within the cross-tabulations except an apparent reflection of people's age (Table 14).

Table 14: How long have you been using online banking services?

		≤ 2 yrs	2-10 yrs	> 10 yrs	Unsure	N
Age	15-19 years	41.7%	**50.0%**	0.0%	8.3%	24
	20-29 years	12.5%	**73.5%**	11.8%	2.2%	136
	30-39 years	12.1%	**49.7%**	35.6%	2.7%	149
	40 to 64 years	4.4%	33.8%	**56.0%**	5.8%	225
	65+ years	5.2%	41.4%	**50.0%**	3.5%	58
Gender	Male	13.0%	38.9%	**46.0%**	2.2%	185
	Female	8.0%	**52.5%**	34.4%	5.0%	398
Education	High school	14.7%	**53.7%**	27.4%	4.2%	95
	Cert/Dip/Trade	5.3%	**45.6%**	41.2%	7.9%	114
	Bachelor	10.8%	**46.4%**	38.0%	4.8%	166
	Master	13.6%	**44.7%**	40.9%	0.8%	132
	Doctorate	3.1%	**58.5%**	38.5%	0.0%	65
	Others	0.0%	**45.0%**	**45.0%**	10.0%	20
Employment Status	Student	24.8%	**54.6%**	19.8%	0.8%	121
	Part-time	7.7%	**55.4%**	32.3%	4.6%	65
	Full-time	3.8%	**49.0%**	44.4%	2.7%	261
	Self-employed	4.8%	30.7%	**54.8%**	9.7%	62
	Retired	5.6%	36.1%	**52.8%**	5.6%	36
	Not employed	17.0%	**51.1%**	21.3%	10.6%	47
Household Income	$40,000 or less	18.8%	**55.6%**	22.2%	3.5%	144
	$40,001-$70,000	5.9%	**48.7%**	39.5%	5.9%	119
	$70,001-$100,000	3.9%	**59.6%**	36.5%	0.0%	104
	$100,001 or more	1.4%	34.0%	**59.9%**	4.8%	147
Marital status	Never married	14.9%	**65.4%**	17.6%	2.1%	188
	Married/partnered	7.4%	43.5%	**44.3%**	4.8%	393
	Divorced/separated	11.8%	29.4%	**58.8%**	0.0%	17
	Widowed	2.0%	39.2%	**56.9%**	2.0%	51
Total		9.7%	49.6%	37.2%	3.5%	

Use of online banking at home or at work

The respondents indicated a strong preference for using online banking at home, as per the cross-tabulated findings (Table 15). From the follow-up interviews, we note people's preference for undertaking banking activities at a quiet place (mostly at home) without major interruptions. The use of private Internet connection or Wi-Fi was recognized by the interviewees as one of the main reasons for at-home banking.

A chi-square test of independence was performed to examine the relation between personal characteristics and preferred time/place of using online banking. There was a statistically significant association between age and the respondents' preferences. The older respondents were more likely than the younger ones to prefer using online banking at home

or at other places rather than at work (χ^2=31.10, p<.05). This preference was also likely to differ by gender (χ^2= 9.62, p<.05). Females were more likely than males to use online banking at places other than their workplace.

While determining the goodness of fit using the chi-square test, we further found that socioeconomic status (defined by employment and household income) of the respondents had a positive association with preferred time/place of using online banking. We found that the employed respondents were more likely to prefer online banking at work rather than the retired or unemployed people, indicating a positive relationship of employment status (χ^2=46.13, p<.001). The respondents from low-income groups were more likely to use online banking at work than high-income people (χ^2=28.33, p<.05). There was not enough evidence to suggest customers' preferences varied by gender or education levels.

Table 15: When do you mostly use online banking?

		Work	Work breaks	Home	Out and about	Others	N
Age	15-19 years	0.0%	8.3%	**66.7%**	16.7%	8.3%	24
	20-29 years	5.2%	7.4%	**75.0%**	11.0%	1.5%	136
	30-39 years	10.7%	8.1%	**68.5%**	4.7%	8.1%	149
	40 to 64 years	9.3%	4.0%	**76.9%**	5.8%	4.0%	225
	65+ years	8.6%	1.7%	**84.5%**	0.0%	5.2%	58
Gender	Male	10.3%	9.2%	**71.4%**	4.3%	4.9%	185
	Female	7.3%	4.0%	**76.9%**	7.3%	4.5%	398
Education	High school	4.2%	3.2%	**79.0%**	8.4%	5.3%	95
	Cert/Dip/Trade	6.1%	0.9%	**81.6%**	9.7%	1.8%	114
	Bachelor	8.4%	5.4%	**74.7%**	6.6%	4.8%	166
	Master	11.4%	9.9%	**69.7%**	4.6%	4.6%	132
	Doctorate	12.3%	10.8%	**67.7%**	1.5%	7.7%	65
	Others	5.0%	5.0%	**70.0%**	10.0%	10.0%	20
Employment Status	Student	2.5%	11.6%	**71.9%**	9.9%	4.1%	121
	Part-time	1.5%	4.6%	**86.2%**	4.6%	3.1%	65
	Full-time	13.0%	5.4%	**69.0%**	7.3%	5.4%	261
	Self-employed	14.5%	4.8%	**71.0%**	3.2%	6.5%	62
	Retired	2.8%	0.0%	**88.9%**	2.8%	5.6%	36
	Not employed	2.1%	0.0%	**91.5%**	4.3%	2.1%	47
Household Income	$40,000 or less	2.1%	7.6%	**78.5%**	10.4%	1.4%	144
	$40,001-$70,000	10.9%	3.4%	**73.1%**	8.4%	4.2%	119
	$70,001-$100,000	9.6%	4.8%	**77.9%**	3.9%	3.9%	104
	$100,001 or more	12.2%	6.1%	**70.1%**	4.1%	7.5%	147
Marital status	Never married	3.2%	6.4%	**77.1%**	10.1%	3.2%	188
	Married/partnered	12.0%	6.1%	**70.5%**	5.6%	5.9%	393
	Divorced/separated	5.9%	11.8%	**76.5%**	5.9%	0.0%	17
	Widowed	2.0%	3.9%	**90.2%**	0.0%	3.9%	51
Total		8.5%	6.5%	73.9%	6.3%	4.8%	

Use of online banking apps

When asked about the online banking apps they used (see Table 16), around 27% of respondents indicated they use ANZ goMoney app while Kiwibank, ASB and Westpac One apps were almost equally being used. It was interesting to find most apps that our respondents used were a one-stop shop for banking services rather than apps offering specific features. To explain, around 13% of respondents used Westpac One app, which offers all major services for everyday banking. In comparison, fewer respondents used CashNav (a budgeting app) or Cash Critter (an app to promote saving behaviours in children), which offer specific financial features rather than a complete banking solution. Around 11% of users did not use any apps which suggests potential for their uptake in New Zealand.

A participant (A19) shared in the interview, how some apps are not smart enough to present or customize budget reports, which is why he had to uninstall it for its incapability:

"I got rid of [Bank app name], as it apparently tracked down my spending and where the money was going and gave you an idea of how much you've spent this month compared to last month. This sounds brilliant but if your transactions vary by a slight amount then suddenly you're in the red or the green, and you know, my spending over a month doesn't follow exactly the same streamline and the system could almost only work if you're almost always spending the same amount at the same times, whereas I would do a large spending at the supermarket one week and not the next week".

Another participant (A18) adds that the "*range of features [available online] seems to be increasing over time*" which is why their 'likeness' for online banking apps has increased over time.

One of the participants made comparisons between New Zealand and the U.S banking and bank apps: "*My spouse has an app, but he doesn't use it while I manage all the money. This might be because my spouse is American. America is still very cash-based society as compared to NZ which is more advanced in online banking and one of the first ones to get [offer] an Eftpos card*" (A22). Table 16 reports response frequencies:

Table 16: Which online banking apps do you use? Please select all that apply.

		Percent
Online banking Apps[22]	ANZ GoMoney	**27.40%**
	Kiwibank app	**16.10%**
	ASB app	**13.70%**
	Westpac One	**12.80%**
	Do not use apps	**11.30%**
	ANZ Direct Mobile's Apple Pay	5.90%
	ANZ FastPay app	2.60%
	BNZ app	10.80%
	HSBC Mobile Banking app	0.50%
	HSBC app	0.30%
	The Co-operative Bank app	3.60%
	TSB app	1.10%
	Westpac Cash Critter	0.10%
	Westpac Cash Tank	1.10%
	Westpac CashNav	3.40%
	Others	5.00%

Use of non-bank financial apps

Amongst those who used non-bank financial apps, PayPal was the most frequent response choice (Table 17). Around 33% of respondents did not use any of the non-bank financial apps listed in the answer options and elaborated that most apps they used were non-financial such as Stuff news app and Burger King app.

Table 17: Which non-bank financial apps do you use? Please select all that apply.

		Percent
Non-banking financial apps	None of these	**33.10%**
	PayPal	**27.80%**
	Cash Passport	6.30%
	Mint	3.80%
	New Zealand Stocks app	1.50%
	Other	0.10%

---

[22] The share of responses for banking apps are likely to reflect the main bank of which the respondents were customers.

Learning about new apps or features

A question in the survey explored whether or not the respondents were interested in learning about new apps or app features. Overall, there was a decrease in learning interest with age. The chi-square test findings confirmed this relationship (χ^2=64.48, p<.001).

Male respondents appeared to be more interested in learning about new online banking features than female users. According to the chi-square test, we found that learning interest was likely to differ by gender (χ^2=15.96, p<.05).

Retired and unemployed people said they would probably be interested in learning about online banking services, while learning interest was found to be higher in high and low-income groups, and lower in the middle-income group although the chi-square results did not find a significant association between household income and learning interest (χ^2=24.19, p>.05). On the other hand, a positive relationship between employment status and learning interest was confirmed (χ^2=46.65, p<.05).

The cross-tabulated findings show that the people with a Master's degree as their highest educational qualification appeared to be definitely interested in new learning about online banking (Table 18). As per the chi-square test of independence, highly educated people were less likely to be interested in learning about new apps and features than the less educated people (χ^2=48.17, p<.05).

A statistically significant relationship was also found between learning interest and marital status (χ^2=24.46, p<.05). Married people are less likely than unmarried people to want to learn about new online banking apps and features. Similarly, people who have been out of marriage or cohabitation (as a result of separation, divorce, widowhood,) were less likely to be interested in this learning than the others. The finding related to widowhood, however, might actually reflect age-based differences.

Table 18: Are you interested in learning about new apps or features for better services?

		Definitely	Very Probably	Probably	Possibly	Probably Not	Definitely Not	Not Sure	N
Age	15-19 years	16.7%	12.5%	20.8%	20.8%	**25.0%**	4.2%	0.0%	24
	20-29 years	**30.4%**	17.0%	18.5%	19.3%	11.9%	1.5%	1.5%	135
	30-39 years	**29.1%**	9.5%	31.8%	16.9%	8.8%	0.7%	3.4%	148
	40 to 64 years	13.6%	12.2%	19.0%	**26.7%**	20.8%	1.4%	6.3%	221
	65+ years	10.3%	19.0%	12.1%	20.7%	**25.9%**	3.5%	8.6%	58
Gender	Male	**26.9%**	16.5%	23.6%	15.9%	13.7%	0.0%	3.3%	182
	Female	18.7%	12.2%	20.3%	**24.3%**	17.5%	2.0%	5.1%	395
Education	High school	16.8%	9.5%	17.9%	**28.4%**	21.1%	1.1%	5.3%	95
	Cert/Dip/Trade	14.2%	10.6%	**24.8%**	20.4%	23.9%	1.8%	4.4%	113
	Bachelor	24.1%	15.7%	21.7%	**25.3%**	7.8%	1.8%	3.6%	166
	Master	**30.0%**	14.6%	21.5%	14.6%	13.9%	0.8%	4.6%	130
	Doctorate	17.7%	12.9%	17.7%	**24.2%**	22.6%	3.2%	1.6%	62
	Others	10.0%	20.0%	**30.0%**	5.0%	20.0%	0.0%	15.0%	20
Employment Status	Student	27.3%	14.1%	**26.5%**	17.4%	10.7%	1.7%	2.5%	121
	Part-time	12.3%	7.7%	24.6%	**26.2%**	**26.2%**	0.0%	3.1%	65
	Full-time	**22.8%**	14.5%	20.4%	**22.8%**	13.7%	2.4%	3.5%	255
	Self-employed	16.1%	11.3%	17.7%	**27.4%**	24.2%	0.0%	3.2%	62
	Retired	11.1%	**22.2%**	13.9%	16.7%	**22.2%**	2.8%	11.1%	36
	Not employed	**23.4%**	8.5%	21.3%	17.0%	17.0%	0.0%	12.8%	47
Household Income	$40,000 or less	18.1%	13.9%	**24.3%**	17.4%	17.4%	2.1%	6.9%	144
	$ 40,001 - $70,000	21.9%	11.8%	**26.1%**	20.2%	14.3%	0.8%	5.0%	119
	$ 70,001 - $100,000	17.0%	13.0%	18.0%	**29.0%**	20.0%	0.0%	3.0%	100
	$100,001 or more	**22.5%**	16.3%	19.7%	**22.5%**	15.7%	1.4%	2.0%	147
Marital status	Never married	20.8%	15.0%	20.2%	**22.5%**	15.6%	1.7%	4.1%	173
	Married/partnered	**23.1%**	13.0%	**23.1%**	20.3%	15.8%	0.9%	3.9%	355
	Divorced/separated	**21.4%**	**21.4%**	**21.4%**	7.1%	14.3%	0.0%	14.3%	14
	Widowed	6.7%	6.7%	15.6%	**33.3%**	24.4%	6.7%	6.7%	45
Total		21.1%	13.3%	21.6%	21.6%	16.4%	1.5%	4.4%	

Household use of online banking

A few survey questions were designed to understand the differences between people's use of online banking as compared to their household, which may be due to changes in their marital status. From the interviews, we find connections between individual personalities and its reflection on the financial management of married households. One of the interviewees commented:

"*Mine [online banking use] is more saving-oriented because I don't earn money on my own as yet and live with my parents. Whereas my parents' use is more of budgeting and*

tracing money going in and out so yes, my outgoings are different to that of my parents"

(A15).

When asked about who the main decision-maker is in their households for financial matters, around 45% of the survey respondents said they were the ones who take financial decisions at home while another 31% said they take such decisions jointly with their spouse. Relatively fewer number of respondents said that their spouse takes financial decisions in the household (Table 37).

Within the survey sample, around 67% of respondents were married or cohabiting at the time of the survey while 29% of them had never married. Married or cohabiting respondents were further questioned as to whether there had been a change in their marital status in the previous ten years. Around 43% of respondents said their marital status had not changed in last 10 years while 18% of them agreed that their marital status had changed over that time. These respondents were further questioned whether changes in marital status affected the way they used online banking. This question received mixed responses from the survey respondents as can be seen in Table 19.

Table 19: To what extent do you agree or disagree that there has been a change to your use of online banking because of your current marital status?

	Percent (%)
Neither agree nor disagree	**23.4**
Strongly disagree	**23.4**
Agree	**22.6**
Disagree	19
Strongly agree	10.2
Not applicable	1.5

Next, the respondents were invited to explain their rationale of the above response. To this, we obtained some intriguing comments:

"My wife and I merged our accounts when we got married in 2012."

"Yes. There has been a change. More bills to pay and kids' expenditures along with online shopping for house family and family away from us like parents."

"After marriage I started online banking."

"The only change is having a supplementary joint bank account."

"Since being married we see our incomes as a combined total and not as separate expenditure accounts. Joint savings and goals of owning a house."

From the follow-up interviews, we find people bring different financial management practices in a marriage or cohabitation which affects their spending and other behaviours. One of the married interviewees shed light on how two different individuals come together in a marriage to combine their ways of doing certain things:

"I do most of the bill paying and transferring money. So, I probably use it more than my wife does. But she likes to use it for checking money and making sure there'd be enough money available to do groceries and online shopping (e.g. Trade Me) and to avoid the embarrassment of a decline of payment in case less money is left" (A10).

The second half of this section asked about differences in respondents' ways of banking as compared with their children. Out of the 345 people who said they had children, 25% of respondents had at least one child aged 30+ years, 36.5% of them had at least one child aged 15 to 29 years while 55.1% of them had at least one child less than 15 years of age. Based on the opinions obtained in response to how people's frequency and reasons for online banking use was different than their children's, we find most people did not know whether such differences exist (See Tables 34 and 35 of Appendix 8). However, we find some insights from the interviews where some interviewees evaluate how banking takes different shapes in a married household with children:

"My kids are much younger [than myself] and so there is a difference in [banking] attitudes. I have noticed that they are not used to checking their accounts this much and are more carefree. I have to keep a closer eye on overdrafts and fees because I worry too much, so my spending is definitely more cautious or careful" (A23).

The chi-square test of independence for customers' age and employment status has strong association with differences in their households' frequency of online banking use. The findings further illustrate that customers' age affects their reasons for using online banking while there is also a strong association between household income and online banking

reasons. There is not enough evidence to suggest the other four characteristics are not independent of the differences in household online banking use.

The interview insights suggest while the frequency of online banking use is fairly similar for most of the respondents, their reasons for using online banking vary according to their financial needs. One of the comments from the follow-up interviews shed some light on how different people's use of online banking can be:

"I am more of a micro-transactions person while the second person in my household is not interested in looking at it [online account balance] on a daily basis and kind of interested in the bigger-picture view hence, I am more cautious about spending and saving money than him" (A20).

Now that we have reported the primary relationships between the variables and the overall data properties, the next stage is about reporting empirical results from inferential statistics where a range of analytical methods were applied to explore how our independent variables (i.e. the six personal characteristics) affect customers' online banking use. Different statistical methods are applied to the survey data to infer results and the findings are complemented by the interview insights to elaborate the results and highlight emergent themes.

4.2. Testing effects hypotheses

By testing the effects of different personal characteristics on online banking use through a stepwise linear regression model, we address the following research question:

RQ1: *How do different personal characteristics affect the use of online banking?*

Following are the corresponding hypotheses that we address through this analysis:

H_1: There is a negative relationship between age and online banking use.

H_2: Online banking use differs by gender.

H_3: There is a positive relationship between education and online banking use.

H_4: Online banking use differs by employment status.

H_5: There is a positive relationship between household income and online banking use.

H_6: Online banking use differs by marital status.

A stepwise regression analysis examined the explanatory power of each of six personal characteristics for the different survey items that depicted customers' use of online banking. For a brief description of the survey items and what they measure, see section 3.8.2. Table 20 enlists the dependent and independent variables used in this analysis:

Table 20: Independent and dependent variables used in analysing effects hypothesis (RQ1)

Dependent Variables (DVs)	Independent Variables (IVs)
Use of online channel for banking	Age Gender Education Employment status Household Income Marital status
Differences in households' frequency of online banking use	
Differences in households' reasons of online banking use	
Recent branch visit	
Preference for human contact	
Experience (in yrs.) with online banking	
Preferred time (place) for online banking use	
Likelihood of keeping cash	
Learning interest	

The suitability of the stepwise regression model for online survey data is discussed in the previous chapter (section 3.8). Table 21 summarizes the results and highlights significant characteristics that affect online banking use. For detailed stepwise regression output, see Appendix 9.

Table 21: Summary of the effects of personal characteristics

Survey items	Personal characteristic(s) with significant effects	Characteristics with no significant effect
Use of online channel for banking	Employment status	Age Gender Education Income
Differences in households' frequency of online banking use	Age (positive) Marital status	Gender Education Employment Status Household Income
Differences in households' reasons of online banking use	Age (positive)	Gender Education Income Marital status Household Income
Recent branch visit	Education (positive)	Age Gender Marital Status Employment status Household Income
Preference for human contact	Age (negative) Marital Status	Gender Income Education Employment Status
Experience (in yrs) with online banking	Age (positive) Household Income (positive)	Gender Marital Status Education Employment Status
Preferred time (place) for online banking use	Education (negative)	Age Gender Employment Status Household Income Marital status
Likelihood of keeping cash	Age (positive) Gender	Marital Status Income Education Employment status
Learning interest	Age (positive) Gender Household Income (positive)	Education Marital Status Employment Status

A statistically significant and positive relationship is found between age and online banking experience. This reflects that because the older-age groups tend to be more experienced with using the online banking channel, they may have developed greater skills simply because they have had longer to use the online channel.

Based on the regression output, the relationship between age and preference for human contact (at a branch) is found to be negative, which may be a direct consequence of customers' experience with online banking. The older people tend to have less preference for talking to or dealing with the bank staff than the younger people. However, the insights from the interviews did not support this empirical finding. The majority of the younger interviewees said they prefer moving money independently with as little human contact as possible. The older interviewees, on the other hand, admitted they mostly interacted with the bank staff for socializing:

"I don't know if this is important. I know them and I am quite likely to go to them and say hello. Its social interactions but otherwise I'd say no it's not important" (A9, over 65 years of age).

In contrast with the regression results about online banking experience (in years), the majority of the older interviewees we talked to, were relatively less experienced with the online banking channel. According to an interviewee, although her mother had been using online banking for a longer time (i.e. for the last 16 years), she struggled with using it confidently. This implies having greater experience with online banking does not necessarily mean the older people are confident at using it.

"My mum at 84 struggles. She's quite good at most things but struggles with online banking. She gets confused. So, apart from geriatrics, I don't really think it is age-thing" (A8).

Age is found to positively affect customers' propensity of keeping cash for more days in a week. This means that the older a person is, the more likely they are to keep cash more days in a week than the younger age groups. Another positive effect of age is on the respondents' interest in learning about new online banking services. Not only were the older respondents likely to be more experienced with the online banking channel but also were relatively more interested to learn about new things than the younger respondents.

Once we established a relationship between age and experience, the next aspect we explored related to the changes in the respondents' frequencies and reasons for online banking use than their households'. Older people's frequency of online banking use is likely to be different than their children. However, this effect may be attributable to the length of experience they had, which in turn, could mean they were able to explore a wider variety of services and features. With this thought, we explored some of the ways in which the older people might have used more of technology for their banking needs, and obtained the following comment from a follow-up interviewee:

"In old age, setting up PIEs (Portfolio Investment Entities) and thinking about retirement makes one use more of online banking" (A12).

The results exploring the differences in the households' reasons for using online banking note a positive effect of age on such differences. This means that an older person is more likely to note differences in their types of online banking use than the younger people. This result can be explained in the light of the comments made by an interview participant (A13), who was a millennial:

"I definitely think age does affect [online banking use]; if I would compare myself with my mum who is not here in New Zealand; when I transfer her money, she doesn't like to check balances on the phone but due to her age she is hesitant to learn it and it is more like a generational issue than an age-related one. We're on the phone or laptop everyday so we know the system better but difficult for my mother who's not".

It is also worth noting that some interviewees attributed the differences in online banking use to generational cohort membership of different household members.

"I don't think age affects. I just am my age. I can't choose to be a different age. I am old enough that I come from a generation that filled slips, you know when you used to go in a branch and a chain was hanging with a pen and you need to find the pen, fill in the stamp, go to the teller and deposit. I was that teller! I used to count the money and balance up every day. So, I am old enough to remember what that was like. But I understand why it had to change. I was there when a lot of that change happened. I can relate to the older generation as well as the younger generation who were born into this" (A11).

The stepwise regression highlights only two areas where gender effects were prominent: the respondents' practice of keeping cash during the week and their interest in learning new things about online banking. The likelihood of keeping cash is likely to differ by gender. Women are more likely than men to keep cash most days during the week. From the follow-up interviews, we could not find detailed elaboration on people's use of cash except that some of the female interviewees shared their experiences of paying small market traders and morning market retailers with cash rather than debit/credit cards.

The gender-based findings related to learning interest indicate females are more likely to be interested than males in learning new things. The interviewees explored why such differences in learning interest were prevalent. According to an interviewee:

"*Women are more aware of certain risks and men like to think they're decision makers. So, they would assess the risks and do it. Women tend to be more aware and more concerned about security risks and perhaps, a little slower on its uptake or learning, whereas men will anticipate the risks and do it [learn it] anyways*" (A21).

A female participant shared with us how she made suggestions to her bank for bringing an improved feature to their app.

"*I send suggestions to [bank name] for putting new things [features] on the app. I have a platinum credit card and once you spend $20,000 dollars, you get two free tickets to the international lounge. I suggested they should have a bar on the app to indicate how close we're to that $20,000-spend mark each time. They are really good and pitched it at the next app-meeting*" (A22).

With regards to the effects of education, the results show a positive relationship between education and the respondents' last visit to a bank branch. Highly educated respondents were less likely to have visited a branch in the recent past than the less-educated respondents. The reason behind this can be attributable to the next finding related to the effects of education on the respondents' preferences for a specific time (place) of online banking use. The results show that the more educated a person is, the more likely it is that they prefer online banking at work rather than at home. Because higher education tends to lead to a high-status employment, it is likely that highly educated people who are employed prefer online banking at work (or during work breaks) amidst their work commitments. These

people may not prefer to travel to a branch due to their busy work schedules, which explains why they may not have visited a branch for a longer time than the others. Some interviewees anticipated the combined effects of education and employment on their online banking use, which is consistent with the preceding discussion. Representative of these views are two quotes from the follow-up interviews:

"I will use it at work if absolutely necessary but I'd rather not" (A4, student and part-time employee).

"My wife works in night shift, so she uses it during daytime at home, when she's free" (A2, retired with full-time working spouse).

Findings related to the effects of employment status remain limited, except that the use of online channels for banking differs by employment status. This reflects with the attainment of employment, a person's likelihood of being an online banking user increase. In the follow-up interviews, some participants explained their appreciation of the usefulness of the online banking channel in assisting with complex or bigger transactions, which was generally a bigger concern for full-time employees earning higher incomes.

Results show that household income affects customers' experience with online banking use, their decision-making authority within the household and their interest in learning new things about online banking. Apart from age, household income also affects customers' experience with online banking. High-income earners are more likely to be using online banking for a longer time period. The Reserve Bank's public survey associates high branch banking usage with low-income groups, which in turn, means that online banking is generally popular with the higher-income groups (RBNZ, 2019).

We find an increase in household income increases people's tendency to shift from taking financial decisions themselves to involving others (Table 37). The interviewees supported this result and explained that because increments in household income involve greater investments or undertaking of riskier transactions, other household members are likely to take part in the complex decision-making. One interviewee opined:

"The people that I know - it's really about a lack of understanding [financial matters]. My husband only recently got online banking for himself when he's 8 years younger than me. Just because his mum was managing his account and money decisions which is pretty usual

in farming families where one-person sort of manages all accounts and mother is usually
good as any" (A17).

People from higher income groups are likely to show more interest towards new learning of online banking apps and features than the lower-income groups. The reason may be because high-income groups tend to do more things involving bigger monies, their risk-taking attitude may make them more open towards learning and trying new stuff. However, we could not establish this reasoning through the follow-up interviews.

Marital status effects on online banking use suggest the preference for human contact obtained at a bank branch is likely to differ by a customer's marital status. A possible explanation for this result was given by one of the interviewees. Because customers' financial management tends to change with their marital status, they require more personal 'assistance' after marriage or after having children than before. Different financial needs after marriage or cohabitation generate an increased need of personalized banking services, making personal interactions essential.

An interviewee suggested a comparison between single and married households is necessary to explore how people differ in their financial decision-making. According to his views, women tend to be risk-averse in families where they are not able to take financial decisions independently. However, this gap can be narrowed down by understanding how risk perceptions of women as students (mostly living with parents) differ from cohabiting women (living with a partner or spouse). Households' financial decision-making is a critical area of investigation as cohabitation affects a household's resources, needs, attitudes and risk perceptions.

The survey respondents' frequency of using online banking was likely to differ by their marital status. Based on the results, we find married or cohabiting couples are more likely to report remarkable differences in their use of the online banking channel to that of their children, as compared with others. However, this can be attributable to age differences rather than marital status differences.

In the light of these findings, we revise the initial conceptual framework (Figure 1) as follows:

Figure 4: Revised conceptual framework in response to research question 1
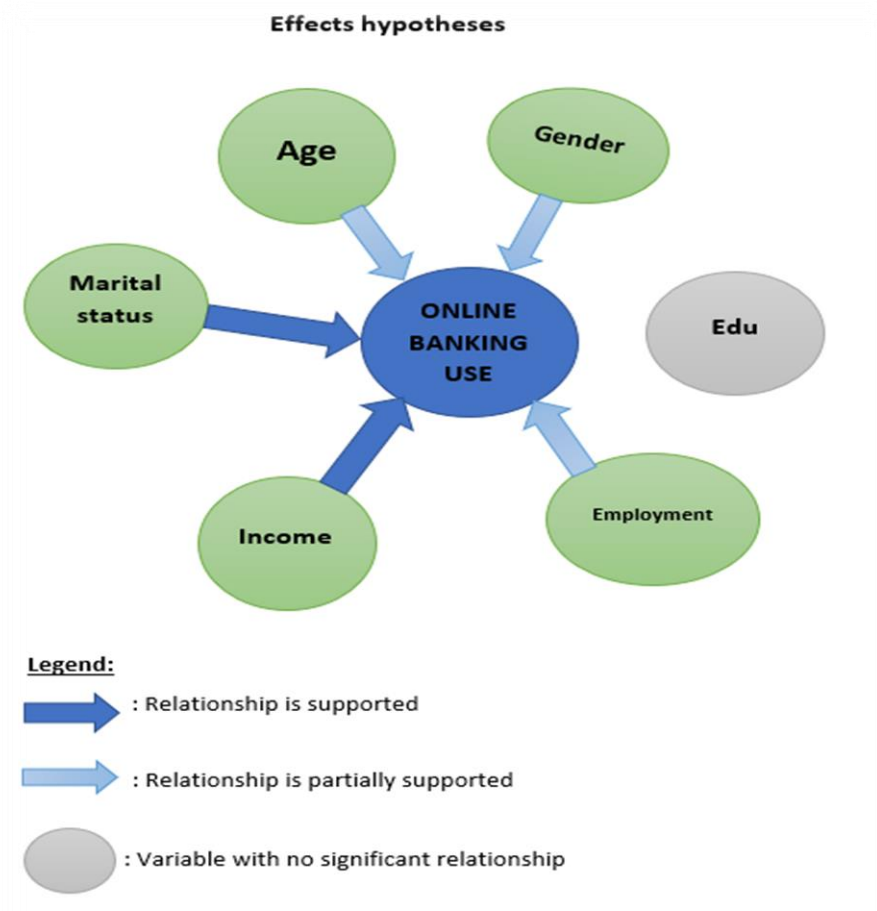
In seeking to analyse the effects of different personal characteristics on customers' use of online banking, the interactional relationship between the independent variables cannot be ignored. The next section will look at this issue, discussing the statistical relationships between combinations of the independent variables on the dependent variables. An in-depth analysis of the interactional effects is important because it informs us how two or more independent variables may not affect a dependent variable individually, but rather work together to cause a 'combined' effect.

4.3. Testing interactions hypotheses

Interaction effects, also known as multiplicative effects or moderation effects, are non-linear relationships where the effect of one independent variable on the dependent variable differs at different levels of another independent variable (Mendoza, 2006; Tabachnick & Fidell, 2007). Through identifying the key interaction effects, this section explains the new and complex relationships between the independent variables and explores how moderation

between two or more characteristics modifies their relationship with each other. This section addresses the second research question:

RQ2: *How does users' personal characteristics interact with each other in affecting their use of online banking?*

Following are the hypotheses corresponding to this research question:

H_7: *One or more personal characteristics moderates the relationship between age and online banking.*

H_8: *One or more personal characteristics moderates the relationship between gender and online banking.*

H_9: *One or more personal characteristics moderates the relationship between education and online banking.*

H_{10}: *One or more personal characteristics moderates the relationship between employment status and online banking.*

H_{11}: *One or more personal characteristics moderates the relationship between household income and online banking.*

H_{12}: *One or more personal characteristics moderates the relationship between marital status and online banking.*

The following table enlists the dependent and independent variables used in this analysis:

Table 22: Independent and dependent variables used in analysing effects hypothesis (RQ2)

DV	IVs
Use of online channel for banking	Age
Differences in households' frequency of online banking use	
Differences in households' reasons of online banking use	Gender
Recent branch visit	
Preference for human contact	Education
Experience (in yrs.) with online banking	
Preferred time (place) for online banking use	Employment status
Likelihood of keeping cash	Household Income
Learning interest	
	Marital status

For understanding interactions between factors, we use Factorial (N-way) ANOVA in SPSS. Factorial designs are effective in studying a series of interaction effects, rather than evaluating them separately (Gravetter & Wallnau, 2016). The results are generated in two ways:

- *Main effects:* In case of main effects, we note the individual effects or differences between the levels of only one factor (IVs), rather than between two or more factors (Mendoza, 2006). Note that section 4.2 reports only the main effects where one variable or characteristic is involved at a time.

- *Interaction effects:* With the discussion of 'interactions' or 'moderation' we mean the differences in the levels of one factor depend on the differences in the level of another factor (Mendoza, 2006).

In some cases, there are only the main effects or only the interactions, while in others, either both or neither exist. Without appropriate recognition of interactions between variables, researchers might ignore important associations between factors and predictable patterns, which renders an incomplete picture (Lavrakas, 2008; Sigley, 2003). Social contracts or factors tend to interact more substantively than other disciplines (Sigley, 2003), and therefore, their exploration enables the researcher to control for possible associations present in the data set, and to fully realise the implications of different effects. Table 23 summarizes the interaction effects and detailed results are given in Appendix 10.

Table 23: Summary of the interaction effects between variables

Survey items	Moderating characteristic(s)	Characteristic(s) being moderated
Use of online channel for banking	None	None
Differences in households' frequency of online banking use	Age	Household income
Differences in households' frequency of online banking use[23]	Employment status	Marital status
Differences in households' reasons of online banking use	Education	Gender
Recent branch visit	None	None
Preference for human contact	None	None
Experience (in yrs) with online banking	Education	Age
Preferred time for online banking use	None	None
Likelihood of keeping cash	Marital status	Employment status
Learning interest	Gender Education	Age
Note: This table only reports the interaction effects and not simple main effects between the variables. Significant main effects are discussed as part of the reporting of results in this section.		

With regard to age-based interactions, the effects of customers' age on their experience with online banking is likely to differ at different levels of education. Because age was one of the variables with a significant main effect (see Table 21 for main effects), the moderated relationship extends this finding to determine how a third variable (i.e. education) could be affecting the main effect of age on customers' experience with the online banking channel (F=1.609, p<0.05). This shows while older people tend to be more experienced users of online banking, their educational qualification is an important measure to assess the age-based experience. Highly educated, older people tend to have more experience with the online channel than the less educated, older people while their experience is likely to be longer than the younger people in any case. Overall, this finding is consistent with Reserve Bank of New Zealand's survey that suggests education and age increases the possibility of New Zealanders' experience with online banking use for a longer time (RBNZ, 2019).

There is a two-way interaction found between age and education (F=1.98, p<0.05) and a three-way interaction found between age, gender and education (F=2.487, p<0.05) with

---

[23] This row shows the outcome of second interaction between employment and marital status in affecting customers' frequency of online banking use.

regard to customers' interest in learning about new apps or features. While the previous section indicated the main effects of age and gender on learning interest (see section 4.2), the testing of interactions hypothesis suggests age effects are altered with the involvement of education as a moderating variable. This extends the previous finding and illustrates while learning interest tends to be higher in females than in males, the educational standing of the females tends to affect this learning interest in a positive manner. A three-way interaction introduces the third element of age in the relationship which reflects the probability of a young female with higher education may be more inclined than an older female with lesser education in learning new things, while their inclination may still be higher than that of the male users.

Regarding the moderation of the relationship between gender and online banking, the tests of between-subject effects for gender and online banking reasons reveal a moderating role of education. Previously, the effects hypotheses testing revealed the significant effects of customers' age on the differences in households' reasons of online banking use (section 4.2). This section reports the interactive effects of gender and education in affecting the reasons for which online banking is used (F=2.26, p<0.05). This implies people with different educational qualifications tend to use online banking for different purposes and these purposes may be entirely different for male and female users.

The likelihood of customers' cash-keeping for more days in a week tends to differ by their employment status; however, such differences are impacted by marital status as a moderating variable (p<0.05). This implies married retirees might keep cash for more days in a week than unmarried retirees, although their propensity would still be higher than people with full-time or part-time employments. Any interpretation of the main effects on cash-keeping likelihood must not ignore the joint relationship of employment and marital status towards increasing the likelihood of customers keeping cash through the week for cash-based transactions.

There is an interaction effect found between household income and age on the differences in customers' frequency of using online banking as compared with their children. Earlier, we found age and marital status to significantly affect customers' frequency of online banking use. From the interactive effects, we extend the finding to suggest while household income on its own, might not have adequate explanatory power, the household income-effects are likely to be moderated at different levels of age. While household income in itself,

does not explain changes to customers' frequency of online banking use, the age of the customers tends to moderate their frequency within different household income groups.

Lastly, we find the characteristics moderating the relationship between marital status and online banking use. We found age and marital status statistically significantly affected customers' frequency of online banking use. From the interactive effects, this result extends to incorporate the moderating role of customers' employment status in the relationship between marital status and differences in online banking usage frequencies. We find customers' employment status tends to affect how their marital status brings about changes to the number of times they would use online banking as compared with their children.

We do not find any interactions between any of the six variables for customers' preference for human contact at a bank branch. In this case, the finding is limited to the main effects of age and marital status affecting customers' preferences, as is reported in section 4.2. In the absence of interaction effects for the use of online channel, the resulting finding simply suggests employment status to be the only significant demographic affecting the probability of customers to be an online rather than branch banking user. Similarly, in the absence of any interactive effects for recent branch visit, the analysis limits to the main effects of education in statistically significantly affecting customers' recency of visiting a bank branch. An examination of the possible interactions between the six characteristics reveal no significant moderating effects on customers' preference for a specific time or place of online banking use. Earlier on, we found the more educated a person is, the more likely they are to prefer online banking at work rather than at home.

In the light of these findings, we revise the initial conceptual framework (Figure 1) as follows:

Figure 5: Revised conceptual framework in response to research question 2
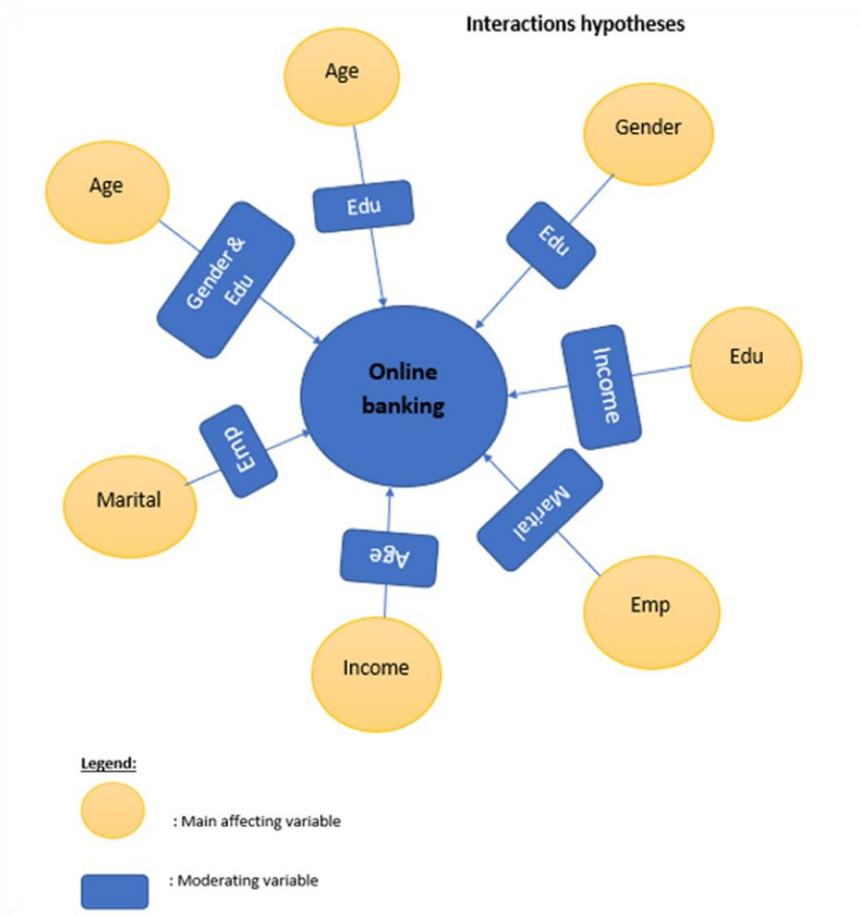
4.4. Analysing perceptions hypotheses

This section, by testing the interaction effects between the personal characteristics, addresses the third research question:

RQ3: *How do different personal characteristics affect the key factors that form users' perceptions of online banking usefulness?*

The hypotheses that we address through this analysis are:

H_{13}: *One or more personal characteristics affect users' perceptions of learning new things in an online banking environment.*

H_{14}: *One or more personal characteristics affect users' perceptions of security in an online banking environment.*

H$_{15}$: One or more personal characteristics affect users' perceptions of the convenience of online banking.

H$_{16}$: One or more personal characteristics affect users' perceptions of the customer service features in an online banking environment.

H$_{17}$: One or more personal characteristics affect perceptions of budget management in an online banking environment.

H$_{18}$: Age of the user affects their attitudes towards online banking.

H$_{19}$: One or more personal characteristics affect users' preference for personal interactions at a bank branch.

H$_{20}$: One or more personal characteristics affect users' perceptions of the hardware requirements of the online banking environment.

The following table (Table 27) enlists the dependent and independent variables used in this analysis:

Table 24: Independent and dependent variables used in analysing effects hypothesis (RQ3)

DVs	IVs
Security perceptions	Age
Budget management	Gender
Learning new things	Gender
Online banking convenience	Education
Age-related attitudes	Employment status
Personal interactions	Employment status
Customer service	Household Income
Hardware requirements	Household Income
Security perceptions	Marital status

Section 3.8.1 discussed the construction of the summated scales out of the 56 Likert statements used in the online survey. The following table (Table 25) shows the key properties of all the summated scales. The agreement percentages show that security perceptions and budget management were the top-two summated scales where most participants agreed with the statements. This reflects customers' perceptions of online banking use are heavily

influenced by how they perceive the security of the online channel and its effectiveness in managing budgets.

Table 25: Descriptive statistics for summated scales

Summated scales	Mean	Std. Deviation	Variance	Agreement (%)
Security perceptions	2.2	0.5	0.2	**70.3**
Budget management	2.3	0.5	0.1	**66.8**
Learning new things	2.5	0.6	0.4	38.0
Online banking convenience	2.7	0.5	0.3	34.4
Age-related attitudes	3.0	0.4	0.1	8.3
Personal interactions	3.1	0.5	0.3	7.1
Customer service	3.4	0.6	0.3	4.7
Hardware requirements	3.4	0.6	0.5	4.7

Next, to determine the association between the scales, we use Spearman's rho (see section 3.8 for description). Using this, we determine the strength of the association between the scales using non-parametric test statistics. As given in Table 26, the r_s values for a majority of the scales indicate a very small, positive correlation at the level of significance i.e. $p<0.05$. A Spearman's correlation coefficient of 0.22 indicates a small positive association between "online banking convenience" and "learning new things" ($p<0.05$). Moreover, we note a small positive correlation between "personal interactions" and "hardware requirements", between "hardware requirements" and "customer service", small negative correlation between "personal interactions" and "budget management", between "personal interactions" and "learning new things" and between "learning new things" and "hardware requirements".

The last scale "online banking convenience" has a small and negative correlation with "personal interactions", "security perceptions", "customer service" and "hardware requirement". This shows the association between the summated scales measuring users' perceptions is either weakly positively or weakly negatively correlated, and we cannot expect similar responses to these scales. Hence, our users' perceptions on different aspects of online banking use would mostly be either slightly similar or dissimilar to one another and reflect random variations in the observations. According to Aggarwal and Ranganathan (2016) and Taylor (1990), medium to large samples typically have smaller correlation coefficients because of the relative size of the effect of outliers on the magnitude of the correlations. This

observation warrants caution in indicating associations and not drawing cause-and-effect relationships.

Table 26: Strength and direction of association between summated scales using Spearman's rho

Spearman's rho for determining correlations between the summated scales[24]								
	Budget management	Age-related attitudes	Learning new things	Personal interactions	Security perception	Customer service	Hardware requirement	Online banking Convenience
Budget management	1.00							
Age-related attitudes	0.07 (0.07)	1.00						
Learning new things	0.19** (0.00)	0.06 (0.13)	1.00					
Personal interactions	-0.08* (0.03)	0.06 (0.12)	-0.19** (0.00)	1.00				
Security perceptions	0.19** (0.00)	0.07 (0.09)	0.10** (0.01)	0.01 (0.86)	1.00			
Customer service	0.06 (0.15)	0.04 (0.36)	-0.01 (0.74)	0.09* (0.01)	-0.05 (0.24)	1.00		
Hardware requirements	0.01 (0.86)	0.12** (0.00)	-0.11** (0.00)	0.17** (0.00)	-0.03 (0.46)	0.23** (0.00)	1.00	
Online banking convenience	0.17** (0.00)	0.06 (0.15)	0.22** (0.00)	-0.18** (0.00)	-0.03 (0.42)	-0.08 (0.06)	-0.03 (0.51)	1.00
**. Correlation is significant at the 0.01 level (2-tailed).								
*. Correlation is significant at the 0.05 level (2-tailed).								
The figures in brackets indicate statistical significance.								

Once we obtained the between-scales correlation, the next step was to find whether there are statistically significant differences between the groups of an independent variable[25] on an ordinal dependent variable[26]. For this analysis, we used the Kruskal-Wallis test (also known as one-way ANOVA on ranks or H-test). Kruskal-Wallis test is a non-parametric version of one-way ANOVA, and is similar to Mann-Whitney U test except that it enables comparisons between multiple groups while Mann-Whitney compares between two groups only (Sheskin, 2003). A disadvantage of using the Kruskal-Wallis test is that it does not single out differences within the group, and only signifies the collectively-significant differences i.e. it is an omnibus

---

[24] The statistical significance for each summated scale is given in brackets under the correlation coefficients.
[25] Age, gender, education, employment status, household income and marital status
[26] Denoted by the summated scales variables.

test statistic (Gravetter & Wallnau, 2016). Detailed output from this test is given in Appendix 13, while the summary of the main results is in Table 27.

Table 27. Summary of hypothesis tests for the analysis of variance for ranked data

Summated Scale Variables[27]	Characteristics with significant effects	df	t-statistic	Asymptotic Sig. (2-sided test)
Budget	Age	3	23.99	0.00
	Education	4	41.31	0.00
	Household Income	4	33.31	0.00
	Marital status	3	9.01	0.03
AgeA	Age	3	25.35	0.00
	Education	4	30.84	0.00
	Employment Status	1	54.18	0.00
	Household Income	4	21.45	0.00
	Marital Status	3	8.76	0.03
Learn	Age	3	34.57	0.00
	Gender	1	3.39	0.06
	Education	4	35.52	0.00
	Employment Status	1	7.40	0.01
	Household Income	4	27.36	0.00
Interact	Education	4	65.55	0.00
	Employment Status	1	5.46	0.02
	Household Income	4	29.60	0.00
	Marital status	3	12.84	0.01
Secure	Age	3	57.66	0.00
	Gender	1	13.16	0.00
	Education	4	25.14	0.00
	Employment Status	1	39.06	0.00
	Household Income	4	15.78	0.00
CustServ	Age	3	39.44	0.00
	Gender	1	32.21	0.00
	Education	4	24.47	0.00
	Employment Status	1	12.06	0.00
	Household Income	4	34.65	0.00
	Marital status	3	7.35	0.06
Hardware	Age	3	7.23	0.00
	Education	4	22.11	0.00
	Employment Status	1	4.37	0.04
	Household Income	4	42.10	0.00
Conv	Gender	1	20.61	0.00
	Education	4	22.40	0.00
	Household Income	4	25.78	0.00

A Kruskal-Wallis H test examined the statistically significant, rank-based differences between two or more groups of an independent variable (denoted by personal

---

[27] These variables denote the eight summated scales developed earlier in the section.

characteristics) on an ordinal dependent or continuous variable (denoted by summated scale variables). Based on the results (Appendix 13), there is a statistically significant difference in the budget management scores between different age groups, $\chi^2(3) = 23.991$, p<0.001, with a mean rank score of 465.50 for 30-39 years age group, 386.33 for those aged 40 to 64 years, 374.28 for those aged under 19 years of age and 362.79 for the 20-29 year olds. Based on the hypotheses summary, we find the distribution of scores for budget management scale is not the same across categories of age and similar results are found for groups with different household income, education and marital status. Insights from a follow-up interview explains how banking attitudes about budget management change with age: "*When I was younger, money was tight, especially as we had kids and I was going through my career. Now we've gotten rid of the kids, and have a good salary so not being very careful now. But then, situation changes, and I don't also spend as much more than before*" (A8).

Because the Kruskal-Wallis test only signifies the between-group differences in the independent variables based on the summated scale scores, this test needs to be supplemented with a post-hoc analysis to further study the magnitude of the difference. To assess the strength of the relationship between the studied variables and report the effect size, an eta-squared estimate was computed in SPSS as part of the post-hoc analysis of the effect size of our independent characteristics (Table 28). Eta-squared is similar to the coefficient of determination (R^2) that we discussed in section 3.8, representing the variance percentage in the ranks of the summated scale scores that can be accounted for by the independent variables. The characteristics with the highest eta-squared estimate is highlighted in bold to indicate higher variance percentage or effect size. While the emphasis of the eta-squared statistic is on the magnitude of difference between two groups of an independent variable, the overall effect of all six characteristics appear to be small in size based on the criterion (i.e. 0.01 is a small effect, 0.06 is a medium effect and 0.14 is a large effect) (Prajapati, Dunne, & Armstrong, 2010).

Table 28: Measures of Association (effect size) using partial Eta-squared statistics

Summated scales	Eta-squared statistics for measure of association					
	Age	Gender	Education	Employment status	Household Income	Marital status
Rank of Budget management	0.040	0.030	**0.062**	0.009	0.042	0.015
Rank of Age-related attitudes	0.056	0.030	**0.068**	0.029	0.018	0.022
Rank of Learning new things	**0.042**	0.020	0.023	0.003	0.039	0.001
Rank of Personal interactions	**0.074**	0.059	0.047	0.001	0.026	0.021
Rank of Security perceptions	**0.092**	0.084	0.019	0.114	0.060	0.008
Rank of Customer services	0.056	**0.064**	0.023	0.001	0.046	0.10
Rank of Hardware requirements	0.019	0.010	0.037	0.002	**0.069**	0.001
Rank of Online banking convenience	**0.051**	0.014	0.027	0.009	0.017	0.005

Next, we determine the effects of the six personal characteristics on customers' perceptions of online banking as depicted by the summated scales using ordinal regression.

Ordinal regression

An ordinal regression predicts variations in an ordinal dependent variable given one or more independent categorical or continuous variables. Ordinal regression is widely used for Likert-scale analyses measuring attitudes, opinion polls, and other psychological surveys where respondent behaviours are measured on a scale having a meaningful order and more than two categories to each dependent variable. In this study, ordinal regression identifies the characteristics that affect customers' perceptions as is depicted by the eight summated scales. The factor levels whose effects cause changes to the perceptual likelihood value are included in the results summary (Table 29).

Appendix 14 provides detailed ordinal regression output for each summated scale. The threshold (intercepts), as part of the parameter estimates, can be interpreted as the log odds of being in a specific group (based on the responses to the summated scales) or in lower groups when scores on other summated scales are zero (Osborne, 2016). A higher value of the intercept indicates greater agreement to the statements measuring respondents' perceptions while a lower value indicates the chances of disagreement with the summated

scale. The value of the intercepts, therefore, are identical to the response choices for the Likert-scale statements (i.e. 5= strongly disagree, 4= disagree, 3= neither agree nor disagree, 2= agree and 1= strongly agree).

Table 29: Summary of parameter estimates- Ordinal regression output

	Estimate	Std. Error	Wald	Sig.	95% Confidence Interval	
					Lower Bound	Upper Bound
Budget management						
[Age=20-29yrs.]	-1.39	0.58	5.74	0.02	-2.53	-0.25
[Education= High school]	-20.51	0.34	3596.18	0.00	-21.18	-19.84
[Education= Cert /Dip /Trade]	-19.43	0.37	2694.27	0.00	-20.17	-18.70
[Education= Bachelor]	-19.23	0.25	6135.05	0.00	-19.71	-18.75
[Income=$40,000 or less]	-0.69	0.24	8.44	0.00	-1.16	-0.23
[Income=$ 70,001 - $100,000]	-2.35	0.67	12.32	0.00	-3.67	-1.04
Age-related attitudes						
[Age=15-19yrs.]	1.67	0.84	4.02	0.05	0.04	3.31
[Income=$40,000 or less]	0.65	0.31	4.23	0.04	0.03	1.26
[Income=$100,001 or more]	1.60	0.49	10.71	0.00	0.64	2.55
[Marital Status= Married/ partnered]	1.15	0.48	5.77	0.02	0.21	2.08
Learning new things						
[Gender= Male]	-16.59	0.20	6723.93	0.00	-16.98	-16.19
[Income=$40,000 or less]	-0.68	0.23	9.00	0.00	-1.13	-0.24
[Income=$ 70,001 - $100,000]	-2.49	0.46	28.78	0.00	-3.39	-1.58
[Income=$100,001 or more]	-0.93	0.37	6.25	0.01	-1.66	-0.20
Personal interactions						
[Age=15-19yrs.]	3.29	0.68	23.14	0.00	1.95	4.63
[Age=20-29yrs.]	2.91	0.62	21.81	0.00	1.69	4.14
[Age=30-39 yrs.]	3.43	0.69	24.68	0.00	2.08	4.79
[Gender= Male]	-2.89	0.76	14.34	0.00	-4.38	-1.39
[Gender= Female]	-3.01	0.75	16.27	0.00	-4.48	-1.55
[Education= Master]	-2.31	1.17	3.88	0.05	-4.60	-0.01
[Income=$40,000 or less]	2.31	0.32	50.83	0.00	1.68	2.95
[Income=$ 40,001 - $70,000]	0.45	0.54	0.69	0.41	-0.61	1.50
[Income=$ 70,001 - $100,000]	1.31	0.55	5.57	0.02	0.22	2.40
[Income=$100,001 or more]	2.61	0.48	29.68	0.00	1.67	3.55
[Marital Status= Unmarried]	-1.12	0.43	6.95	0.01	-1.96	-0.29
Security perceptions						
[Age=20-29yrs.]	-1.74	0.68	6.55	0.01	-3.07	-0.41
[Income=$ 40,001 - $70,000]	-2.96	0.51	33.43	0.00	-3.96	-1.95

Customer Services						
[Gender= Male]	2.64	0.80	10.96	0.00	1.08	4.20
[Gender= Female]	1.56	0.78	3.99	0.05	0.03	3.09
[Income=$40,000 or less]	1.32	0.23	33.25	0.00	0.87	1.77
[Income=$ 40,001 - $70,000]	1.40	0.44	10.35	0.00	0.55	2.26
[Income=$ 70,001 - $100,000]	0.95	0.45	4.39	0.04	0.06	1.83
[Income=$100,001 or more]	2.16	0.40	28.90	0.00	1.37	2.94
Hardware requirements						
[Age=15-19yrs.]	-1.31	0.61	4.61	0.03	-2.50	-0.11
[Age=20-29yrs.]	-1.70	0.57	8.85	0.00	-2.83	-0.58
[Age=30-39 yrs.]	-1.23	0.61	4.07	0.04	-2.42	-0.03
[Gender= Male]	-2.49	0.72	11.81	0.00	-3.91	-1.07
[Gender= Female]	-2.19	0.71	9.40	0.00	-3.59	-0.79
[Education=Student]	1.82	0.82	4.93	0.03	0.21	3.42
[Education= Cert /Dip /Trade]	2.38	0.85	7.84	0.01	0.71	4.05
[Education= Bachelor]	1.35	0.81	2.77	0.10	-0.24	2.94
[Education= Master]	2.30	0.82	7.87	0.01	0.69	3.90
[Income=$40,000 or less]	-0.58	0.21	7.41	0.01	-0.99	-0.16
[Income=$ 40,001 - $70,000]	-3.21	0.47	46.63	0.00	-4.13	-2.29
[Income=$100,001 or more]	-1.93	0.40	22.95	0.00	-2.71	-1.14
Online banking convenience						
[Age=30-39 yrs.]	-2.18	0.61	12.82	0.00	-3.37	-0.99
[Gender=Male]	-1.67	0.83	4.04	0.04	-3.30	-0.04
[Education= Cert /Dip /Trade]	-2.57	0.89	8.31	0.00	-4.32	-0.82
[Income=$ 40,001 - $70,000]	-1.33	0.44	9.14	0.00	-2.18	-0.47
[Marital Status= Unmarried]	-0.78	0.37	4.56	0.03	-1.50	-0.06
df (degree of freedom): 1 Link function: Logit.						

For budget management scale, age, education and income are the significant predictors in the model. The negative regression coefficients (Table 85: parameter estimates, Appendix 14) suggest for every unit increase in the response to the budget management scale, there is a predicted decrease in the log-odds of being in a higher level of the dependent variable. In other words, for each specific group of customers' age, education or income (as shown in Table 29), there is a higher likelihood for the respondents to have disagreed that online banking use influences budget management.

From the follow-up interviews, we find it was mostly the older people for whom the 'availability' feature of online banking was important. Although, there were not many young-age participants in the interviews, the general idea shared was that the older people are more likely to be concerned about checking funds before making payments and managing financial budget is more important for them than for other age groups. The negative perceptions of

people with different education qualifications may also be a reflection of their age. Findings related to household income were contrary to prior research insights where with an increase in the household income, financial needs and responsibilities increase (Karjaluoto et al., 2002; Mattila et al., 2003). For these reasons, household income is perceived to positively affect customers' belief about the influence of online banking on spending and saving.

The age group of 15 to 19 years is a significant predictor of users' attitudes towards online banking. We find at this level, there is a higher likelihood of respondents' agreement to the scale rather than a neutral opinion. Interestingly, findings related to other age groups do not meet the statistical significance criterion and are excluded from discussion. People earning less than $40,000 or more than $100,001 statistically significantly represent an increase in the log-odds of being in the higher of the two response categories (i.e. agree, neither agree nor disagree). Furthermore, marital status is a significant predictor of attitude formation. This implies those who have been either married or living in cohabitation are most likely to express strong agreement with the effect of users' age on their perceptions of online banking.

Gender and household income are significant predictors in the model for the summated scale of 'learning new things'. However, the direction of the regression coefficients reflects the predicted decrease in the log-odds of being in a higher response category. This means there is a predicted decrease of 16.59 in the log odds of the male respondents to agree rather than strongly agree with the hypothesized relationship between gender and the perceptions of learning new things in the online banking environment. The insights from follow-up interviews explain gender differences in the uptake of technology. In the words of an interviewee:

"Women are more aware of certain risks and men like to think they're decision makers. So, they would assess the risks and do it. Women tend to be more aware and more concerned about security risks and perhaps, a little slower on its uptake or learning, whereas men will anticipate the risks and do it [learn it] anyways" (A21).

When the interviewees were asked whether or not their opinions were any different, most participants talked about stereotypic risk attitudes between males and females, and how this might affect their financial decision-making, expenditures and savings:

"Women do not understand technology as much as men do. I hesitate to use gender norms and admit that women are risk averse. But personally, I am risk-averse" (A1).

On a similar note, different household income groups (Table 29) represent the decreased log odds of being in a higher response category for learning new things, when other variables in the model are held constant. People on higher income categories are less likely to perceive their interest towards learning new things about online banking.

For personal interactions, we find age and household income to be significant predictors in the model based on a predicted increase in the log-odds of the respondents (with different ages and household incomes) to be in a higher response category. There is a predicted increase of 3.43 in the log-odds of those aged 30-39 years to have a neutral opinion about personal interactions rather than disagreeing with its importance at all. Similarly, those earning $100,001 or more in their household income are found to have a predicted increase of 2.61 in the log-odds of being in a higher response category (Table 56: parameter estimates, Appendix 14).

The ordinal logit output for security perceptions shows age and household income to be significant characteristics affecting users' perceptions of online banking security. However, the directions of the regression coefficients for these variables indicate predicted decrease in the log-odds of being in a higher response category for the summated scale. Respondents of 20 to 29 years of age, with $40,001-$70,000 or more than $100,000 are likely to agree rather than strongly agree with the summated scale. For these groups, online banking means a safe and secure platform for banking transactions, which explains reasonable agreement of these groups with the scale statements. The interview insights supplement the empirical findings and are in consistence with age effects on perceptual thinking. One of the interviewees (A25), a 67-year old female user, stated:

"I am not confident about using Internet banking on my phone; I am wary of it because of security. Maybe I have got an old-fashioned view, but somehow I feel that the computer system will protect it more securely than my phone".

Gender and household income are significant predictors of customer service perceptions. There is a predicted increase of 2.64 in the log-odds of the male respondents to agree with the scale statements rather than having a neutral opinion. Similarly, those earning more than $100,000 are 2.16 times more likely to belong to a higher response category based

on their responses to the scale. This finding provides a different outlook to prior research insights where females were found to be more process-oriented than males in in their use of technology (Zhou et al., 2014) and tend to place customer services as a highly valued feature of retail services (Friedmann & Lowengart, 2016; Narteh & Owusu-Frimpong, 2011).

For the summated scale measuring customers' perceptions of the hardware requirements of online banking, education is found to be the only positively significant predictor in the model, with an odds ratio of 2.38 (Wald χ2=7.841, p<0.005). For those with a certificate, diploma or trade qualification as their highest education, there is a predicted increase of 2.38 in the log-odds of being in the agreement response category.

For the summated scale measuring online banking convenience, our findings suggest age, gender, education, household income and marital status to be significant predictors of customers' perceptions (given in Table 29). The regression coefficients reflect that there is a predicted decrease in the log-odds of being at a higher response category given different levels of the independent variables, which overall show that more respondents are likely to respond to this scale with neutrality rather than being in agreement with it. While these findings do not support a positive effect of users' marital status in predicting their perceptions of online banking convenience, the follow-up interviews elucidate that the usefulness of online banking in increasing convenience means much more to the married or cohabiting people as it simplifies financial decision-making processes for them.

Section summary

In summary, once we reverse coded the Likert-items that were negatively worded to avoid misdirection in the analysis, the statements were converted into eight summated scales. We then ran descriptive statistics to understand the preliminary properties of the scales including response frequencies. We determined the association levels or correlations between the Likert-scales using Spearman's rho coefficient. Overall, there is a weak association between the summated scales, noting that the use of Spearman's rho test did not affect the causality between variables, rather it described the associations between them. Next, we used Kruskal-Wallis tests to determine the analysis of variance on ranked data. We found different personal characteristics (taken as the independent variables) affect the scales differently. Output obtained from hypothesis summaries for each scale enable comparisons between multiple groups.

Figure 6: Summary of findings for research question 3

Perceptions category	Age	Gender	Edu	Emp	Income	Marital
Learning New Things	■	■	■		■	
Security	■				■	
Customer Service		■			■	
Convenience	■	■	■		■	■
Age-Related Attitudes	■				■	■
Budget management	■		■		■	
Hardware Requirements	■	■	■		■	
Personal Interactions	■	■	■		■	■

Legend:

■ : significant relationship

□ : no significant relationship

In the next phase of the assessment of customers' perceptions using Likert-statements, we obtained the key constructs underlying customer perceptions through PCA, which is a data reduction technique. This leads us to sense their relative importance in impacting online banking use. The suitability of PCA for ordinal scale data is discussed in the previous chapter. The next section describes the process and findings.

Principal Component Analysis

As per PCA output, an inspection of the collinearity statistics (see Appendix 15) shows no variables have a VIF (Variance Inflation Factor) value between 3 (i.e. some multicollinearity) and 5 (high multicollinearity). Bartlett's test of sphericity was statistically significant (95% or $p < .0005$), indicating the data is likely to be factorable and the variables are uncorrelated. This test determined the suitability for further analysis using the principal component method. The Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy was 0.739, which is significant at 0.000 level, with individual KMO measures all greater than 0.5 classifications of 'middling' to 'meritorious' (Pett et al., 2003). This indicated the data set is suitable for PCA.

The PCA initially revealed six components that had eigenvalues greater than 1, which explained 17.5%, 11.7%, 9.5%, 8%, 5.5%, and 5.2% of the total variance, respectively. Visual inspection of the scree plot recommended five components to be retained (Cattell, 1966). The scree plot with inflection point illustrates the criterion to determine the number of

components to retain for rotation and interpretation. The fifth component was the inflection point after which the curve started to level off (see Figure 7).

Figure 7: Scree plot showing inflection point at the 5th component
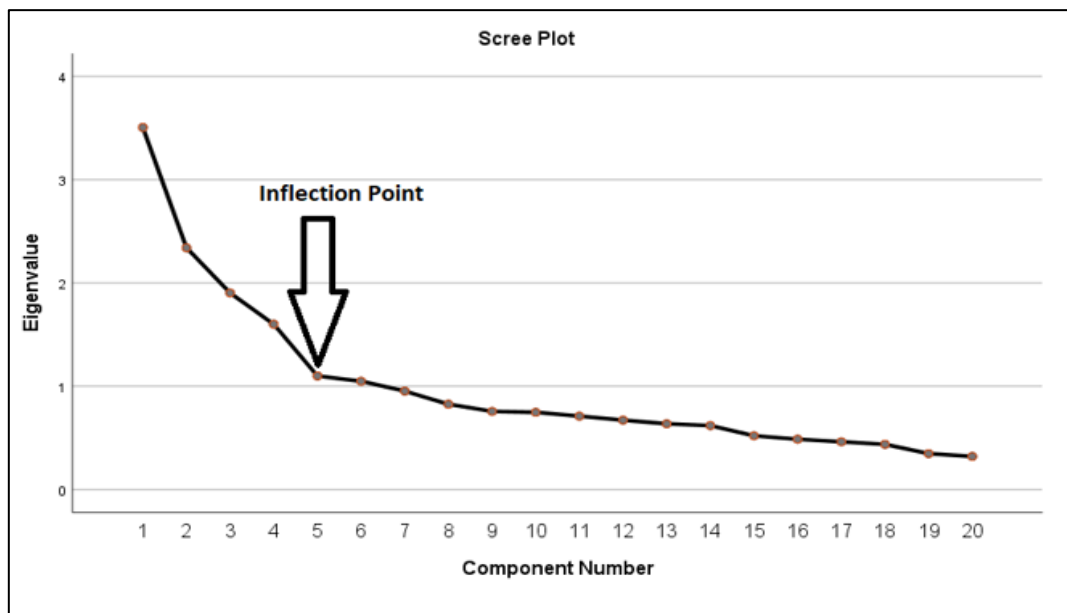
The 5-component solution explained 52.2% of the total variance of variables in factor analysis, and hence, met the interpretability criterion. A Varimax orthogonal rotation was employed to aid interpretability. Conceptual interpretability of the scales was also considered in the factor-retention criterion. A factor or component is only retained if it interprets the item or variable in a meaningful way irrespective whether the "*evidence for its retention [is] based on the empirical criteria*" (Worthington & Whittaker, 2006, p. 822). Component loadings and communalities of the rotated solution (without suppressed coefficients) for our results are illustrated in Table 30. Higher values of communalities indicate how well these variables are predicted by the retained factors:

Table 30: Factor structure for variables as per customers' perceptions of online banking

Rotated structure matrix for PCA with Varimax Rotation							
Items (statements underlying PCA factors)	**Rotated Component Coefficients/Factors Denoted by "F"**						*Communalities*
	F1	*F2*	*F3*	*F4*	*F5*	*F6*	
I hesitate in learning about online banking apps	*0.78*	-0.12	0.11	0.16	-0.10	0.05	0.68
Physical deficiencies faced by people over 65 years of age can serve as an impetus for them to learn how to use online banking	*0.76*	0.11	0.05	-0.06	0.04	-0.01	0.61
I am usually distressed when I face difficulty in learning how to use online banking	*0.73*	0.03	0.16	0.14	0.07	0.01	0.59
I do not use online banking because I do not have the latest smart devices to use it on	*0.72*	-0.05	0.11	-0.07	0.19	-0.15	0.60
I am less willing to learn about online banking than people younger than me	*0.64*	-0.03	-0.00	0.31	-0.11	0.15	0.54
I check available funds before deciding to spend my money	0.06	*0.74*	-0.08	-0.07	0.00	0.16	0.59
I am now more aware of my fund flows (in and out) with the use of online banking features	-0.13	*0.64*	0.01	-0.05	0.19	0.07	0.47
Knowing how much money I have, means that I spend less	-0.03	*0.64*	0.09	-0.04	-0.11	-0.09	0.44
My use of online banking is influenced by current funds available	0.09	*0.64*	0.02	0.19	-0.05	0.04	0.45
My use of online banking is influenced by past Consumption patterns and experiences	-0.01	*0.50*	0.06	0.21	0.15	-0.11	0.34
I enjoy spending time talking to bank staff at the branch office	0.26	-0.07	*0.74*	0.00	0.05	0.16	0.64
I think branch banking is a good way for people to interact with bank staff and develop relationships	-0.10	0.08	*0.73*	0.13	0.08	-0.10	0.59
I like the personal customer services obtained at the branch	0.11	0.06	*0.69*	-0.02	0.02	0.47	0.73
I keep traditional business cards of bank staff to be able to make contact when necessary	0.34	0.06	*0.56*	-0.15	-0.07	-0.12	0.47
My age affects how I learn and use online banking	0.16	0.08	-0.04	*0.76*	0.03	0.13	0.64
I am more willing to learn about online banking than people older than me	0.03	0.08	0.02	*0.68*	0.23	.08	0.53
People aged 65 or older do not use online banking extensively because they don't know how to use it	0.09	-0.01	0.05	*0.67*	0.05	-0.31	0.56
My use of online banking has increased since I bought a smartphone	-0.09	0.09	-0.04	0.20	*0.78*	0.12	0.68
There have been changes in my use of online banking since I upgraded my phone/tablet	0.18	0.02	0.11	0.07	*0.77*	-0.02	0.64
My relationship with the bank branch is more for getting advice and information than for getting money in and out	-0.08	0.04	0.08	0.01	0.09	*0.85*	0.74

Notes: Extraction Method: Principal Component Analysis. Rotation Method: Varimax with Kaiser Normalization. Rotation converged in 6 iterations. Factors *F5* and *F6* are omitted from analysis and the reason is discussed.

For further analysis, choosing the number of scale items to measure a construct requires careful examination of the items loading on each construct. According to Joseph et al. (2006), components with at least three corresponding items should be included to provide "minimum coverage of the construct's theoretical domain" (p. 676). This implies a construct with only one item at PCA output stage is not a latent construct but an observed variable, therefore, we could not include the sixth component (F6) in subsequent analysis.

A factor should have a minimum of three items to be called a factor; however, this depends on the research design. The larger the number of items loading on a factor, the more confidence it provides in replicating the factors in future (Little, Lindenberger, & Nesselroade, 1999; Worthington & Whittaker, 2006). A minimum of three items must load significantly on a factor so that the subscales can be effectively identified. Less than three items are not likely to produce the desired identification (Raubenheimer, 2004). Keeping these considerations in mind, the fifth component (F5) was excluded from analysis as it did not consist of sufficient number of items loading under it (see Table 30 for factors and communalities). The first four components were retained for further analysis and discussion.

In a reflective PCA model, latent constructs exist independent of the measures used and the items on each factor share a common theme (Christophersen & Konradt, 2012; Coltman, Devinney, Midgley, & Venaik, 2008). These items should be interchangeable and dropping an item from the model does not alter the conceptual domain of the construct (Coltman et al., 2008).

The next step involves naming the four reflective constructs and defining them based on the statements that make up each construct (see Table 30 for the statements underlying each factor):

Factor (F1): **Online banking barriers** – This construct was named because the statements exhibited negative feelings, perceptions or difficulties faced by online banking users. Different interviewees talked about negative banking experiences, which hindered their ability to fulfil their financial needs.

For one of the interviewees, having to link two accounts into one was a difficult experience: "*When you have a personal account and a company account with [bank name]; it's difficult to get them linked. You cannot do this with the same log in; but you've actually got to ask them to do that for you, and the guys at the branch didn't know about it*" (A24). Another interviewee, who was in late-60s age group, shared: "*I usually forget my passwords*

it's an age thing, and the app comes in handy to reset it; but definitely when you have to call them and prove your identity to them on phone that becomes very frustrating" (A15).

As per prior research, barriers to online banking adoption comprise lack of experience, knowledge barriers, technology readiness and innovation resistance (Laukkanen et al., 2008), perceived risk and mistrust in the online service delivery channel, customers' economic situation, confidence in using technology, social influence, skill levels, attitudes, and beliefs etc. (Rotchanakitumnuai & Speece, 2003). There are hardware issues, age-related physical deficiencies (poor eyesight, short memory etc.) and accessibility problems (such as poor network coverage etc.) that pose barriers to technology adoption by banking customers (Laukkanen et al., 2007; Lee et al., 2011).

F2: **Budget management** - The second factor was related to budget management and was all about conscious spending choices and realizing where personal funds are generally spent. Customers can increase their budget awareness along with strengthened financial controls (Tan & Teo, 2000; Zhou et al., 2020) to determine if there are changes needed to their budgets. Customers want to avoid spending mindlessly for which they view online banking as an efficient platform that enables them to monitor their budgets and make wise spending decisions (Lassar et al., 2005). In the digital world of banking, customers are increasingly using mobile applications, e-wallets, e-insurance and mobile banking that is of value to them for monitoring their finances effectively (Evdokimova et al., 2019).

F3: **Personal interactions** – The third construct related to customer perceptions about personal interactions at a bank branch. It showed the importance of dealing with bank tellers and other staff in bank-customer relationships. Some customers still have a preference for dealing with human staff, and regard the bank branch as the main service contact despite their adoption of online banking technologies (Avkiran, 1999). A respondent's comment emphasized the importance of trust that according to her, can be reinforced only at the branch: "*Banks are where my life savings are held. I need surety, conversation and understanding. There are times when the Internet is not enough*" (A22).

Past studies advocate the importance of customer services in bank-customer relationships, which invariably involves human contact (Avkiran, 1999; Howcroft et al., 2002; Jiménez & Díaz, 2019; Xiong & Matthews, 2005). Based on the interview insights however, the interviewees said that they would be 'dissatisfied' with a bank's service standards if they

felt they were dependent on the bank staff to resolve financial matters. Customers from different educational and income backgrounds were found to be interested in interacting with branch staff for personalized customer service and advice, usually for riskier transactions and investment decisions. From the interviews, we also find poor customer service (obtained in-person or over the phone) to be the major reason why banking customers switch. One of the interviewees stated: "*First of all, there is no difference between a bank and an online bank. I think a bank that does not have an online bank, will not be a bank. To answer your question, I will only switch if [customer] service is unsatisfactory*" (A26). Two other interviewees suggested the role of personal relationships with bank staff comes in handy when they need faster loan approvals or services that may no longer be offered to the public. In this case, the customers prefer interacting with the bank managers for their discretionary authority.

F4: **Age-related attitudes** - Age plays an important role in influencing customers' opinions and experiences of online banking. Individuals' propensity to use online banking technologies has been found to decrease with increasing age, hence prior research indicated an inverse relationship between the two (Friemel, 2016; Oertzen & Odekerken-Schröder, 2019; Röcker & Kaulen, 2014). With an increasing age, customers' attitudes towards learning smart technology use declines, coupled with biophysical and psychosocial changes that emerges with increasing age (Laukkanen et al., 2007; Yu et al., 2016).

Marr and Prendergast (1990) observed that age differences affect customers' perceptions of performance risk (i.e. the possibility that the given technology may not perform the required task successfully). It is also found that in the New Zealand context, younger people are more concerned about performance risk than the older customers (Marr and Prendergast, 1990). Research studies indicate whilst older customers (baby boomers and generation X) have more preference for traditional channels such as personal contact with bank staff and mail, younger customers (millennials and generation Z) are more comfortable with new technologies in interacting with their financial service providers (Kobler, Hauber, & Ernst, 2015). A survey respondent elaborated how age-based attitudes can be vital for bank-customer relationships: "*I am in my late 60's [age] and technically [technologically] literate so prefer online however, if I have to go to a branch, service is very important*".

Next, we found how closely the set of items were as a construct for each of the four factors obtained from PCA. This was done using Cronbach's alpha[28], which is a measure of the scale reliability.

Table 31: Reliability testing of the PCA constructs using Cronbach's alpha

Reliability Statistics			
Factors/constructs	Cronbach's alpha[29]	Cronbach's alpha based on standardized items	Number of items
F1. Online Banking barriers	0.79	0.79	5
F2. Budget management	0.70	0.66	5
F3. Personal interactions	0.65	0.66	4
F4. Age-related attitudes	0.60	0.60	3

The output in Table 31 shows the values of Cronbach's alpha for each of the four PCA constructs were within the acceptable range of 0.60 to 0.70. This means all four constructs measured what they were intended to measure and did not capture any unintended themes or features.

To evaluate the relative importance of the constructs in explaining online banking use, a multiple regression test was conducted. Multicollinearity was checked as part of preparing the data for the regression. The diagnostic factors of tolerance and Variance Inflation Factor (VIF) were considered to identify multi-collinearity between the four PCA constructs (given in Table 31). The model was run four times iteratively, taking three constructs as predictors while setting the fourth one as the independent variable. Based on the VIF values which should be less than 3, it was concluded that the four PCA constructs had no multicollinearity between them (Appendix 15). For multiple regression analysis, Table 36 shows the dependent and independent variables used:

---

[28] The third chapter discussed the usefulness of Cronbach's alpha in conjunction with PCA.

[29] The value of Cronbach's alpha has been rounded to two decimal points.

Table 32: Independent and dependent variables used in multiple regression analysis

DVs	IV
F1. Online Banking barriers	Online banking (OB) index
F2. Budget management	
F3. Personal interactions	
F4. Age-related attitudes	

The regression equation was modified as follows:

$$\text{Online Banking (OB)} = \beta_0 + b_1 FS_1 + b_2 FS_2 + b_3 FS_3 + b_4 FS_4 + \varepsilon$$

OB (referring to the 'use of online banking') was a PCA-based index, representing a composite statistic or the accumulation of scores from a group of individual data items. Index variables were created in SPSS as a linear combination of the factor scores to summarize the scattered data points and rank observations (see section 3.8 for discussion on index variables). Computing index variables using PCA-led factor scores is a reliable procedure of accurately describing the constructs that the index variable intends to measure (Chan, 1998; DiStefano, Zhu, & Mindrila, 2009).

SPSS uses the sum scores by factor method to compute and generate index variables. In this case, PCA resulted in a set of four unidimensional variables or constructs (as discussed in Table 31), which were factored again to produce factor scores (denoted here by FS). SPSS output had factor scores as part of the PCA. To manually compute factor scores, each participant response is multiplied by its respective weight and the products are summed. Factor scores were standardized to a mean of zero with a standard deviation of 1.0.

β_0 was the regression constant, "b_1", "b_2", "b_3" and "b_4" were regression coefficients of the respective factor scores; and

ε was the error term of the regression model.

The regression model in the coefficient's summary (Table 33) shows changes to the four constructs statistically-significantly measure OB ($F_{(4, 440)} = 101.642$, $p < 0.05$).

Table 33: Coefficients summary from regression output

Coefficients[a]					
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	**Std. Error**	**Beta**		
(Constant)	2.687	0.008		320.855	.000
Factor 1-Online banking barriers	0.047	0.008	0.201	5.831	.000
Factor 2- Budget management	0.102	0.008	0.419	12.18	.000
Factor 3- Personal interactions	0.085	0.008	0.346	10.066	.000
Factor 4- Age-related attitudes	0.09	0.008	0.372	10.826	.000
a. Dependent Variable: OB-use (index variable)					

All the independent variables in the model, as denoted by the factors 1-4, affected online banking use. T-statistics measured the size of the difference of a construct in relation to other variations in the sample data. The greater the magnitude of t-value, the greater the evidence of significant differences in the construct/variable. In the above output, factor 2 (budget management) had greater statistically significant size than other constructs. The sign (+) of each coefficient indicates that there was a positive relationship between the four constructs and online banking use.

4.5. Chapter summary

The results chapter tests and reports the results for each of the 20 hypotheses developed for this study. Based on the descriptive statistics, 98% of the survey sample comprised online banking users. Using cross-tabulations, we studied the primary data properties and relationships between the variables.

Findings related to people's connection with in-branch banking suggest the respondents had visited a branch within one to six months (since they had taken the survey) and that their reasons for a branch visit were mainly due to services that were not available online. The cross-tabulations supported the preferences for personal interactions with the bank staff, as

the respondents felt these interactions are important for bank-customer relationships. The common tendency of the majority of our respondents in regard to keeping cash was at least once a week although the older customers reported they would like to keep cash throughout the week.

The descriptive statistics showed an overall positive attitude of the respondents towards online banking use with an appreciation of the availability, accessibility and convenience of the channel. The respondents mainly used online banking for payment-related tasks involving bill payments, paying other people and/or transferring money between their accounts. In regard to household use of online banking, we find married households agreed with changes to their online banking use as result of their marital status although they were not quite aware of how and why their frequency and types of online banking use might be different to that of their children.

Three sections were designed to report the empirical findings according to the research questions and the corresponding hypotheses. Stepwise regression modelling was used to test hypotheses 1 to 6. In line with the first hypothesis, we partially support a negative relationship between age and online banking use. Age is found to positively affect customers' familiarity with the online banking channel and their interest in exploring it further. The findings do not support any major gender-based findings except its effect on customers' interest in learning new things about online banking. For the third hypothesis, we find marital status affects customers' use of online banking by affecting customers' need and preference for personal interactions with the bank staff and also, differences in the frequencies of using online banking within married or cohabiting households. We could not establish a profound effect of education on online banking use, except a positive effect on when customers would like to use online banking. Hence, our results related to education effects remain inconclusive and warrant further investigation. The analysis confirms the fifth hypothesis that a person's use of the online banking channel tends to differ by their employment status. The findings related to the sixth characteristic supports a relationship between household income and online banking use as it affects customers' experience (in years) with online banking and their learning interest.

The next six hypotheses related to an investigation of interaction effects between personal characteristics with respect to online banking use. Using analyses of variance

(ANOVA) tests, different interaction effects are explored and the differences between main effects and interaction effects are highlighted. The seventh hypothesis of the study hypothesized one or more characteristics to moderate the relationship between age and online banking. We find in the relationship between age and customers' experience (in years) of using online banking, education plays the role of a moderator. We also find gender and education moderate the relationship between age and learning interest through a three-way interaction. Our eighth hypothesis tests the moderating characteristics that could affect genders' use of online banking. The findings reveal education to be a statistically significant moderator affecting male and female users' reasons for online banking use as compared with their children. The ninth hypothesis of this study intended to capture the interactive effects at play in the relationship between education and online banking. Based on the findings, people with different educational qualifications can be users or non-users of online banking, and that this relationship is moderated by their household income.

For the tenth hypothesis of the study, we find marital status moderates the relationship between employment status and customers' likelihood of keeping cash throughout the week. This is the only area related to people's banking practices where marital status acts as a moderator. The eleventh hypothesis tests the interaction between the characteristics in influencing income's effect on online banking. We find age to act as a moderating variable affecting the relationship between customers' household income and their frequencies of online banking use. Additionally, employment status moderates the relationship between marital status and frequency differences which is in response to the last hypothesis based on interactive effects, suggesting the involvement of a third variable in the relationship between marital status and online banking.

The final set of hypotheses tested customers' perceptions, seeking an understanding of how customers' characteristics affect their perceptions of online banking in different ways. We analysed the effects of personal characteristics on customer perceptions using Likert-scale data. The negatively worded statements were reverse-coded and different individual Likert-items were categorised into summated scales to obtain scale scores. We came up with eight summated scales: budget management, age-related attitudes, learning new things, personal interactions, security perceptions, customer service, hardware requirements and online banking convenience. Using Spearman's Rank Correlation, we found out that the

between-scales associations were weakly correlated, hence similar responses to the scales were unlikely. A Kruskal-Wallis test was used for identifying statistically significant differences between the groups of an independent variable on an ordinal dependent variable. Ordinal regression was used to predict the respondent behaviours of ordinal dependent variables on a set of six independent variables.

For the perceptions of learning new things in online banking, the findings suggest age, gender, education and household income affect how customers think of their abilities to explore the channel and learn new things about it. For security perceptions, we find people from different age groups perceive the security of online banking differently and that their perceptions also differ by their household income. The findings further support the idea that customers' characteristics, except employment status, are likely to significantly affect their perceptions of online banking convenience. The two likely causes for the differences in customers' perceptions of customer services are found to be their gender and household income.

Our next finding relates to the management of financial budgets through the online banking channel and its probable effect on customers' perceptions of the channel. The findings suggest age, education and household income affect how customers perceive the role of online banking in better budget management practices. In addition to age-effects on customers' attitudes towards online banking, the results support the roles of household income and marital status of the users in shaping their attitudes that primarily differs by age. Contrary to expectations, this study did not find a significant difference between employment status and preference for personal interactions; however, the other five characteristics do affect how customers think and perceive the value in personal interactions with the bank staff. Addressing the last hypothesis for customer perceptions of hardware requirements, we find results similar to the previous summated scale (of personal interactions); however, we do not seem to find any significant results of marital or employment status in affecting customers' perceptions of the hardware requirements in their use of online banking.

We used a principal component analysis method to obtain mutually uncorrelated constructs, which reduced the Likert statements into four reflective constructs: online banking barriers, budget management, personal interactions and age-related attitudes. Three of these constructs (i.e. budget management, personal interactions and age-related attitudes)

confirmed our earlier categorisation of Likert statements into summated scales. Multiple regression was conducted using the four reflective constructs to assess their relative importance in explaining online banking use. Based on the t-statistics, we found that budget management has greater influence than the three other constructs on how customers behave in the online environment. The perceptions related to personal interactions, customer services and convenience varied at different levels of the personal characteristics indicating their influence on how customers perceive the usefulness and usability of the online banking channel.

Throughout the chapter, the empirical results were supplemented with insights from follow-up interviews, which elaborated the survey responses and explained why the interviewees thought in certain ways. From the interviews, it was found that users' frequency of using online banking was fairly similar, but types of use varies. Attitudes towards spending influences the households' use of online banking. The influence of age in attitude formation was stressed, especially in terms of the differences in the exposure to technology between different generations. Perceptions around personal interaction with bank staff existed because of two main reasons: need for socialising and ensuring secure transactions by dealing with a real person. Preference for online banking security was noted regardless of personal demographics, and issues of websites and apps were discussed. The insights suggested online banking may not be the reason why most customers would switch their banks; however, the need for better customer services was emphasized.

Returning to the hypotheses/questions posed at the beginning of this study, it is now possible to state that customers' personal characteristics are strong determinants of the likelihood of their preference for and use of the online banking channel. The next chapter builds on these results and discusses the contributions and implications in the light of the research questions.

Chapter 5. Conclusions and implications

This thesis set out to conceptualize the effects of customers' personal characteristics on online banking use in New Zealand. This chapter reflects on the findings in respect of the research questions and discusses the contributions to the existing knowledge in the banking field. The findings are reviewed in respect of the research questions and hypotheses, identified in chapter 1. Within this review, the results are placed in the context of the prior research to bridge the knowledge gaps. This chapter also explores future research avenues, academic and practical contributions and shares with the readers, the best part of the study.

5.1. Revisiting aim, objectives and research questions

The central question in this thesis asks how New Zealanders' personal characteristics affect their online banking use. We sought to explain the self-reported behaviours and perceptions of people, and explain the usefulness of demographic characteristics in predicting behaviours in the online banking environment. The main objectives of this study were twofold: to understand how differences in age, gender, household income, marital status, employment and education influence New Zealand banking customers' ways of online banking, and to explore how New Zealanders perceive online banking use. Qualitative and quantitative research designs were adopted to achieve the aim and objectives of the study.

Empirical evidence from the online survey along with personal accounts and experiences from qualitative interviews gave us the opportunity to decode the processes behind customers' actions and thoughts. Because of an observed contrast between what people think and what they do in the online banking environment, we realize the cruciality of studying perceptions and actions together for they are inseparable. As an example, while the fear of security and online threats was deep-rooted in the respondents' minds, their self-reported behaviours showed a different picture. People felt online banking security can be improved yet they are using it for major banking activities, even the riskier ones. This decoding can help banks and financial institutions boost their revenues through effective market segmentation.

Three research questions were established as the basis for the study, which entailed a series of corresponding hypotheses. These hypotheses have been accepted or rejected based

on the required levels of proof outlined in section 3.8.3. This section gives a brief summary and critique of the findings. Table 34 illustrates the breakdown of the results of the effects hypotheses. Table 35 presents the breakdown of results in accordance with the interactions observed between the characteristics. Results obtained from testing the perceptions hypotheses are summarised in Table 36.

Table 34: Synthesis of results for research question 1

Personal characteristics	Research hypothesis	Findings	Outcome
Age	H_1: There is a negative relationship between age and online banking use	**supported** for preference for human contact **rejected** for experience of use **rejected** for frequency differences in use between users and their children **rejected** for differences in reasons for use between users and their children **rejected** for interest in learning new things	**Partially supported**
Gender	H_2: Online banking use differs by gender	**supported** for interest in learning new things no other significant findings	**Partially supported**
Marital status	H_3: Online banking use differs by marital status	**supported** for preference for human contact **supported** for frequency differences in use between users and their children no other significant findings	**Supported**
Education	H_4: There is a positive relationship between education and online banking use	**rejected** for preferred time of online banking use no other significant findings	**Rejected**
Employment status	H_5: Online banking use differs by employment status	**supported** for the use of online banking channel no other significant findings	**Partially supported**

Household income	H_6: There is a positive relationship between household income and online banking use	**supported** for experience with online banking **supported** for interest in learning new things no other significant findings	**Supported**

From our findings (Table 34), age does not significantly predict customer behaviours in the online banking environment; however, it may impact on preferences for certain types of in-branch services that can be more popular with the older populations. Until recently, there has been little quantitative evidence for age-based effects and very few prior studies acknowledge the diminishing gaps between the young and the old in relation to the use of technology (Alhabash et al., 2015; Friemel, 2016). Our findings relating to customers' experience with the online banking channel may be attributable to age because the older people have had longer to use and be exposed to technology. Similarly, based on other findings (Table 35), we realize while age affects customers' exposure to technology (in terms of their experience in years) and their learning inclinations, these effects are subjected to moderation by other characteristics such as gender and education. These results cannot be described as age-only effects without taking into consideration the possible interaction of age with other characteristics. The finding regarding learning interest is contrary to a few prior studies where decreased interest in learning new stuff about digital banking technologies was attributed to age (Alhabash et al., 2015; Röcker & Kaulen, 2014; Yu et al., 2016).

Table 35: Synthesis of results for research question 2

Personal characteristics	Research hypothesis	Findings	Outcome
Age	H_7: One or more personal characteristics moderate the relationship between age and online banking.	**Education** moderates the relationship between age and experience (in yrs) with online banking **Gender** and **education** moderate the relationship between age and learning interest	**Supported**
Gender	H_8: One or more personal characteristics moderate the relationship between gender and online banking.	**Education** moderates the relationship between gender and differences in households' reasons of online banking use	**Supported**
Education	H_9: One or more personal characteristics moderate the relationship between education and online banking.	**Household income** moderates the relationship between education and use of online channel for banking	**Supported**
Employment status	H_{10}: One or more personal characteristics moderate the relationship between employment status and online banking.	**Marital status** moderates the relationship between employment status and cash-keeping	**Supported**
Household income	H_{11}: One or more personal characteristics moderate the relationship between household income and online banking.	**Age** moderates the relationship between household income and differences in households' frequency of online banking use	**Rejected**
Marital status	H_{12}: One or more personal characteristics moderate the relationship between marital status and online banking.	**Employment status** moderates the relationship between marital status and differences in households' frequency of online banking use	**Supported**

While age does not play a strong role in affecting New Zealanders' use of online banking, its effects on customers' perceptions are profound and noteworthy. Age influences users' perceptions of online banking use, especially regarding preferences for dealing with the bank staff (at the branch) and willingness to share personal data, security and privacy concerns. A recurrent theme in the interviews was concerns of loss of hardware or memory loss (i.e. forgetting passwords or log-in details) was associated with old age, which reinforces the need to examine age-related perceptual differences. These concerns, however, are likely to minimize once the offline generation passes away and the online generation reaches old age (Friemel, 2016). Further research about generational cohort membership and its effects on technology use in the banking sector would be worthwhile.

The second characteristic of interest in this study is gender. Contrary to expectations, gender is not found to be a significant predictor of New Zealanders' online banking use. Empirical insights support the disappearance of stereotypical masculine or feminine qualities that were referred to in prior research as critical differences between men's and women's use of technology and financial management. An absence of substantiated evidence for gender effects reflect the idea that these differences are gradually being diluted with greater equality between sexes, and improvements to educational standards. This is in line with the findings of Goldfarb and Prince (2008) and Rice and Katz (2003).

Table 36: Synthesis of results for research question 3

Research hypothesis	Characteristic(s) with significant effects	Outcome
H₁₃: One or more personal characteristics affect users' **perceptions of learning new things** in an online banking environment.	Age Gender Education Household Income	**Supported**
H₁₄: One or more personal characteristics affect users' **perceptions of security** in an online banking environment.	Age Household Income	**Supported**
H₁₅: One or more personal characteristics affect users' **perceptions of the convenience** of online banking.	Age Gender Education Household Income Marital Status	**Supported**
H₁₆: One or more personal characteristics affect users' **perceptions of the customer service features** in an online banking environment.	Gender Household Income	**Supported**
H₁₇: One or more personal characteristics affect **perceptions of budget management** in an online banking environment.	Age Education Household Income	**Supported**
H₁₈: **The user's age** affects their **attitudes** towards online banking**.**	Age Household Income Marital Status	**Supported**
H₁₉: One or more personal characteristics affect users' **preference for personal interactions** at a bank branch.	Age Gender Education Household Income Marital Status	**Supported**
H₂₀: One or more personal characteristics affect users' **perceptions of the hardware requirements** of the online banking environment.	Age Gender Education Household Income	**Supported**

According to our analysis, it is apparent that we are unable to derive meaningful distinctions between men and women in banking behaviours without considering the moderating effect of education on gender's relationship with online banking use (Table 35). Limitations in gender effects are consistent with the findings of Gan et al. (2006) who report

that neither gender nor marital status affects New Zealand banking customers' decisions of using online banking. The findings lend support to what Lera-López, Billon, and Gil (2011, p.7) maintain in their research, "*It seems the differences by gender are being reduced as the use of the internet becomes popular*".

Interestingly, gender was observed to affect customers' perceptions of convenience, personal interactions, hardware requirements, customer service and learning new things (Table 36). In the interpretation of these results, caution has been exercised because personal experiences and interactions illuminate an individual's beliefs, attitudes, thoughts and motivation. Individualism has a strong connection with how users perceive the world around them, including the studied context of online banking. This means any inferences based on gender remain inconclusive unless we take into account personal experiences, circumstances and household responsibilities. Banks need to spend more time taking a deeper dive into analysing these patterns to understand why gender discrepancies may exist.

In response to the hypothesized effect of marital status on online banking use, a range of findings and responses were elicited. The marital status of New Zealanders is likely to impact their preference for human contact at a bank branch and their frequency of using online banking as compared with the household (Table 34). However, in studying the relationship between marital status and online banking usage frequencies, we find employment status to act as a moderating characteristic (Table 35). Further analysis reveals people with different marital statuses are likely to perceive the value of human contact differently and that their age-based perceptions may be influenced by their current marital status.

From our review of prior studies (Banks et al., 2015; Carlsson et al., 2013; Christiansen et al., 2015; Lundberg, Pollak, & Stearns, 2016), marital status causes a huge impact on households' financial planning, lifetime earnings and financial goals. The current findings suggest married couples may choose to combine their finances to provide for the children, a practice that is relatively less common in cohabiting couples. The financial decision-making process may be totally different in married versus single households. With the support of empirical results and interview insights, this study demonstrates marital status can be an important predictor of customer behaviours in the use of self-service banking technologies. We are also able to establish the likely effects of marital status on customers' perceptions of

the value of interacting with the bank staff (at a branch), their perceptions of the usefulness of digital banking channels and its overall convenience.

The insights gleaned from the interviews reflect the interviewees frequently talked about age, gender and marital status while narrating personal experiences. For them, it was often the combined effect of these three characteristics (and not the individualistic effect) that was impactful on their online banking use. We find accounts of personal experiences where the interviewees talked about gender differences but also acknowledged such differences may be less pronounced in single households as compared to married households. An interviewee compared her mother's banking practices with that of the father (in response to a question about gender differences in online banking use): "*My dad doesn't know how to do it while my mum does everything online. Mum [54 years]) probably does not want him to know stuff about online banking because then he would start finagling stuff. My mum controls everything [including where the interviewee spends the money]*" (A22). This implies the connection between individual personalities, gender differences and its reflection on the financial management of married households.

The results of this research with regard to the effects of socioeconomic characteristics match those observed in earlier studies (Clemes et al., 2012; Eastman & Iyer, 2004; Gan et al., 2006). Certain surprising findings emerged from our analysis of education, employment and household income which adds to what was previously known about these characteristics. Contrary to expectations, education is found to be a significant but weak predictor of online banking on its own, except the users' preference for a particular place (i.e. at work, at home or while out and about) of using online banking differed by their educational standing (Table 34). In studying the interactional relationships between characteristics (Table 35), we find household income combines with education in affecting customers' use of the online channel to meet their banking needs. There are similarities between the attitudes expressed by the interviewees in this study and those described in prior studies, relating to the role of education in improving information-processing capabilities and helping people make better and informed financial decisions.

This study supports education as a third variable interacting or combining with other characteristics in affecting New Zealanders' online banking use (Table 35); however, its predictive power as a single characteristic is found to be weaker than that of the other

characteristics. Because our sample comprised New Zealanders who were mainly well-educated (i.e. had at least completed high school), our interpretations or analysis of education-based effects may not be all-encompassing until we reach out to the relatively less or uneducated populations through future research.

The current study confirms an association of employment status with the use of the online banking channel (Table 34); however, further analysis of interactional effects shows this association is likely to be moderated by other socioeconomic demographics (i.e. education and household income) (Table 35). Overall, the results support the effects of the socioeconomic circumstances on users' choice of using the online channel as opposed to traditional branch banking to meet their banking needs. We did not find employment status effects on New Zealanders' perceptions regarding online banking as addressed by the third research question (Table 36). A possible explanation was given in the follow-up interviews where the interviewees having high-paid, stable jobs appeared more comfortable with using the online banking channel and perceptions regarding security risks differed mainly by employment status and household income. This explanation agrees with the findings of other studies (Lichtenstein & Williamson, 2006; Mattila et al., 2003). There is abundant room for further progress in determining how blue-collar versus white-collar jobs or employment in different sectors/industries may affect customer behaviours, attitudes and perceptions.

The findings confirmed a positive relationship between household income and online banking in terms of users' choice of using the online channel and their learning interests (Table 34). These findings are consistent with the Reserve Bank's public survey finding that New Zealanders from low-income groups mainly prefer branch banking (RBNZ, 2019). Overall, income-based findings align with the prior studies (Homburg & Giering, 2001; Howcroft et al., 2002; Jiménez & Díaz, 2019; Smith & Sivakumar, 2004) in determining the importance of income measures in evaluating online banking use. Moreover, the analysis established a prominent role of household income in affecting how customers think, perceive and understand the value of online banking. Past researchers have not treated household income effects in much detail, which reinforces the usefulness of the current study in understanding how household income affects users' comfort with and acceptance of the online banking channel.

Household income, as a socioeconomic characteristic, affects the frequency of using online banking while this effect is moderated by age (Table 35). Similarly, a combined interaction of household income with education impacts on users' use of the online banking channel (Table 36). A comment from follow-up interviews described the interaction of different socioeconomic effects in affecting personal preferences for money management using online banking: "[Partner name] grew *up in a low-income household and is terrified of running out of money – which sparks a lot more checks and regularly moving money around. Where she buys things online, it is with a debit card – and often small purchases. Whereas my upbringing was a solid educated middle-class, so I'm much more comfortable with that just vague idea of how much money is available and going from there. More inclined to do larger online purchases with a credit card mind you, but I make sure to keep the limit small and pay off quickly to avoid interest charges (the main reason I get onto online banking generally). I'm much more inclined to set up automatic payments and leave things be to get the bonus interest. So greater monetary security growing up would seem to have an impact on willingness to pay attention to these things and be more inclined to do online transactions*" (A6).

Factors influencing online banking use have been explored in several studies. Limited empirical evidence exists in the New Zealand context focussing on customer demographics on actual as well as perceived use of online banking. The richness of personal experiences and accounts further adds to our understanding of New Zealanders' way of online banking use. Creating and maintaining mutually beneficial bank-customer relationships is challenging for banks in the absence of consolidated evidence suggesting customer demographics should be closely investigated. Without an adequate understanding of how customers receive banking offers and how they perceive its usefulness, banks and financial institutions will not be able to fully understand key market characteristics, let alone predicting the changes that occur within the markets over time. Hence, for successful market segmentation, the uniqueness and distinctiveness of New Zealand banking customers must be acknowledged, respected and investigated.

5.2. Future research

No study is able to offer holistic solutions to a research problem and opportunities exist for further research on the role of personal demographics in banking and other

industries. Firstly, this study focusses on a single country (New Zealand) where cross-sectional data is collected and analysed. Future research should seek a wider, cross-country or cross-cultural analysis by extending it to Australia and beyond. Longitudinal research would be useful in examining the changes to the New Zealand population over time. This insight and the comparison of pre- and post-adoption technology beliefs in prior research of Karahanna, Straub, and Chervany (1999) indicates a critical area for further research.

An important future research avenue should be to investigate customers' take up of online services offered by financial institutions other than banks, and by nonbank financial institutions such as insurance firms and microloan organizations. The use of clickstream data should lead to tremendous insights into customer behaviours. It will enable researchers to examine and evaluate how customers navigate through the bank's web site during a task (for example frequency of website logins, time spent on each webpage, preferred activities, use of bank mail and other features).

In addition to intercept sampling, the survey respondents comprised Internet users who have Facebook profiles, which can lead to a distortion of results and problems in extrapolating the conclusions. Therefore, future research should address the representativeness of online respondents with the aim of enhancing the heterogeneity of the sample using Twitter and other social media sites.

Comparisons between divergent family types (such as same-sex or same-age couples etc.) is advocated in prior research as an important research opportunity (Craig et al., 2015; Kim, Gutter, et al., 2017). Future research should address the possible role of sex in moderating the relationship between marital status and online banking.

With respect to education, we observe how people with different educational qualifications differ in their use and perceptions of online banking. However, we did not take into account, specific courses or programmes which may affect their behaviours. Further speculation into specific fields of study (such as IT, commerce, sciences, engineering etc.) should be undertaken to draw more specific conclusions. A further study with more focus on the differences between educated and uneducated people is suggested.

This study investigates how people at different job levels engage with online banking; however, the investigation is limited without exploring the nature of their jobs. A person in a physically laborious job (standing for long periods) is less likely to access online banking on a

desktop during working hours than someone who works at a desk. Taking the suggestions of Teo (1998) and Ameme (2015) further, this research recognizes the research scope for comparisons between blue collar and white-collar employees in studying the effects of employment on online banking use.

As adapted from DeGani (2014), the ongoing changes in customers' 'persona' require further examination because life-circumstances are bound to change over time. Due to financial constraints, the researcher was unable to travel extensively to collect data and relied on the Internet for reaching out to banking customers living in faraway regions (e.g. the South Island). Lack of funding to conduct the survey can impact the quality of this research. Future research can address this limitation by increasing the sample size and representativeness.

As suggested by one of our interviewees, it can be worthwhile examining how women as students (i.e. living with parents or as a single household) differ from married women (i.e. living in a married household) to examine marital status effects on risk perceptions in greater detail. Hunsaker and Hargittai (2018) review the use of Internet among older adults to pinpoint that survey questionnaires do not generally cover older-age populations living in residential care facilities (such as nursing homes, memory care units etc.). Future research should aim to recruit this segment of Internet users to offer more inclusive age-based findings covering those whose lives may be influenced by technology but who may not be easily accessible.

To better understand the implications of the results from this study, future research should introduce new variables or sub-levels within variables such as generational cohort membership, ethnicity, migration status, religious orientation etc. Future research should also extend the studied variables to include the effects of psychographic characteristics (personality traits, hobbies, activities, lifestyle etc.) as advised in prior studies (Peltier, Schibrowsky, Schultz, & Davis, 2002). It may also be important to look at how different cultural differences between the Māori and the migrant communities of New Zealand influence online banking adoption. Moreover, this study explores the differences in online banking use between individuals and their households. The unique composition and ever-changing dynamics of households offer an interesting research avenue.

The findings from this study may not be applicable to how online banking is perceived, adopted and used by the rest of the world, but it provides a chance for the world to take a sneak peek into the types of banking customers that New Zealand serves, to be able to find

how similar or different these people are to others in the global world. This can help banks and other financial institutions in improving the online banking channel efficiency along with their overall performance. We present some academic contributions and practical lessons for banks and customers in the next section.

5.3. Implications and contributions to theory and practice

The contribution of this paper is twofold. First, we suggest the contributions of this research to knowledge and theory, understanding its role in the theoretical enhancement of customer behaviour literature in banking. Second, we offer practical implications and directions to banks and banking customers who will benefit from the research findings.

5.3.1 Academic contributions

Though customer acceptance and engagement with online banking has become a key driver of technology adoption in the financial sector (Chen & Chan, 2011; Pikkarainen et al., 2004; Porter & Donthu, 2006), empirical studies on the topic have been few. Historically, there has been some ambivalence as to why banks should make efforts to know their customers beyond what is obvious, and whether their personal characteristics can be a good starting point to understand the behavioural consequences of online banking use (Tornjanski et al., 2015). Through this research, we sought to minimize this uncertainty by promoting an understanding of how customers behave in the banking environment.

Regarding the use of online banking technologies, most studies focussed on online banking adoption as a binary variable (e.g. have used online banking vs have never used online banking) (Arora & Sandhu, 2018; Friemel, 2016). Because this research covers issues related to usage (conditional on the adoption of the online banking channel), it taps a continuous form of usage as measured by different survey items or actors, and the focus is placed on the usage continuum.

Although there is extensive research conducted in the past on demographics, they have usually used demographics as either control factors or moderators (Naseri & Elliott, 2011). Research that explicitly discusses demographics and models their predictive power are scarce (Chang, Cheung, & Lai, 2005; Schibrowsky, Peltier, & Nill, 2007). Hence, this research adds to the existing knowledge about how demographic characteristics can be of predictive utility (Schibrowsky et al., 2007). The explanatory capability of demographic variables has not been

well understood on product or service level, and further research is needed to deal with this literature gap (Chang et al., 2005; Naseri & Elliott, 2011). Because the reported findings on demographic variables have either been too limited or not effective at predicting customer behaviour, this study addresses this shortcoming. It emphasises the role of demographics in initiating usage behaviour and explores its role in influencing thoughts and beliefs. It evaluates the predictive power of personal demographics on both perceptual and experiential use of online banking.

Prior research discusses consumers' initial beliefs about a product not remaining the same during the usage stage, or in other words, perceptions alter with experience (Morris & Venkatesh, 2000; Yang, Lu, Gupta, Cao, & Zhang, 2012). This study explores self-reported usage (i.e. usage frequencies, patterns and purposes of use, and their expectations of the online banking channel) and then supplements these findings with customers' perceptions and viewpoints to obtain richer insights into individual experiences.

Since both branch and online banking are closely linked with customers' perceptions and are significant measures of customer satisfaction, it is imperative that these variables and their effects on customers' financial decision-making are appropriately discussed. We highlight eight areas where banks can reach out to the customers and help them during their journey (see section 3.8.1 for the eight summated scales). We find customer perceptions around security, transaction costs, convenience, personalised services and other areas alter based on their experiences with one bank or a number of banks. This serves an important lesson for the financial sector in understanding how to build stronger customer relationships and streamline customer experiences.

In addition to studying the effects of personal characteristics on online banking use, this study uncovers how certain personal characteristics combine with each other in altering or moderating customers' use of online banking. To the best of our knowledge, these combined or interactive effects have not been studied at such depth in prior studies. Without an analysis of the interaction effects between these personal characteristics (see section 4.3 for interaction effects), the picture of the role of personal demographics is deemed incomplete and hazy (Mendoza, 2006; Tabachnick & Fidell, 2007). Hence, this study opens new avenues to investigate demographics not just separately but also in combination, leading to new dimensions of or extension to the studied variables.

This thesis contributes to the academic literature by providing a better understanding of customers' use of online banking technologies. We find limited studies in New Zealand context in the last ten years (see section 2.7 for literature gaps), which combined customer perceptions and behaviour in studying the online banking channel. By offering an updated New Zealand perspective on the role of personal demographics in customer behaviours, our study extends prior research works in this field (Clemes et al., 2012; Lichtenstein & Williamson, 2006; Watson, 2016).

5.3.2 Practical contributions

This research contributes to the banking industry in a number of ways. The findings will benefit New Zealand bank marketers, managers and decision-makers who can inform future strategies using these insights. One of the contributions of this research is that it is undertaken in an environment where smartphones (and tablets) are commonplace and there is a legitimate question as to whether and how that might have impacted on people's use of on-line banking. This distinguishes this research from some of the earlier material and serves as a reminder for banks to seek ways to foster bank-customer relationships and develop successful marketing strategies. The provision of individualised customer-centric banking experience is critical. Lifestyle integration requires banks and other financial institutions to deliver personalized experiences, since customers expect their banks to have a thorough understanding of their needs and preferences (Pollari et al., 2019).

Understanding the divide in the target markets (for example, the divide between males and females, the young and the old etc.) will help banks and other financial service providers in exploring what share of banking is done online, how and why demographic groups do banking in ways different than the others, and how the gap between users and non-users (of online banking) can be reduced. Based on this study's findings, we have observed how some people still choose to prefer in-branch banking and would like to maintain a connection with their branch, despite the strong emphasis by the banks for Internet banking. In the current, COVID-compromised banking climate, a favourable migration from branch channel to online banking is likely. This calls for a branch network restructuring ensuring those who need in-branch services are able to get it. A recalibration for the future of the banking sector in New Zealand and other countries rests on the premise that customers understand why they should

be online for their banking requirements and how online banking offers more convenience, safety and security than the traditional channels.

In the wake of customers' adoption of disruptive technologies, it is not enough to attract New Zealand customers to adopt online banking simply because of an easy-to-use website. It is also critical that banks address issues of trust and security risks (Aboobucker & Bao, 2018) to increase online banking acceptance in New Zealand. The findings from this study support the idea that the majority of New Zealanders still carry cash- a practice that may be difficult to discontinue. In the current circumstances, banks will also need to support their customers (particularly, the elderly, the vulnerable and the financially excluded) in understanding and making use of alternative payment methods, or if not then reducing their cash-handling practices as much as possible. Greater awareness about contactless payment systems and reduction in costs of online transaction fees can decrease customers' cash dependence.

This study poses some questions on whether the banks truly understand the cost reduction potential of online banking. If banks continue to build and staff branches, or close branches without any alternative access to human channels, personal contact or face-to-face communications, the true potential of online banking cannot hit the bottom line (He, Ho, & Xu, 2020). Because we know from our findings that customers would still like to use human channels, the ROI of online banking projections cannot be completely realised unless banks understand the role of branch versus branchless channels.

5.4. Afterthoughts

With the simplification of banking transactions using an enhanced distribution system and with the introduction of multichannel experiences (allowing customers to pay through their phones, watches etc.), banks have reached out to the potential customers in better ways than before. The novel coronavirus (COVID-19) pandemic has reduced branch visits causing more customers to seek on-line banking services. This requires greater collaboration or partnership between banks and fintech to invest in emerging technologies and make customer experiences safer, convenient and frictionless.

A radical digital transformation post-crisis means the role of branches may no longer be the same; branch hours may reduce and all except essential banking services may either shift on-line or be halted. The importance of contactless payments was growing as customers shifted away from in-branch banking across the world, and this has been intensified by the

Covid-19 pandemic. In addition, in the 'post-Covid-19 normal', avoiding branch banking or preference for on-line banking has a new motivation.

The impact of the pandemic on different customer segments is crucial, especially for those who have not shifted completely on-line such as the elderly, or vulnerable customers who use branches for cash withdrawals and deposits. The contactless environment under COVID-19 suggests banks and financial institutions should form stronger relationships with who they serve in order to understand their needs and respond to changing customer behaviours.

5.4.1 Best part of the study

It is my experience of working with New Zealanders that has driven this research. The opportunity of going beyond desk research, into the field and talking to common people was invaluable. The cooperation, generosity and kindness of the common people towards myself as an independent researcher tells me a lot about the key values that New Zealand endorses as a community. Whanaungatanga (i.e. sense of belonging through shared experiences and working together) and aroha (i.e. love and compassion) were deeply felt when the people encouraged my attempt to listen to their banking experiences and personal circumstances surrounding their use of online banking. The survey respondents as well as the interview participants practised Tikanga (i.e. the placing into practice what is morally correct) and were honest with how they treated themselves as well as the researcher. The participants went above and beyond in making sure I understood their words and gestures and were comfortable with the quality and amount of information they shared. Most of them were flexible on the location and layout of the interviews while some of them requested a summary of the results and were keen to celebrate my achievements towards the end of the study.

All in all, it was a great opportunity to get up close and personal with New Zealanders and seek an understanding into their financial management practices. Mixed method research strategy provided an opportunity to dig deeper into people's lives and evaluate how they do banking. Their behaviours related to searching for information, reliance on human contact, seeking financial advice and information were some of the experiences where we realized the importance of having a blended, multichannel approach- online banking coupled with interpersonal services offered at a branch. Experiences related to reasoning and

selecting different alternative online banking services, apps and solutions revealed the importance of a sound banking system in New Zealand.

References

Abeyasekera, S. (2003). Household surveys in developing and transition countries: design, implementation and analysis. *United Nations Statistics Division*

Aboobucker, I., & Bao, Y. (2018). What obstruct customer acceptance of internet banking? Security and privacy, risk, trust and website usability and the role of moderators. *The Journal of High Technology Management Research, 29*(1), 109-123.

Abuga, I. M., & Manyange, M. N. (2015). Effectiveness of mobile banking services in selected commercial banks in Rwanda. *Journal of Applied Business and Economics, 3*(2), 49-60.

Adapa, S., & Roy, S. K. (2017). Consumers' post-adoption behaviour towards Internet banking: empirical evidence from Australia. *Behaviour & Information Technology, 36*(9), 970-983.

Aggarwal, R., & Ranganathan, P. (2016). Common pitfalls in statistical analysis: The use of correlation techniques. *Perspectives in Clinical Research, 7*(4), 187.

Al-Ashban, A. A., & Burney, M. A. (2001). Customer adoption of tele-banking technology: the case of Saudi Arabia. *International Journal of Bank Marketing, 19*(5), 191-201.

Aladwani, A. M. (2001). Online banking: a field study of drivers, development challenges, and expectations. *International Journal of Information Management, 21*(3), 213-225.

Alhabash, S., Jiang, M., Brooks, B., Rifon, N. J., LaRose, R., & Cotten, S. R. (2015). Online Banking for the Ages: Generational Differences in Institutional and System Trust. *Communication and Information Technologies Annual (Studies in Media and Communications, Volume 10) Emerald Group Publishing Limited, 10*, 145-171.

Ambuehl, S., & Ockenfels, A. (2017). The ethics of incentivizing the uninformed: A vignette study. *American Economic Review, 107*(5), 91-95.

Ameme, B. (2015). The impact of customer demographic variables on the adoption and use of internet banking in developing economies. *The Journal of Internet Banking and Commerce, 20*(2)

Anderson, M., & Perrin, A. (2017). Technology use among seniors. *Washington, DC: Pew Research Center for Internet & Technology*

Andersson, U., Cuervo-Cazurra, A., & Nielsen, B. B. (2020). Explaining interaction effects within and across levels of analysis. In *Research Methods in International Business* (pp. 331-349): Springer.

Arora, S., & Sandhu, S. (2018). Usage based upon reasons: the case of electronic banking services in India. *International Journal of Bank Marketing, 36*(4), 680-700.

Avkiran, N. K. (1999). Quality customer service demands human contact. *International Journal of Bank Marketing, 17*(2), 61-74.

Bajardi, P., Paolotti, D., Vespignani, A., Eames, K., Funk, S., Edmunds, W. J., . . . Smallenburg, R. (2014). Association between recruitment methods and attrition in Internet-based studies. *PloS One, 9*(12), e114925.

Banks, J., Blundell, R. W., Levell, P., & Smith, J. P. (2015). Life-cycle consumption patterns at older ages in the US and the UK: can medical expenditures explain the difference? *American Economic Journal: Economic Policy, 11*(3), 27-54.

Bannier, C. E., & Neubert, M. (2016). Gender differences in financial risk taking: The role of financial literacy and risk tolerance. *Economics Letters, 145*, 130-135.

Barata, P. C., Gucciardi, E., Ahmad, F., & Stewart, D. E. (2006). Cross-cultural perspectives on research participation and informed consent. *Social Science & Medicine, 62*(2), 479-490.

Barnes, J. G. (1994). Close to the customer: but is it really a relationship? *Journal of Marketing Management, 10*(7), 561-570.

Bátiz-Lazo, B., Haigh, T., & Stearns, D. L. (2014). How the future shaped the past: The case of the cashless society. *Enterprise and Society, 15*(01), 103-131.

Beavers, A. S., Lounsbury, J. W., Richards, J. K., Huck, S. W., Skolits, G. J., & Esquivel, S. L. (2013). Practical considerations for using exploratory factor analysis in educational research. *Practical Assessment, Research & Evaluation, 18*(1), 1-13.

Bennett, S., Maton, K., & Kervin, L. (2008). The 'digital natives' debate: A critical review of the evidence. *British Journal of Educational Technology, 39*(5), 775-786.

Berenguer, A., Goncalves, J., Hosio, S., Ferreira, D., Anagnostopoulos, T., & Kostakos, V. (2016). Are Smartphones Ubiquitous?: An in-depth survey of smartphone adoption by seniors. *IEEE Consumer Electronics Magazine, 6*(1), 104-110.

Berkowsky, R. W., Sharit, J., & Czaja, S. J. (2018). Factors predicting decisions about technology adoption among older adults. *Innovation in Aging, 1*(3), 1-12.

Bertocchi, G., Brunetti, M., & Torricelli, C. (2014). Who holds the purse strings within the household? The determinants of intra-family decision making. *Journal of Economic Behavior & Organization, 101*, 65-86. http://dx.doi.org/10.1016/j.jebo.2014.02.012

Best, S. J., Krueger, B., Hubbard, C., & Smith, A. (2001). An assessment of the generalizability of Internet surveys. *Social Science Computer Review, 19*(2), 131-145.

Bethlehem, J. (2010). Selection bias in web surveys. *International Statistical Review, 78*(2), 161-188.

Boone, H. N., & Boone, D. A. (2012). Analyzing likert data. *Journal of Extension, 50*(2), 1-5.

Boonlertvanich, K. (2019). Service quality, satisfaction, trust, and loyalty: the moderating role of main-bank and wealth status. *International Journal of Bank Marketing, 37*(1), 278-302.

Booth-Kewley, S., Edwards, J. E., & Rosenfeld, P. (1992). Impression management, social desirability, and computer administration of attitude questionnaires: Does the computer make a difference? *Journal of Applied Psychology, 77*(4), 562.

Booth, A. (1991). *Contemporary families*: National Council on Family Relations.

Bouwman, H., & Christoffersen, M. (2012). *Relaunching videotex*: Springer Science & Business Media.

Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology, 3*(2), 77-101.

Braunstein, S., & Welch, C. (2002). Financial literacy: An overview of practice, research, and policy. *Federal Reserve Bulletin, 88*, 445.

Brewis, J. (2014). The ethics of researching friends: On convenience sampling in qualitative management and organization studies. *British Journal of Management, 25*(4), 849-862.

Brickman, C. (2012). Not by the book: Facebook as a sampling frame. *Sociological methods & research, 41*(1), 57-88.

Burns, A. C., & Bush, R. F. (2000). *Marketing research* (5 ed.): Pearson Education.

Buse, C. E. (2009). When you retire, does everything become leisure? Information and communication technology use and the work/leisure boundary in retirement. *New Media & Society, 11*(7), 1143-1161.

Bush, A. J., Bush, R. F., & Chen, H. C. (1991). Method of administration effects in mall intercept interviews. *International Journal of Market Research, 33*(4), 1-11.

Carey, M. A., & Asbury, J.-E. (2016). *Focus group research*: Routledge.

Carlsson, F., Martinsson, P., Qin, P., & Sutter, M. (2013). The influence of spouses on household decision making under risk: an experiment in rural China. *Experimental Economics, 16*(3), 383-401.

Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2010). Why ethical consumers don't walk their talk: Towards a framework for understanding the gap between the ethical purchase intentions and actual buying behaviour of ethically minded consumers. *Journal of Business Ethics, 97*(1), 139-158.

Carter, S., Shaw, E., Lam, W., & Wilson, F. (2007). Gender, entrepreneurship, and bank lending: The criteria and processes used by bank loan officers in assessing applications. *Entrepreneurship Theory and Practice, 31*(3), 427-444.

Caskey, J. P., & Sellon, G. H. (1994). Is the debit card revolution finally here? *Economic Review-Federal Reserve Bank of Kansas City, 79*, 79-79.

Cattell, R. B. (1966). The scree test for the number of factors. *Multivariate Behavioral Research, 1*(2), 245-276.

Chan, D. (1998). Functional relations among constructs in the same content domain at different levels of analysis: A typology of composition models. *Journal of Applied Psychology, 83*(2), 234.

Chang, M. K., Cheung, W., & Lai, V. S. (2005). Literature derived reference models for the adoption of online shopping. *Information & Management, 42*(4), 543-559.

Chao, Y.-S., & Wu, C.-J. (2017). Principal component-based weighted indices and a framework to evaluate indices: Results from the Medical Expenditure Panel Survey 1996 to 2011. *PloS One, 12*(9), 1-20. http://dx.doi.org/10.1371/journal.pone.0183997

Chatzoglou, P. D., Kamperidou, S. E., Vraimaki, E., Polychrou, E., Aggelidis, V. P., & Diamantidis, A. D. (2014). Factors affecting the adoption of internet banking in Greece. *International Journal of Applied Systemic Studies 7, 5*(4), 290-310.

Chawla, D., & Joshi, H. (2017). Consumer perspectives about mobile banking adoption in India–a cluster analysis. *International Journal of Bank Marketing, 35*(4), 616-636.

Chawla, D., & Joshi, H. (2018). The Moderating Effect of Demographic Variables on Mobile Banking Adoption: An Empirical Investigation. *Global Business Review, 19*(3_suppl), S90-S113. https://doi.org/10.1177/0972150918757883

Chen, K., & Chan, A. H. S. (2011). A review of technology acceptance by older adults. *Gerontechnology, 10*(1), 1-12. https://doi.org/10.4017/gt.2011.10.01.006.00

Choudrie, J., Junior, C.-O., McKenna, B., & Richter, S. (2018). Understanding and conceptualising the adoption, use and diffusion of mobile banking in older adults: A research agenda and conceptual framework. *Journal of Business Research, 88*, 449-465.

Chrishti, S., & Barberis, J. (2016). The FINTECH Book: The Financial Technology Handbook for Investors, Entrepreneurs and Visionaries. In: TJ International Ltd.

Christiansen, C., Joensen, J. S., & Rangvid, J. (2015). Understanding the effects of marriage and divorce on financial investments: The role of background risk sharing. *Economic Inquiry, 53*(1), 431-447.

Christophersen, T., & Konradt, U. (2012). Development and validation of a formative and a reflective measure for the assessment of online store usability. *Behaviour & Information Technology, 31*(9), 839-857.

Chung, W., & Paynter, J. (2002). *An evaluation of Internet banking in New Zealand.* Paper presented at the Proceedings of the 35th Annual Hawaii International Conference on System Sciences.

Clement, J. (2019). Countries with the most Facebook users 2019. Retrieved from https://www.statista.com/statistics/264810/number-of-monthly-active-facebook-users-worldwide/

Clemes, M. D., Gan, C., & Du, J. (2012). The factors impacting on customers' decisions to adopt Internet banking. *Banks and Bank Systems, 7*(3), 33-50.

Coltman, T., Devinney, T. M., Midgley, D. F., & Venaik, S. (2008). Formative versus reflective measurement models: Two applications of formative measurement. *Journal of Business Research, 61*(12), 1250-1262.

Cook, C., Heath, F., & Thompson, R. L. (2000). A meta-analysis of response rates in web-or internet-based surveys. *Educational and psychological measurement, 60*(6), 821-836.

Corfman, K. P. (1995). The importance of member homogeneity to focus group quality. *NA-Advances in Consumer Research.* Retrieved from http://www.acrwebsite.org/volumes/9875/volumes/v22/NA-22

Corrocher, N. (2006). Internet adoption in Italian banks: An empirical investigation. *Research Policy, 35*(4), 533-544.

Coskun, E. (2014). Customer penetration trends in online banking: A Turkish case. *Journal of Economics Finance and Accounting (JEFA), 1*(4), 265-272.

Craig, L., Powell, A., & Brown, J. E. (2015). Gender patterns in domestic labour among young adults in different living arrangements in Australia. *Journal of Sociology*, 1-17.

Creswell, J. W. (2003). *Research design* (Vol. 2): Sage Publications.

Cronin, B. (1998). *Banking and Finance on the Internet*: John Wiley & Sons.

Croson, R., & Gneezy, U. (2009). Gender differences in preferences. *Journal of Economic Literature, 47*(2), 448-474.

Crothers, C., Smith, P., Urale, P., & Bell, A. (2016). The Internet in New Zealand. *Auckland, NZ: Institute of Culture, Discourse & Communication, Auckland University of Technology*

Daly, M. (2017). Money-related meanings and practices in low-income and poor families. *Sociology, 51*(2), 450-465.

Dauda, S. Y., & Lee, J. (2015). Technology adoption: A conjoint analysis of consumers' preference on future online banking services. *Information Systems, 53*, 1-15.

De Palma, A., Picard, N., & Ziegelmeyer, A. (2011). Individual and couple decision behavior under risk: evidence on the dynamics of power balance. *Theory and Decision, 70*(1), 45-64.

De Vaus, D. (2013). *Surveys in social research*: Routledge.

Deakin, H., & Wakefield, K. (2014). Skype interviewing: Reflections of two PhD researchers. *Qualitative Research, 14*(5), 603-616.

DeGani, A. (2014). *A study of the relationship between millennials' feelings of ownership of mobile devices and their interest in mobile learning*. University of Edinburgh.

Deutsch, K., & Goulias, K. (2009). Investigating the Impact of Sense of Place on Travel Behavior Using an Intercept Survey Methodology.

DeVellis, R. F. (2016). *Scale development: Theory and applications* (Vol. 26): Sage publications.

DeYoung, R., Lang, W. W., & Nolle, D. L. (2007). How the Internet affects output and performance at community banks. *Journal of Banking & Finance, 31*(4), 1033-1060.

Dholakia, R. R. (2006). Gender and IT in the household: Evolving patterns of Internet use in the United States. *The Information Society, 22*(4), 231-240.

DiCicco-Bloom, B., & Crabtree, B. F. (2006). The qualitative research interview. *Medical Education, 40*(4), 314-321.

DiStefano, C., Zhu, M., & Mindrila, D. (2009). Understanding and using factor scores: Considerations for the applied researcher. *Practical Assessment, Research & Evaluation, 14*(20), 1-11.

Dittrich, R., Francis, B., Hatzinger, R., & Katzenbeisser, W. (2007). A paired comparison approach for the analysis of sets of Likert-scale responses. *Statistical Modelling, 7*(1), 3-28.

Dong, Y., & Peng, C.-Y. J. (2013). Principled missing data methods for researchers. *SpringerPlus, 2*(1), 222.

Du, J. (2011). *An empirical analysis of Internet banking adoption in New Zealand.* Lincoln University,

Eastman, J. K., & Iyer, R. (2004). The elderly's uses and attitudes towards the Internet. *Journal of Consumer Marketing, 21*(3), 208-220. https://doi.org/10.1108/07363760410534759

Eriksson, K., & Nilsson, D. (2007). Determinants of the continued use of self-service technology: The case of Internet banking. *Technovation, 27*(4), 159-167.

Evans, & Mathur, A. (2005). The value of online surveys. *Internet Research, 15*(2), 195-219.

Evans, & Schmalensee, R. (2005). *Paying with plastic: the digital revolution in buying and borrowing*: MIT Press.

Evans, L., de Boer, D. B., & Howell, B. (2000). *The State of e-New Zealand*. Victoria University of Wellington. http://researcharchive.vuw.ac.nz/handle/10063/3908

Evdokimova, Y., Shinkareva, O., & Bondarenko, A. (2019). *Digital banks: development trends.* Paper presented at the 2nd International Scientific conference on New Industrialization: Global, national, regional dimension (SICNI 2018).

Fern, E. F. (1982). The use of focus groups for idea generation: the effects of group size, acquaintanceship, and moderator on response quantity and quality. *Journal of Marketing Research*, 1-13.

Field, A. (2017). *Discovering statistics using IBM SPSS statistics* (North American edition ed.): Sage.

Flick, U. (2018). *An introduction to qualitative research*: Sage Publications Limited.

Fonseca, R., Mullen, K. J., Zamarro, G., & Zissimopoulos, J. (2012). What explains the gender gap in financial literacy? The role of household decision making. *Journal of Consumer Affairs, 46*(1), 90-106.

French, D., McKillop, D., & Stewart, E. (2020). The effectiveness of smartphone apps in improving financial capability. *The European Journal of Finance, 26*(4-5), 302-318. 10.1080/1351847X.2019.1639526

Fricker, R. D. (2008). Sampling methods for web and e-mail surveys. *N. Fielding*, 195-216.

Friedmann, E., & Lowengart, O. (2016). The Effect of Gender Differences on the Choice of Banking Services. *Journal of Service Science and Management, 9*, 361-377.

Friemel, T. N. (2016). The digital divide has grown old: Determinants of a digital divide among seniors. *New Media & Society, 18*(2), 313-331.

Gan, C., Clemes, M., Limsombunchai, V., & Weng, A. (2006). A logit analysis of electronic banking in New Zealand. *International Journal of Bank Marketing, 24*(6), 360-383.

Garrison, M., Pierce, S. H., Monroe, P. A., Sasser, D. D., Shaffer, A. C., & Blalock, L. B. (1999). Focus group discussions: Three examples from family and consumer science research. *Family and Consumer Sciences Research Journal, 27*(4), 428-450.

Geng, D., Abhishek, V., & Li, B. (2015). *When the bank comes to you: Branch network and customer multi-channel banking behavior.* Paper presented at the 2015 International Conference on Information Systems (ICIS 2015), Ft. Worth, Texas, USA.

George, D., & Mallery, P. (1994). *SPSS/PC+ step by step: A simple guide and reference*: Wadsworth Publ. Co.

Gerpott, T. J., Thomas, S., & Weichert, M. (2013). Personal characteristics and mobile Internet use intensity of consumers with computer-centric communication devices: An exploratory empirical study of iPad and laptop users in Germany. *Telematics and Informatics, 30*(2), 87-99. 10.1016/j.tele.2012.03.008

Gerrard, P., & Barton Cunningham, J. (2003). The diffusion of internet banking among Singapore consumers. *International Journal of Bank Marketing, 21*(1), 16-28.

Gibbs, A. (2012). Focus groups and group interviews. *Research Methods and Methodologies in Education, Thousand Oaks*, 186-192.

Gibson-Davis, C. M., Edin, K., & McLanahan, S. (2005). High hopes but even higher expectations: The retreat from marriage among low-income couples. *Journal of Marriage and Family, 67*(5), 1301-1312.

Giordani, G., Floros, C., & Judge, G. (2014). Econometric investigation of internet banking adoption in Greece. *Journal of Economic Studies, 41*(4), 586-600.

Goldfarb, A., & Prince, J. (2008). Internet adoption and usage patterns are different: Implications for the digital divide. *Information Economics and Policy, 20*(1), 2-15.

Goodman, L. A. (2011). Comment: On respondent-driven sampling and snowball sampling in hard-to-reach populations and snowball sampling not in hard-to-reach populations. *Sociological Methodology, 41*(1), 347-353.

Goswami, A., & Dutta, S. (2016). Gender differences in technology usage—A literature review. *Open Journal of Business and Management, 4*(01), 51-59.

Grau, E. (2007). *Using factor analysis and Cronbach's alpha to ascertain relationships between questions of a dietary behavior questionnaire.* Paper presented at the Proc Am Stat Assoc.

Gravetter, F. J., & Wallnau, L. B. (2016). *Statistics for the behavioral sciences*: Cengage Learning.

Greenbaum, T. L. (1998). *The handbook for focus group research*: Sage.

Gu, X., & Kannan, P. (2017). *The impact of mobile app adoption on consumer purchase.* Paper presented at the Robert Mittelstaedt doctoral symposium.

Guest, G., Bunce, A., & Johnson, L. (2006). How many interviews are enough? An experiment with data saturation and variability. *Field methods, 18*(1), 59-82.

Guest, G., Namey, E., & McKenna, K. (2017). How many focus groups are enough? Building an evidence base for nonprobability sample sizes. *Field methods, 29*(1), 3-22.

Gurău, C. (2012). A life-stage analysis of consumer loyalty profile: comparing Generation X and Millennial consumers. *Journal of Consumer Marketing, 29*(2), 103-113.

Gutiérrez, S. S. M., Izquierdo, C. C., & Cabezudo, R. S. J. (2010). Product and channel-related risk and involvement in online contexts. *Electronic Commerce Research and Applications, 9*(3), 263-273.

Hair, J. F., Black, W. C., Babin, B. J., Anderson, R. E., & Tatham, R. L. (2006). Multivariate data analysis 6th ed. *Uppersaddle River: Pearson Prentice Hall*

Han, L. (2008). Bricks Vs Clicks: Entrepreneurial online banking behaviour and relationship banking. *International Journal of Entrepreneurial Behavior & Research, 14*(1), 47-60. https://doi.org/10.1108/13552550810852820

Hanafizadeh, P., Keating, B. W., & Khedmatgozar, H. R. (2014). A systematic review of Internet banking adoption. *Telematics and Informatics, 31*(3), 492-510.

Hargittai, E., & Dobransky, K. (2017). Old dogs, new clicks: Digital inequality in skills and uses among older adults. *Canadian Journal of Communication, 42*(2), 195–212. https://doi.org/10.22230/cjc.2017v42n2a3176

Hargittai, E., Piper, A. M., & Morris, M. R. (2018). From internet access to internet skills: digital inequality among older adults. *Universal Access in the Information Society*, 1-10.

Harrison, T. (1995). Segmenting the market for retail financial services. *International Review of Retail, Distribution and Consumer Research, 5*(3), 271-286.

He, D., Ho, C.-Y., & Xu, L. (2020). Risk and return of online channel adoption in the banking industry. *Pacific-Basin Finance Journal, 60*, 101268.

He, D., You, K., Li, W., & Wu, J. (2019). Determinants of Technology Adoption: Evidence from the Chinese Banking Industry. *Emerging Markets Finance and Trade*, 1-23.

Head, E. (2009). The ethics and implications of paying participants in qualitative research. *International Journal of Social Research Methodology, 12*(4), 335-344.

Hedley, K., White, J., Petit dit de la Roche, C., & Banerjea, S. (2006). Banking 2015: a classic strategy battle of scale vs focus. *Strategy & Leadership, 34*(3), 51-58.

Heeringa, S. G., West, B. T., & Berglund, P. A. (2017). *Applied survey data analysis* (1 (April 5, 2010) ed.): Chapman and Hall/CRC.

Hennink, M. M., Kaiser, B. N., & Marconi, V. C. (2017). Code saturation versus meaning saturation: how many interviews are enough? *Qualitative Health Research, 27*(4), 591-608.

Henrique, J. L., & Matos, C. A. d. (2015). The influence of personal values and demographic variables on customer loyalty in the banking industry. *International Journal of Bank Marketing, 33*(4), 571-587.

Herington, C., & Weaven, S. (2007). Can banks improve customer relationships with high quality online services? *Managing Service Quality: An International Journal, 17*(4), 404-427.

Hernández, B., Jiménez, J., & José Martín, M. (2011). Age, gender and income: do they really moderate online shopping behaviour? *Online Information Review, 35*(1), 113-133.

Hertzog, C., & Dunlosky, J. (2011). Metacognition in later adulthood: Spared monitoring can benefit older adults' self-regulation. *Current Directions in Psychological Science, 20*(3), 167-173.

Hogarth, J. M., & Swanson, J. A. (1993). *Voices of experience: Limited resource families and financial management.* Paper presented at the American Home Economics Association: Family Economics & Management Conference Proceedings.

Homburg, C., & Giering, A. (2001). Personal characteristics as moderators of the relationship between customer satisfaction and loyalty—an empirical analysis. *Psychology & Marketing, 18*(1), 43-66.

Hong, S. G., Trimi, S., & Kim, D. W. (2016). Smartphone use and internet literacy of senior citizens. *Journal of Assistive Technologies, 10*(1), 27-38. doi:10.1108/JAT-03-2015-0006

Howcroft, B., & Durkin, M. (2000). Reflections on bank–customer interactions in the new millennium. *Journal of Financial Services Marketing, 5*(1), 9-20.

Howcroft, B., Hamilton, R., & Hewer, P. (2002). Consumer attitude and the usage and adoption of home-based banking in the United Kingdom. *International Journal of Bank Marketing, 20*(3), 111-121.

Hunsaker, A., & Hargittai, E. (2018). A review of Internet use among older adults. *New Media & Society, 20*(10), 3937-3954.

Hussain, M., & Wong, C. (2015). *The Online Banking Behavior of Generation Y.* Paper presented at the XIV International Business and Economy Conference Bangkok, Thailand.

Iddris, F. (2013). Barriers to adoption of mobile banking: Evidence from Ghana. *International Journal of Academic Research in Business and Social Sciences, 3*(7), 356-370.

Ilieva, J., Baron, S., & Healey, N. M. (2002). Online surveys in marketing research: Pros and cons. *International Journal of Market Research, 44*(3), 361.

Inglehart, R. (2015). *The silent revolution: Changing values and political styles among Western publics*: Princeton University Press.

Islam, M. (2011). Effect of demographic factors on e-learning effectiveness in a higher learning Institution in Malaysia. *International Education Studies, 4*(1), 112-121.

Izogo, E. E., Nnaemeka, O. C., Onuoha, A., & Ezema, K. (2012). Impact of demographic variables on consumers' adoption of e-banking in Nigeria: An empirical investigation. *European Journal of Business and Management, 4*(17), 27-39.

Jabareen, Y. (2009). Building a conceptual framework: philosophy, definitions, and procedure. *International Journal of Qualitative Methods, 8*(4), 49-62.

Jakšič, M., & Marinč, M. (2019). Relationship banking and information technology: the role of artificial intelligence and FinTech. *Risk Management, 21*(1), 1-18.

Janarthanam, S. (2017). *Hands-on chatbots and conversational UI development: Build chatbots and voice user interfaces with Chatfuel, Dialogflow, Microsoft Bot Framework, Twilio, and Alexa Skills*: Packt Publishing Ltd.

Janatian, S., & Samavatyan, H. (2013). Predicting E-banking Tendency from Personality & Demographic Characteristics. *New Marketing Research Journal*, 39-50.

Janghorban, R., Roudsari, R. L., & Taghipour, A. (2014). Skype interviewing: The new generation of online synchronous interview in qualitative research. *International Journal of Qualitative Studies on Health and Well-being, 9*(1), 24152.

Jayawardhena, C., & Foley, P. (2000). Changes in the banking sector–the case of Internet banking in the UK. *Internet Research, 10*(1), 19-31.

Jiang, L., Yang, Z., & Jun, M. (2013). Measuring consumer perceptions of online shopping convenience. *Journal of Service Management, 24*(2), 191-214.

Jiménez, J. R. Z., & Díaz, I. A. (2019). Educational level and Internet banking. *Journal of Behavioral and Experimental Finance, 22*, 31-40.

Johnson, D. S., Bardhi, F., & Dunn, D. T. (2008). Understanding how technology paradoxes affect customer satisfaction with self-service technology: The role of performance ambiguity and trust in technology. *Psychology & Marketing, 25*(5), 416-443.

Jolliffe, I. T., & Cadima, J. (2016). Principal component analysis: a review and recent developments. *Philosophical Transactions of the Royal Society A: Mathematical, Physical and Engineering Sciences, 374*(2065), 20150202.

Josefowicz, M. (2003). Gen-Y college students, financial services, and the web. *Celent, New York, NY*

Joseph, F., Bush, R. P., & Ortinau, D. J. (2006). *Marketing Research: Within a Changing Information Environment*: McGraw-Hill Education.

Joshi, A., Kale, S., Chandel, S., & Pal, D. (2015). Likert scale: Explored and explained. *British Journal of Applied Science & Technology, 7*(4), 396.

Józsa, K., & Morgan, G. A. (2017). Reversed items in Likert scales: Filtering out invalid responders. *Journal of Psychological and Educational Research, 25*(1), 7-25.

Jun, M., & Cai, S. (2001). The key determinants of internet banking service quality: a content analysis. *International Journal of Bank Marketing, 19*(7), 276-291.

Kamleitner, B., Mengay, T., & Kirchler, E. (2017). Financial decisions in the household.

Kang, Hur, W. M., & Son, M. (2014). The moderating role of socio–demographics on smartphone adoption. *International Journal of Mobile Communications, 12*(5), 532-550.

Kang, H., Lee, M. J., & Lee, J. K. (2012). Are you still with us? A study of the post-adoption determinants of sustained use of mobile-banking services. *Journal of Organizational Computing and Electronic Commerce, 22*(2), 132-159.

Karahanna, E., Straub, D. W., & Chervany, N. L. (1999). Information technology adoption across time: a cross-sectional comparison of pre-adoption and post-adoption beliefs. *MIS quarterly*, 183-213.

Karjaluoto, H., Koenig-Lewis, N., Palmer, A., & Moll, A. (2010). Predicting young consumers' take up of mobile banking services. *International Journal of Bank Marketing, 28*(5), 410-432.

Karjaluoto, H., Mattila, M., & Pento, T. (2002). Factors underlying attitude formation towards online banking in Finland. *International Journal of Bank Marketing, 20*(6), 261-272. https://doi.org/10.1108/02652320210446724

Katz, H. (2006). *Global surveys or multi-national surveys? On sampling for global surveys.* Paper presented at the Thoughts for the Globalization and Social Science Data Workshop UCSB.

Kendall, L. (2008). The conduct of qualitative interviews. *Handbook of research on new literacies*, 133-149.

Kennedy, P. (2003). *A guide to econometrics*: MIT press.

Khan, I., & Rahman, Z. (2016). E-tail brand experience's influence on e-brand trust and e-brand loyalty: the moderating role of gender. *International Journal of Retail & Distribution Management, 44*(6), 588-606.

Khedmatgozar, H. R., & Shahnazi, A. (2018). The role of dimensions of perceived risk in adoption of corporate internet banking by customers in Iran. *Electronic Commerce Research, 18*(2), 389-412.

Kim, Gutter, M. S., & Spangler, T. (2017). Review of family financial decision making: Suggestions for future research and implications for financial education. *Journal of Financial Counseling and Planning, 28*(2), 253-267.

Kim, Sefcik, J. S., & Bradway, C. (2017). Characteristics of qualitative descriptive studies: a systematic review. *Research in Nursing & Health, 40*(1), 23-42.

King, B. (2012). *Bank 3.0: Why banking is no longer somewhere you go but something you do*: John Wiley & Sons.

Kline, R. B. (2015). *Principles and practice of structural equation modeling*: Guilford publications.

Knight, E., Hall, S., Whitmire, R., & Hall, D. (1999). Current status and plans for Internet banking as reported by bank CEOs. *Journal of Financial Services Marketing, 4*, 49-64.

Kobler, D., Hauber, F., & Ernst, B. (2015). Millennials and wealth management: Trends and challenges of the new clientele. *Inside: Quarterly Insights from Deloitte, 9*, 56-63.

Kolodinsky, J. M., Hogarth, J. M., & Hilgert, M. A. (2004). The adoption of electronic banking technologies by US consumers. *International Journal of Bank Marketing, 22*(4), 238-259.

Komulainen, H., & Saraniemi, S. (2019). Customer centricity in mobile banking: a customer experience perspective. *International Journal of Bank Marketing, 37*(5), 1-21.

König, R., Seifert, A., & Doh, M. (2018). Internet use among older Europeans: an analysis based on SHARE data. *Universal Access in the Information Society*, 1-13.

Krishnan, V. (2010). Constructing an area-based socioeconomic index: A principal components analysis approach. *Edmonton, Alberta: Early Child Development Mapping Project*

Kumar, R., Sachan, A., & Kumar, R. (2020). The impact of service delivery system process and moderating effect of perceived value in internet banking adoption. *Australasian Journal of Information Systems, 24* https://doi.org/10.3127/ajis.v24i0.1923

Kumar, V., & Pansari, A. (2016). Competitive advantage through engagement. *Journal of Marketing Research, 53*(4), 497-514.

La Barbera, P. A., & Gürhan, Z. (1997). The role of materialism, religiosity, and demographics in subjective well-being. *Psychology & Marketing, 14*(1), 71-97.

Ladhari, R., & Leclerc, A. (2013). Building loyalty with online financial services customers: Is there a gender difference? *Journal of Retailing and Consumer Services, 20*(6), 560-569. https://doi.org/10.1016/j.jretconser.2013.07.005

Lagarde, C. (2018). Central Banking and Fintech: A Brave New World. *Innovations: Technology, Governance, Globalization, 12*(1-2), 4-8.

Lang, B., & Colgate, M. (2003). Relationship quality, on-line banking and the information technology gap. *International Journal of Bank Marketing, 21*(1), 29-37.

Lassar, W. M., Manolis, C., & Lassar, S. S. (2005). The relationship between consumer innovativeness, personal characteristics, and online banking adoption. *International Journal of Bank Marketing, 23*(2), 176-199.

Laukkanen, P., Sinkkonen, S., & Laukkanen, T. (2008). Consumer resistance to internet banking: postponers, opponents and rejectors. *International Journal of Bank Marketing, 26*(6), 440-455.

Laukkanen, T. (2016). Consumer adoption versus rejection decisions in seemingly similar service innovations: The case of the Internet and mobile banking. *Journal of Business Research, 69*(7), 2432-2439.

Laukkanen, T., Sinkkonen, S., Kivijärvi, M., & Laukkanen, P. (2007). Innovation resistance among mature consumers. *Journal of Consumer Marketing, 24*(7), 419-427.

Lavrakas, P. J. (2008). *Encyclopedia of survey research methods*: Sage Publications.

Lee, B., Chen, Y., & Hewitt, L. (2011). Age differences in constraints encountered by seniors in their use of computers and the internet. *Computers in Human Behavior, 27*(3), 1231-1237.

Lee, H. J., Jeong Cho, H., Xu, W., & Fairhurst, A. (2010). The influence of consumer traits and demographics on intention to use retail self-service checkouts. *Marketing Intelligence & Planning, 28*(1), 46-58.

Lee, M. S., McGoldrick, P. J., Keeling, K. A., & Doherty, J. (2003). Using ZMET to explore barriers to the adoption of 3G mobile banking services. *International Journal of Retail & Distribution Management*

Lee, Y.-K., Chang, C.-T., Lin, Y., & Cheng, Z.-H. (2014). The dark side of smartphone usage: Psychological traits, compulsive behavior and technostress. *Computers in Human Behavior, 31*, 373-383.

Lees, G., Winchester, M., & De Silva, S. (2016). Demographic product segmentation in financial services products in Australia and New Zealand. *Journal of Financial Services Marketing, 21*(3), 240-250.

Lera-López, F., Billon, M., & Gil, M. (2011). Determinants of Internet use in Spain. *Economics of Innovation and New Technology, 20*(2), 127-152.

Lerner, J. (2006). The new new financial thing: The origins of financial innovations. *Journal of Financial Economics, 79*(2), 223-255.

Li, H., Kuo, C., & Rusell, M. G. (1999). The impact of perceived channel utilities, shopping orientations, and demographics on the consumer's online buying behavior. *Journal of Computer-Mediated Communication, 5*(2), JCMC521.

Lian, J.-W., & Yen, D. C. (2014). Online shopping drivers and barriers for older adults: Age and gender differences. *Computers in Human Behavior, 37*, 133-143.

Liassides, C. (2019). The future of banking. *Telegraph UK*. Retrieved from https://www.telegraph.co.uk/business/business-reporter/future-of-banking/

Lichtenstein, S., & Williamson, K. (2006). Understanding consumer adoption of internet banking: an interpretive study in the Australian banking context. *Journal of Electronic Commerce Research, 7*(2), 50.

Little, T. D., Lindenberger, U., & Nesselroade, J. R. (1999). On selecting indicators for multivariate measurement and modeling with latent variables: When" good" indicators are bad and" bad" indicators are good. *Psychological Methods, 4*(2), 192.

Love, D. A. (2009). The effects of marital status and children on savings and portfolio choice. *The Review of Financial Studies, 23*(1), 385-432.

Lundberg, S., Pollak, R. A., & Stearns, J. (2016). Family Inequality: Diverging Patterns in Marriage, Cohabitation, and Childbearing. *The Journal of Economic Perspectives, 30*(2), 79-101.

Lusardi, A., & Mitchell, O. S. (2008). Planning and financial literacy: How do women fare? *American Economic Review, 98*(2), 413-417.

Malhotra, N. K. (2019). *Marketing research : an applied orientation* (7th ed.). New York, NY: Pearson.

Mann, B. J. S., & Sahni, S. K. (2012). Profiling adopter categories of internet banking in India: an empirical study. *Vision, 16*(4), 283-295.

Marcus, B., Weigelt, O., Hergert, J., Gurt, J., & Golléri, P. (2017). The use of snowball sampling for multi source organizational research: Some cause for concern. *Personnel Psychology, 70*(3), 635-673.

Marr, N. E., & Prendergast, G. (1990). Human tellers: who needs them? *International Journal of Bank Marketing, 8*(2), 32-39.

Marr, N. E., & Prendergast, G. (1994a). The Future of Self-Service Technologies in Retail Banking. *The Service Industries Journal, 14*(1), 94-114. https://doi.org/10.1080/02642069400000007

Marr, N. E., & Prendergast, G. (1994b). Towards a Branchless Banking Society? *International Journal of Retail & Distribution Management, 22*(2), 18-26. https://doi.org/10.1108/09590559410054095

Martins, C., Oliveira, T., & Popovič, A. (2014). Understanding the Internet banking adoption: A unified theory of acceptance and use of technology and perceived risk application. *International Journal of Information Management, 34*(1), 1-13.

Mathieson, K., Peacock, E., & Chin, W. W. (2001). Extending the technology acceptance model: the influence of perceived user resources. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems, 32*(3), 86-112.

Matthews, C., & Ralston, W. (2011). *Mobile Banking in New Zealand.* Paper presented at the 24th Australasian Finance and Banking Conference.

Mattila, M., Karjaluoto, H., & Pento, T. (2003). Internet banking adoption among mature customers: early majority or laggards? *Journal of Services Marketing, 17*(5), 514-528.

McNeish, J. (2015). Consumer trust and distrust: retaining paper bills in online banking. *International Journal of Bank Marketing, 33*(1), 5-22. https://doi.org/10.1108/IJBM-08-2013-0088

McRobert, C. J., Hill, J. C., Smale, T., Hay, E. M., & van der Windt, D. A. (2018). A multi-modal recruitment strategy using social media and internet-mediated methods to recruit a multidisciplinary, international sample of clinicians to an online research study. *PloS One, 13*(7), e0200184.

Mendoza, J. L. (2006). Book Review: Design and Analysis: A Researcher's Handbook. *Organizational Research Methods, 9*(2), 248-251.

Meuter, M. L., Bitner, M. J., Ostrom, A. L., & Brown, S. W. (2005). Choosing among alternative service delivery modes: An investigation of customer trial of self-service technologies. *Journal of Marketing, 69*(2), 61-83.

Miles, M. B., & Huberman, A. M. (1994). *Qualitative data analysis: An expanded sourcebook*: Sage.

Milkau, U., & Bott, J. (2015). Digitalisation in payments: From interoperability to centralised models? *Journal of Payments Strategy & Systems, 9*(3), 321-340.

Milner, T., & Rosenstreich, D. (2013). Insights into mature consumers of financial services. *Journal of Consumer Marketing, 30*(3), 248-257.

Mitzner, T. L., Boron, J. B., Fausset, C. B., Adams, A. E., Charness, N., Czaja, S. J., . . . Sharit, J. (2010). Older adults talk technology: Technology usage and attitudes. *Computers in Human Behavior, 26*(6), 1710-1721.

Mokhlis, S. (2009). Determinants of choice criteria in Malaysia's retail banking: an analysis of gender-based choice decisions. *European Journal of Economics, Finance and Administrative Sciences, 1*(2), 1450-1467.

Mols, N. P. (1998a). The behavioral consequences of PC banking. *International Journal of Bank Marketing, 16*(5), 195-201.

Mols, N. P. (1998b). The Internet and the banks' strategic distribution channel decisions. *Internet Research, 8*(4), 331-337.

Morgan, D. L. (1996). *Focus groups as qualitative research* (Vol. 16): Sage publications.

Morgan, D. L. (2002). Focus group interviewing. *Handbook of Interview Research: Context and Method*, 141-159.

Morgans, O. (2010). Stick or twist? An analysis of consumer behaviour in the personal current account market. *Consumer Focus*. Retrieved from http://194.109.159.7/tna/20101105210520/http://www.consumerfocus.org.uk/files/2010/10/Stick-or-twist-for-web1.pdf

Morris, & Venkatesh. (2000). Age differences in technology adoption decisions: implications for a changing workforce. *Personnel Psychology, 53*(2), 375-403.

Mukaka, M. M. (2012). A guide to appropriate use of correlation coefficient in medical research. *Malawi Medical Journal, 24*(3), 69-71.

Mutengezanwa, M., & Mauchi, F. N. (2013). Socio-demographic factors influencing adoption of internet banking in Zimbabwe. *Journal of Sustainable Development in Africa, 15*(8), 145-154.

Narteh, B., & Owusu-Frimpong, N. (2011). An analysis of students' knowledge and choice criteria in retail bank selection in sub-Saharan Africa: The case of Ghana. *International Journal of Bank Marketing, 29*(5), 373-397.

Naseri, M. B., & Elliott, G. (2011). Role of demographics, social connectedness and prior internet experience in adoption of online shopping: Applications for direct marketing. *Journal of Targeting, Measurement and Analysis for Marketing, 19*(2), 69-84.

Nasri, W. (2011). Factors influencing the adoption of internet banking in Tunisia. *International Journal of Business and Management, 6*(8), 143-160.

Nassar-McMillan, S. C., & Borders, L. D. (2002). Use of focus groups in survey item development. *The Qualitative Report, 7*(1), 1-12.

Natarajan, T., Balasubramanian, S. A., & Kasilingam, D. L. (2018). The moderating role of device type and age of users on the intention to use mobile shopping applications. *Technology in Society, 53*, 79-90.

Neslin, S. A., Grewal, D., Leghorn, R., Shankar, V., Teerling, M. L., Thomas, J. S., & Verhoef, P. C. (2006). Challenges and opportunities in multichannel customer management. *Journal of Service Research, 9*(2), 95-112.

Ngcongo, M., & Mnisi, J. (2014). A Gender Gap? Uses and Perceptions of Mobile Phone Banking in South Africa. *International Journal of Humanities and Social Science, 4*(9), 1-9.

Nielsen. (2017). A look at the evolving e-commerce landscape. Retrieved 30th May 2020, from Nielsen Global Connect https://www.nielsen.com/us/en/insights/article/2017/a-look-at-the-evolving-e-commerce-landscape/

Nielsen, J. (2002). Internet technology and customer linking in Nordic banking. *International Journal of Service Industry Management, 13*(5), 475-495.

Nielson, J., & Curry, K. (1997). Creative strategies for connecting with mature individuals. *Journal of Consumer Marketing, 14*(4), 310-322.

Norton, E. C., Wang, H., & Ai, C. (2004). Computing interaction effects and standard errors in logit and probit models. *The Stata Journal, 4*(2), 154-167.

O'Connor, A., Jackson, L., Goldsmith, L., & Skirton, H. (2014). Can I get a retweet please? Health research recruitment and the Twittersphere. *Journal of Advanced Nursing, 70*(3), 599-609.

Ochuko, R. E., Cullen, A. J., & Neagu, D. (2009). *Overview of factors for Internet banking adoption.* Paper presented at the 2009 International Conference on CyberWorlds.

Oertzen, A.-S., & Odekerken-Schröder, G. (2019). Achieving continued usage in online banking: a post-adoption study. *International Journal of Bank Marketing*

Oliver-Hoyo, M., & Allen, D. (2006). The Use of Triangulation Methods in Qualitative Educational Research. *Journal of College Science Teaching, 35*(4)

Onyia, O. P., & Tagg, S. K. (2011). Effects of demographic factors on bank customers' attitudes and intention toward Internet banking adoption in a major developing African country. *Journal of Financial Services Marketing, 16*(3-4), 294-315.

Oropesa, R. S., Landale, N. S., & Kenkre, T. (2003). Income allocation in marital and cohabiting unions: The case of mainland Puerto Ricans. *Journal of Marriage and Family, 65*(4), 910-926.

Ortlinghaus, A., Zielke, S., & Dobbelstein, T. (2019). The impact of risk perceptions on the attitude toward multi-channel technologies. *The International Review of Retail, Distribution and Consumer Research, 29*(3), 262-284.

Osborne, J. W. (2016). *Regression & linear modeling: Best practices and modern methods*: Sage Publications.

Oumlil, A. B., & Williams, A. J. (2000). Consumer education programs for mature consumers. *Journal of Services Marketing, 14*(3), 232-243.

Oyeleye, O., Sanni, M., & Shittu, T. (2015). An Investigation of the Effects of Customer's Educational Attainment on their Adoption of E-banking in Nigeria. *The Journal of Internet Banking and Commerce, 2015*

Ozkaya, E., Ozkaya, H. E., Roxas, J., Bryant, F., & Whitson, D. (2015). Factors affecting consumer usage of QR codes. *Journal of Direct, Data and Digital Marketing Practice, 16*(3), 209-224.

Pahl, J. (2000). Couples and their money: Patterns of accounting and accountability in the domestic economy. *Accounting, Auditing & Accountability Journal, 13*(4), 502-517.

Pang, N., Vu, S., Zhang, X., & Foo, S. (2015). *Older adults and the appropriation and disappropriation of smartphones.* Paper presented at the International Conference on Human Aspects of IT for the Aged Population.

Parasuraman, A. (2000). Technology Readiness Index (TRI) a multiple-item scale to measure readiness to embrace new technologies. *Journal of Service Research, 2*(4), 307-320.

Patton, M. Q. (1990). *Qualitative evaluation and research methods*: Sage Publications, Inc.

Paymark. (2019). Payments 2018 A year in review (Media Release). Retrieved 30th February 2020, from Paymark https://www.paymentsnz.co.nz/resources/articles/nz-payments-stats-2018-in-review/

Peltier, J. W., Schibrowsky, J. A., Schultz, D. E., & Davis, J. (2002). Interactive psychographics: Cross-selling in the banking industry. *Journal of Advertising Research, 42*(2), 7-22.

Pett, M. A., Lackey, N. R., & Sullivan, J. J. (2003). *Making sense of factor analysis: The use of factor analysis for instrument development in health care research*: Sage.

Peytchev, A., Baxter, R. K., & Carley-Baxter, L. R. (2009). Not all survey effort is equal: Reduction of nonresponse bias and nonresponse error. *Public opinion quarterly, 73*(4), 785-806.

Phelps, J., Nowak, G., & Ferrell, E. (2000). Privacy concerns and consumer willingness to provide personal information. *Journal of Public Policy & Marketing, 19*(1), 27-41.

Piercy, N., Campbell, C., & Heinrich, D. (2011). Suboptimal segmentation: Assessing the use of demographics in financial services advertising. *Journal of Financial Services Marketing, 16*(3-4), 173-182.

Pikkarainen, T., Pikkarainen, K., Karjaluoto, H., & Pahnila, S. (2004). Consumer acceptance of online banking: an extension of the technology acceptance model. *Internet Research, 14*(3), 224-235.

Pilcher, J. (2012). The State of Branches In The Age of Automated Banking. https://thefinancialbrand.com/26055/bancography-branch-strategy-briefing/

Polasik, M., & Wisniewski, T. (2009). Empirical analysis of internet banking adoption in Poland. *International Journal of Bank Marketing, 27*(1), 32-52.

Polatoglu, V. N., & Ekin, S. (2001). An empirical investigation of the Turkish consumers' acceptance of Internet banking services. *International Journal of Bank Marketing, 19*(4), 156-165.

Pollari, I., Bekker, C., & Jowell, C. (2019). The Future of Digital Banking. from KPMG Australia https://home.kpmg/au/en/home/insights/2019/07/future-of-digital-banking-in-2030.html

Pont, M., & McQuilken, L. (2005). An empirical investigation of customer satisfaction and loyalty across two divergent bank segments. *Journal of Financial Services Marketing, 9*(4), 344-359. https://doi.org/10.1057/palgrave.fsm.4770165

Porter, C. E., & Donthu, N. (2006). Using the technology acceptance model to explain how attitudes determine Internet usage: The role of perceived access barriers and demographics. *Journal of Business Research, 59*(9), 999-1007.

Prajapati, B., Dunne, M., & Armstrong, R. (2010). Sample size estimation and statistical power analyses. *Optometry today, 16*(7), 10-18.

Prendergast, G., & Marr, N. (1995). Challenging Human Interaction in the Delivery of Banking Services. *Journal of Euromarketing, 4*(1), 83-98. https://doi.org/10.1300/J037v04n01_06

Probst, A., & Brokaw, S. (2012). The expectations of quick response (QR) codes in print media: An empirical data research anthology. *UW-L Journal of Undergraduate Research, 15*, 1-13.

Rachel, Ł., & Summers, L. H. (2019). *On Secular Stagnation in the Industrialized World* (No. 0898-2937). National Bureau of Economic Research.

Rainer, R. K., Laosethakul, K., & Astone, M. K. (2003). Are gender perceptions of computing changing over time? *Journal of Computer Information Systems, 43*(4), 108-114.

Rajab, J. M., MatJafri, M., & Lim, H. (2013). Combining multiple regression and principal component analysis for accurate predictions for column ozone in Peninsular Malaysia. *Atmospheric Environment, 71*, 36-43.

Raubenheimer, J. (2004). An item selection procedure to maximize scale reliability and validity. *SA Journal of Industrial Psychology, 30*(4), 59-64.

RBNZ. (2019). *Cash Use in New Zealand: Public Survey 2019 - High Level Findings*. Reserve Bank of New Zealand.

Reynolds, R. W., & Baker, J. (2000). *Handbook of research on electronic surveys and measurements*. Hershey, PA: Idea Group Publishing.

Rice, R. E., & Katz, J. E. (2003). Comparing internet and mobile phone usage: digital divides of usage, adoption, and dropouts. *Telecommunications Policy, 27*(8-9), 597-623.

Richard, G.-G., Aijaz, A. S., & Karjaluoto, H. (2017). Mobile banking services adoption in Pakistan: are there gender differences? *International Journal of Bank Marketing, 35*(7), 1088-1112. https://doi.org/10.1108/IJBM-09-2015-0142

Rindfuss, R. R., Choe, M. K., Tsuya, N. O., Bumpass, L. L., & Tamaki, E. (2015). Do low survey response rates bias results? Evidence from Japan. *Demographic Research, 32*, 797-828.

Röcker, C., & Kaulen, D. (2014). Smart Banking: User Characteristics and Their Effects on the Usage of Emerging Banking Applications. *Journal ISSN, 2368*, 6103.

Rod, M., Ashill, N. J., Shao, J., & Carruthers, J. (2009). An examination of the relationship between service quality dimensions, overall internet banking service quality and customer satisfaction: A New Zealand study. *Marketing Intelligence & Planning, 27*(1), 103-126.

Rosner, E. (2019). The need for speed: A platform-based approach to digitisation. *Journal of Digital Banking, 4*(1), 53-59.

Roszkowski, M. J., & Soven, M. (2010). Shifting gears: Consequences of including two negatively worded items in the middle of a positively worded questionnaire. *Assessment & Evaluation in Higher Education, 35*(1), 113-130.

Rotchanakitumnuai, S., & Speece, M. (2003). Barriers to Internet banking adoption: a qualitative study among corporate customers in Thailand. *International Journal of Bank Marketing, 21*(6/7), 312-323.

Rubin, H. J., & Rubin, I. S. (2011). *Qualitative interviewing: The art of hearing data*: Sage.

Rugimbana, R. (1995). Predicting automated teller machine usage: the relative importance of perceptual and demographic factors. *International Journal of Bank Marketing, 13*(4), 26-32.

Ryu, M. H., Kim, S., & Lee, E. (2009). Understanding the factors affecting online elderly user's participation in video UCC services. *Computers in Human Behavior, 25*(3), 619-632.

Safeena, R., Kammani, A., & Date, H. (2014). Assessment of internet banking adoption: an empirical analysis. *Arabian Journal for Science and Engineering, 39*(2), 837-849.

Sagoe, D. (2012). Precincts and prospects in the use of focus groups in social and behavioral science research. *The Qualitative Report, 17*(15), 1.

Salem, M. Z., Baidoun, S., & Walsh, G. (2019). Factors affecting Palestinian customers' use of online banking services. *International Journal of Bank Marketing, 37*(2), 426-451. https://doi.org/10.1108/IJBM-08-2018-0210

Samli, A. C. (2012). *International consumer behavior in the 21st century: impact on marketing strategy development*: Springer Science & Business Media.

Sarel, D., & Marmorstein, H. (2003). Marketing online banking services: The voice of the customer. *Journal of Financial Services Marketing, 8*(2), 106-118.

Sarel, D., & Marmorstein, H. (2007). Customer relationship management in banking: An introduction and strategic implications. *Journal of Financial Services Marketing, 12*(2), 97-101.

Sassler, S. (2004). The process of entering into cohabiting unions. *Journal of Marriage and Family, 66*(2), 491-505.

Sathye, M. (1999). Adoption of Internet banking by Australian consumers: an empirical investigation. *International Journal of Bank Marketing, 17*(7), 324-334.

Sayar, C., & Wolfe, S. (2007). Internet banking market performance: Turkey versus the UK. *International Journal of Bank Marketing, 25*(3), 122-141.

Schibrowsky, J. A., Peltier, J. W., & Nill, A. (2007). The state of internet marketing research: A review of the literature and future research directions. *European Journal of Marketing, 41*(7/8), 722-733.

Schober, P., Boer, C., & Schwarte, L. A. (2018). Correlation coefficients: appropriate use and interpretation. *Anesthesia & Analgesia, 126*(5), 1763-1768.

Schroeder, L. D., Sjoquist, D. L., & Stephan, P. E. (2016). *Understanding regression analysis: An introductory guide* (Vol. 57): Sage Publications.

Schultze, U., & Avital, M. (2011). Designing interviews to generate rich data for information systems research. *Information and Organization, 21*(1), 1-16.

Seber, G. A., & Lee, A. J. (2012). *Linear regression analysis* (Vol. 329): John Wiley & Sons.

Seiler, V., Rudolf, M., & Krume, T. (2013). The influence of socio-demographic variables on customer satisfaction and loyalty in the private banking industry. *International Journal of Bank Marketing, 31*(4), 235-258.

Servon, L. J., & Kaestner, R. (2008). Consumer financial literacy and the impact of online banking on the financial behavior of lower-income bank customers. *Journal of Consumer Affairs, 42*(2), 271-305.

Shaikh, A. A., & Karjaluoto, H. (2015). Mobile banking adoption: A literature review. *Telematics and Informatics, 32*(1), 129-142.

Shapiro, J. (1999). Innovation in financial services case study: home banking. *Massachusetts Institute of Technology, MIT IPC Working Paper*, 99-004.

Sheskin, D. J. (2003). *Handbook of parametric and nonparametric statistical procedures*: Chapman and Hall/CRC.

Sigley, R. (2003). The importance of interaction effects. *Language variation and change, 15*(2), 227-253.

Smith, D. N., & Sivakumar. (2004). Flow and Internet shopping behavior: A conceptual model and research propositions. *Journal of Business Research, 57*(10), 1199-1208.

Smith, P., Gibson, A., Crothers, C., Billot, J., & Bell, A. (2011). *World Internet Project New Zealand The Internet in New Zealand 2011*. Institute of Culture, Discourse & Communication, AUT University, Auckland.

Sohail, M. S., & Shanmugham, B. (2003). E-banking and customer preferences in Malaysia: An empirical investigation. *Information Sciences, 150*(3-4), 207-217.

Soman, D. (2001). Effects of payment mechanism on spending behavior: The role of rehearsal and immediacy of payments. *Journal of Consumer Research, 27*(4), 460-474.

Statista. (2018). Mobile App Usage - Statistics & Facts.

Stavins, J. (2001). Effect of Consumer CharacteristicsontheUse of Payment Instruments.

Stewart, D. W., & Shamdasani, P. N. (2014). *Focus groups: Theory and practice* (Vol. 20): Sage publications.

Sudman, S. (1980). Improving the quality of shopping center sampling. *Journal of Marketing Research, 17*(4), 423-431.

Sue, V. M., & Ritter, L. A. (2012). *Conducting online surveys*: Sage.

Sullivan, G. M., Artino, J., & Anthony, R. (2013). Analyzing and interpreting data from Likert-type scales. *Journal of Graduate Medical Education, 5*(4), 541-542.

Sundin, D., & Fahy, K. (2008). Critical, post-structural, interpretive interactionism: an update on Denzin's methodology. *Nurse Researcher (through 2013), 16*(1), 7.

Swain, S. D., Weathers, D., & Niedrich, R. W. (2008). Assessing three sources of misresponse to reversed Likert items. *Journal of Marketing Research, 45*(1), 116-131.

Tabachnick, B. G., & Fidell, L. S. (2007). *Using multivariate statistics*: Allyn & Bacon/Pearson Education.

Tai, W., & Zhu, J. (2013). Factors influencing students' selection of a Bank.

Talafha, H., & Abu-Shanab, E. (2015). Would gender, education and age influence internet banking adoption constructs in Jordan? *IADIS International Journal on WWW/Internet, 13*(2), 69-82.

Tam, C., & Oliveira, T. (2017). Literature review of mobile banking and individual performance. *International Journal of Bank Marketing, 35*(7), 1044-1067.

Tan, M., & Teo, T. S. (2000). Factors influencing the adoption of Internet banking. *Journal of the Association for Information Systems, 1*(1), 5.

Tariq, S., & Woodman, J. (2013). Using mixed methods in health research. *JRSM Short Rep., 4*(6), 1-8. https://doi.org/10.1177/2042533313479197

Taylor, R. (1990). Interpretation of the correlation coefficient: a basic review. *Journal of Diagnostic Medical Sonography, 6*(1), 35-39.

Teo, T. S. (1998). Differential effects of occupation on Internet usage. *Internet Research, 8*(2), 156-165.

Teo, T. S. (2001). Demographic and motivation variables associated with Internet usage activities. *Internet Research, 11*(2), 125-137.

The Economist, I. (2015). Magazines "Kiwis as guinea pigs". *The Economist*.

Tornjanski, V., Marinkovic, S., Savoiu, G., & Cudanov, M. (2015). A need for research focus shift: Banking industry in the age of digital disruption. *Econophysics, Sociophysics & Other Multidisciplinary Sciences Journal (ESMSJ), 5*(3), 11-15.

Tran, H. T. T., & Corner, J. (2016). The impact of communication channels on mobile banking adoption. *International Journal of Bank Marketing, 34*(1), 78-109.

Tsai, W.-H., Hsu, W., & Lin, T. W. (2011). New financial service development for banks in Taiwan based on customer needs and expectations. *The Service Industries Journal, 31*(2), 215-236.

Turner, D. W. I. (2010). Qualitative interview design: A practical guide for novice investigators. *The Qualitative Report, 15*(3), 754.

Uluman, M., & Doğan, C. (2016). Comparison of factor score computation methods in factor analysis. *Australian Journal of Basic and Applied Sciences, 10*(18), 143-151.

Umberson, D., Wortman, C. B., & Kessler, R. C. (1992). Widowhood and depression: Explaining long-term gender differences in vulnerability. *Journal of Health and Social Behavior*, 10-24.

Vallespín, M., Molinillo, S., & Muñoz-Leiva, F. (2017). Segmentation and explanation of smartphone use for travel planning based on socio-demographic and behavioral variables. *Industrial Management & Data Systems, 117*(3), 605-619.

Van den Broeck, J., Cunningham, S. A., Eeckels, R., & Herbst, K. (2005). Data cleaning: detecting, diagnosing, and editing data abnormalities. *PLoS medicine, 2*(10), e267.

van Deventer, M., de Klerk, N., & Bevan-Dye, A. (2017). Antecedents of attitudes towards and usage behavior of mobile banking amongst Generation Y students. *Banks & bank systems, 12*(2), 78-90. https://doi.org/10.21511/bbs.12(2).2017.08

Van Sonderen, E., Sanderman, R., & Coyne, J. C. (2013). Ineffectiveness of reverse wording of questionnaire items: Let's learn from cows in the rain. *PloS One, 8*(7), e68967.

Venkatesh, V., Morris, M. G., Davis, G. B., & Davis, F. D. (2003). User acceptance of information technology: Toward a unified view. *MIS quarterly*, 425-478.

Vercruyssen, A., Roose, H., Carton, A., & Putte, B. V. D. (2014). The effect of busyness on survey participation: being too busy or feeling too busy to cooperate? *International Journal of Social Research Methodology, 17*(4), 357-371.

Veríssimo, J. M. C. (2016). Enablers and restrictors of mobile banking app use: A fuzzy set qualitative comparative analysis (fsQCA). *Journal of Business Research, 69*(11), 5456-5460. http://dx.doi.org/10.1016/j.jbusres.2016.04.155

Vilhelmson, B., Thulin, E., & Elldér, E. (2017). Where does time spent on the Internet come from? Tracing the influence of information and communications technology use on daily activities. *Information, Communication & Society, 20*(2), 250-263. https://doi.org/10.1080/1369118X.2016.1164741

Vrechopoulos, A. P., Siomkos, G. J., & Doukidis, G. I. (2001). Internet shopping adoption by Greek consumers. *European Journal of Innovation Management, 4*(3), 142-153.

Wagner, J., & Hanna, S. (1983). The effectiveness of family life cycle variables in consumer expenditure research. *Journal of Consumer Research*, 281-291.

Walczak, D., & Pieńkowska-Kamieniecka, S. (2018). Gender differences in financial behaviours. *Inzinerine Ekonomika-Engineering Economics, 29*(1), 123-132.

Walker, R. H., & Johnson, L. W. (2006). Why consumers use and do not use technology-enabled services. *Journal of Services Marketing, 20*(2), 125-135.

Wan, W. W., Luk, C.-L., & Chow, C. W. (2005). Customers' adoption of banking channels in Hong Kong. *International Journal of Bank Marketing, 23*(3), 255-272.

Wang, Y.-S., Wang, Y.-M., Lin, H.-H., & Tang, T.-I. (2003). Determinants of user acceptance of Internet banking: an empirical study. *International Journal of Service Industry Management, 14*(5), 501-519.

Watson, A. (2016). Disruption or distraction? How digitisation is changing New Zealand banks and core banking systems. *Reserve Bank of New Zealand Bulletin, 79*, 1-21.

Wedel, M., & Kannan, P. (2016). Marketing analytics for data-rich environments. *Journal of Marketing, 80*(6), 97-121.

Weijters, B., & Baumgartner, H. (2012). Misresponse to reversed and negated items in surveys: A review. *Journal of Marketing Research, 49*(5), 737-747.

Weijters, B., Rangarajan, D., Falk, T., & Schillewaert, N. (2007). Determinants and outcomes of customers' use of self-service technology in a retail setting. *Journal of Service Research, 10*(1), 3-21.

Weill, P., & Woerner, S. L. (2015). Thriving in an increasingly digital ecosystem. *MIT Sloan Management Review, 56*(4), 27.

Wenz, A. (2017). *Completing web surveys on mobile devices: does screen size affect data quality?* ISER Working Paper Series.

White, L., & Yanamandram, V. (2004). Why customers stay: reasons and consequences of inertia in financial services. *Managing Service Quality: An International Journal, 14*(2/3), 183-194.

Wijewardena, W. (2014). The Changing Landscape of Retail Banking: Challenge Now-Adapt or Perish. *Reshaping Banking for Changing Times, Colombo: Association of Professional Bankers of Sri Lanka*, 9-21.

Woodley, M. (2016). Retail Banking: In tech we trust. *The Economist*. Retrieved from https://eiuperspectives.economist.com/sites/default/files/Retail%20Banking.pdf

Worthington, R. L., & Whittaker, T. A. (2006). Scale development research: A content analysis and recommendations for best practices. *The Counseling Psychologist, 34*(6), 806-838.

Xin, H., Techatassanasoontorn, A. A., & Tan, F. B. (2015). Antecedents of consumer trust in mobile payment adoption. *Journal of Computer Information Systems, 55*(4), 1-10.

Xiong, L., & Matthews, C. (2005). *Seniors and Electronic Banking.* Paper presented at the 10th AIBF banking and finance conference Melbourne, Australia.

Xue, M., Hitt, L. M., & Chen, P.-y. (2011). Determinants and outcomes of internet banking adoption. *Management Science, 57*(2), 291-307.

Yakhlef, A. (2001). Does the Internet compete with or complement bricks-and-mortar bank branches? *International Journal of Retail & Distribution Management, 29*(6), 272-281.

Yang-Wallentin, F., Schmidt, P., Davidov, E., & Bamberg, S. (2004). Is there any interaction effect between intention and perceived behavioral control. *Methods of Psychological Research Online, 8*(2), 127-157.

Yang, S., Lu, Y., Gupta, S., Cao, Y., & Zhang, R. (2012). Mobile payment services adoption across time: An empirical study of the effects of behavioral beliefs, social influences, and personal traits. *Computers in Human Behavior, 28*(1), 129-142.

Yousafzai, S., & Yani-de-Soriano, M. (2012). Understanding customer-specific factors underpinning internet banking adoption. *International Journal of Bank Marketing, 30*(1), 60-81.

Yu, R. P., Ellison, N. B., McCammon, R. J., & Langa, K. M. (2016). Mapping the two levels of digital divide: Internet access and social network site adoption among older adults in the USA. *Information, Communication & Society, 19*(10), 1445-1464.

Yuen, Y. Y. (2013). Gender and age effect on acceptance of internet banking: cultural comparison between United States and Malaysia. *International Journal of Business and Management, 8*(18), 1.

Zhang, Y. (2005). Age, gender, and Internet attitudes among employees in the business world. *Computers in Human Behavior, 21*(1), 1-10.

Zhou, M., Geng, D., Abhishek, V., & Li, B. (2020). When the Bank comes to you: Branch network and customer Omnichannel banking behavior. *Information Systems Research, 31*(1), 176-197.

Zhou, Z., Jin, X.-L., & Fang, Y. (2014). Moderating role of gender in the relationships between perceived benefits and satisfaction in social virtual world continuance. *Decision Support Systems, 65*, 69-79.

Zickuhr, K. (2013). *Whos not online and why*. Pew Research Center.

Appendices

Appendix 1: Description of New Zealand bank apps[30]

- **CashNav** by Westpac is New Zealand's first app for mobile banking, offering features such as tracking spending, downloading transactions from bank accounts, credit and debit cards etc.
- **Westpac One**: This app offers online banking services to Westpac customers including applying for loans and credit cards, automatic payments and overseas payments etc.
- **Cash Critter** by Westpac is an app for children to encourage budgeting and saving.
- **Westpac's Cash Tank** is a former app that used to appear as a widget on Android phones and Sony Smartwatch to allow account balance information and fund transfers.
- **ANZ's GoMoney** offers cashless payment, fund transfer, and bill payments using user's mobile number. The Apple Pay feature offers cashless payments through ANZ's visa debit or credit cards.
- **ANZ FastPay** offers instant funds transfer facility and comes with a Card Reader for contactless payments.
- **BNZ app** enables customers to perform online banking transactions and manage their money anywhere and anytime.
- **BNZ's PayClip** is a mobile payment solution that accept payments using EFTPOS, MasterCard and Visa card with a contactless swipe, chip and PIN mechanism.
- **The Co-operative Bank (NZ) pp** offers viewing balance and transactions history, opening term deposits, KiwiSaver balance, applying for personal loans and other features
- **ASB app** provides multiple payment methods using email address, phone number or account number methods and enables other financial tasks.
- **TSB's app** provides secure financial controls along with other features.
- **HSBC app** offers log-in using fingerprints along with other features.
- **Kiwibank app** lets customers manage finance and interact with online relationship managers.

---

[30] Different New Zealand bank apps have been described here in no particular order

Appendix 2: Focus group discussion: consent form and information sheet

Focus Group Participant Consent Form

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that I have an obligation to respect the privacy of the other members of the group by not disclosing any personal information that they share during our discussion. I am also aware that the entire focus group discussion will be audio taped.

I understand that all information I give will be kept confidential to the extent permitted by law, and the names of all people in the study will be kept confidential by the researcher.

Note: There are limits on confidentiality as there are no formal sanctions on other group participants from disclosing your involvement, identity or what you say to others in the focus group. There are risks in taking part in focus group research and taking part assumes that you are willing to assume those risks.

I agree to participate in the focus group under the conditions set out in the Information Sheet.

Date:
Full Name:
Email Address:
Signature:

Information Sheet

Researcher Introduction

This research is being undertaken by Saba Azeem, who is a doctoral student at Massey University. The purpose of this research is to investigate the effects of personal characteristics on the use of online banking services. This study will explore how customers make their decisions regarding the use or non-use of online banking, and how much of this decision-making is influenced by customers' demographic factors.

Project Description and Invitation

The research intends to investigate changes in customers' behaviour in an online banking environment compared with traditional banking channels. It aims to understand how different personal characteristics (i.e. age, gender, life-stages, education, income and occupation) shape customer behavioural indicators in an online banking environment and how they combine or interact in shaping behaviours.

You are invited to participate in a focus group discussion which is the first stage of data collection for this research project. The information resulting from this focus group will be used to gain some primary understanding of online banking users (and non-users), based on which a questionnaire will be prepared for an online survey. This information sheet describes the project in a straightforward manner. Please read this sheet carefully and be confident that you understand its contents before deciding whether to participate. If you have any questions about the project, please contact Saba Azeem or her supervisor(s) (see contact details below).

Participant Identification and Recruitment

There are going to be four focus group discussions in total for this research. The first focus group involved 6 people who were staff at Massey University, Palmerston North campus. The recruitment of the participants was carried out using email invitations and flyers across the campus. This (second) focus group is targeted towards Palmy residents/citizens and people in noting their opinions about the use of online banking in New Zealand. The researcher has not used any systematic selection approach for selection of respondents for this discussion. The number of participants involved in this focus group will be between 6 to 10 people who will be approached through personal contacts. There is no reimbursement allocated for the focus groups; however, refreshments will be provided as a token of appreciation.

Project Procedures

The respondents are invited to gather at **[venue and date/time]** to participate in the focus group discussion. The time involved for this discussion will be approximately one hour (excluding time for refreshments). The respondents are encouraged to engage in a healthy debate with each other, while the role of the researcher will be to supply initial topics and keep the conversations flowing. The researcher will take notes throughout the discussion while audio-taping the entire conversation. In case of a conflicting situation during the discussion, the judgement of the researcher will be deemed as the final decision.

Data Management

The identities of participants will be kept anonymous. The information obtained from this focus group discussion will help the researcher in preparing a questionnaire for the subsequent online survey which will be the primary data collection method. The researcher, however, does not take responsibility for any misuse of information by another respondent present during the discussion. Please also be aware that the discussion will be audio taped. Once the survey is developed as a result of focus group findings, the data will be stored for future use and may even be included in the analysis of results as anonymous quotations.

Confidentiality of identity is offered to every participant involved in this activity. A summary of findings from the focus group can be requested by providing your email address to the researcher at the start of the focus group discussion. These findings are expected to be available for the respondents by the end of this year.

Participant's Rights

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw from the study at any time;
- cease to participate anytime during the discussion;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used unless you give permission to the researcher;
- be given access to a summary of the project findings when it is concluded.

Project Contacts

If you have any questions about this research, please feel free to contact:

1. Researcher (Saba Azeem): S.Azeem@massey.ac.nz
2. Main Supervisor: D.W.Tripe@massey.ac.nz
3. Co-Supervisor: C.D.Matthews@massey.ac.nz

LOW RISK NOTIFICATION

"This project has been evaluated by peer review and judged to be low-risk. Consequently, it has not been reviewed by one of the University's Human Ethics Committees. The researcher named above is responsible for the ethical conduct of this research".

If you have any concerns about the conduct of this research that you wish to raise with someone other than the researcher(s), please contact Prof Craig Johnson, Director, Research Ethics, telephone 06 356 9099 x 85271, email humanethics@massey.ac.nz".

Appendix 3: Focus group questions and discussion summaries

❖ **What does online banking mean to you?**

After different responses are obtained, I will provide a single definition and will say that during the course of this discussion if we say online banking, we would mean this! Online banking: "Also known as electronic banking, Internet-banking or virtual banking, online banking refers to an electronic payment system that allows bank customers to perform financial transactions through the bank's website rather than branch (i.e. through traditional medium)".

❖ **Which forms of banking do you use?**

Main questions:

1) How long have you been using online banking?
2) What do you like most about online banking and what it is that you do not like?
3) Have you got any financial app in your phone and what for? How is this better than using online banking on desktop?
4) Has there been any changes in the frequency or intensity of your banking transactions (and use of other services) since you've adopted the new technology/channel?
5) Is there any noteworthy incident in your banking relationship with your service provider that you want to share?

Subs or fillers:

1. What are the types of transactions for which you use cash?
2. What was the last time you went to a branch? What was it for, can you remember?
3. If you wanted to report a security breach or ask a question about online security, where would you do this? (*Hint:* will call bank staff or make an online complaint)
4. Do you remember how you started using online banking services? Was it recommended by a family member or a friend or because of bank marketing?
5. Are there any interesting apps you or your household (especially kids in the family) are using for money management? Why do you find it interesting?
6. How do you access instructions on the online banking's website to operate it (i.e. on your phone or desktop)? Are the instructions easily navigable on that medium? Are they understandable too?
7. How much difference you find in your use of online banking services compared to your spouse/parent/other household members?
8. How do you access instructions on the online banking's website to operate it? Are the instructions easily understandable?
9. Do you find it easy to remember passwords and PINs required for accessing online banking?
10. What is the general transactions size when you use online banking? How is it different from traditional branch banking transactions you do?
11. Do people older than you in the household use online banking too? If yes, do they perform similar tasks as you?
12. How do you feel about disclosing your credit card/debit card details on the web to make purchases or top up your mobile balance etc.?
13. Will you be willing to switch from one bank to another if the other offers you better apps and more convenience? Or would you just create dual accounts with both banks at the same time?

If there's something you want to add to this discussion or anything, you'd like to share with me about this research, please share:

If you have any issues with the execution of this focus group discussion, please share your feedback and it will help me improve:

Short Summaries[31]

Focus Group 1 (29th March 2017) – Massey University (Palmerston North):

Group Composition: Six Massey staff members.

Summary: According to the responses received, convenience and accessibility were the two main reasons why these people use online banking services. Hidden costs and security concerns (including spams) are the biggest reason why participants were sometimes discouraged in using online banking services, especially in dealing with bigger transactions. The participants perceived less risk in having dual accounts than switching completely from one bank to another. Underperformance and lengthy transactional processes were the main motivations for the participants to migrate from one bank to another. Email scams and riskiness of faulty transactions through mobile-based online banking were also discussed. Personal experiences were shared around topics such as rising security concerns, level of social contact through branch vs. online platforms, loyalty with one bank, memories of school banking in NZ etc.

Reducing functionality, physical impairment and eyesight difficulties were deemed as the main reasons why older people would require help with online banking transactions. Since the staff mostly belonged to business, IT and other developmental aspects, they said their use of OB was quite obvious. They emphasized on the "service" aspect of online banking channels, by saying that online banking may well be a direct response to gain more market share (and profitability), but the element of "customer service" should not be ignored. There was visible lack of trust on bank emails and text messages where one the respondents feared the bank might be selling his information to other traders. The use of ATMs and EFTPOS were deemed complex for older people due to physical deficiencies. There is high risk of older people getting robbed when they use ATMS especially in public spaces, as they do not seem to follow protocols (safety around entering PIN numbers). Some respondents argued that a phone should just be used as a phone, and transactional requirements should be fulfilled using online medium. However, almost all of them emphasized that human interaction is valuable and should not be entirely removed.

Focus Group 2 (5th May) - Palmerston North:

Group Composition: Three people; two were NZ citizens and 1 was a non-resident, international student.

Summary: According to these respondents, the loss of physical contact with bank branch is an obvious challenge. The respondents enjoyed driving or walking up to bank branches and physical bill-paying spots across Palmerston north in previous times, this provided them with valuable opportunities of social interaction with their children and bank personnel. They missed this connection and contended that human touch will always be irreplaceable. One of the respondents argued that migration from branch to online can be regarded as 'forced' migration as online mediums is gradually becoming unavoidable. They said it is a hyper-technology revolution where "either you do the technology or die" (no

---

[31] Attempts to Feilding Farmer's Market on 21st and 5th May 2017 to find and recruit participants were unsuccessful.

options left). Spending has increased since after online banking, and a middle way should be adopted so that human touch is not completely lost.

Contextual specific business strategies should be implemented, which means different strategies to pull customers with different needs. These respondents opined that since the screen layout in mobile devices is quite smaller, they perceive navigational difficulties and hence, prefer desktop-based banking. They also said that they could recognize different financial needs in branch-banking arrangement where brochures used to catch their sight, or they were able to overhear what others were interested about. So, banks have now been deprived of "accidental" businesses for non-targeted customers in their opinion. These respondents said that dealing between two separate banks is difficult as cash leaving one bank might take up to 3 days to reach the other bank account, with no instant cash transfer service available. This can cause agony in times of urgent money requirements.

Focus Group 3 (8th June 2017) - Porirua:

Group Composition: Two staff members of NZCU Bay wide, Porirua branch.

Summary: These people used online banking for a very long time for personal and professional use. They felt this is one amazing technology, and most people should be able to use it in coming times. One of the ladies argued that the spending and consumption habits vary from one age group to another (her daughter uses online banking for literally everything while her mum is not keen to even learn it). Both the respondents said they face no difficulty in remembering lengthy PINS and their NZCU sign up screen is very secure which allows them to explore new uses of online banking through professional support. These ladies find online banking very helpful in different contexts and said they did not have to bother about faulty transactions or bigger monies reaching the wrong person as they are not good savers anyways. These ladies also found some usefulness in PayPal for e-commerce purposes. They had not heard of any apps other than PayPal. Overall, their experience was positive and no particular distress with this technology was found.

This was comparatively a shorter discussion due to time constraints as the staff had to stay longer (after hours) for this interview.

Focus Group 4 (15th June 2017) - Hastings:

Group Composition: Three customers of NZCU Bay wide, Hastings Branch.

Summary: According to the respondents, online banking has increased their financial control and financial management has become more 'casual'. Tracking Kiwi Saver account, bill payments, transfers and making transactions in a portable manner were also important uses of online banking. One of the respondents used desktop-based banking in most situations while the other two were most comfortable with her mobile/tablet. The kids are causal with spending money as they're quite comfortable with latest gadgets. These kids were not concerned with privacy threats embedded in using such channels, while elders were risk averse. Operability is an issue, according to these respondents: "*Phones are smaller, and fingers are big*" and "*you can't see what you're doing on it*". These respondents used phone banking as well as mobile banking and had been using it since over twelve to fourteen years (in Canada) to about five years. A respondent still used branch banking to deposit cheques. Importance of personal contact and eye-contact was stressed. However,

these respondents felt that banks should improve in-house customer service since mostly the lunch/break times of bank staff coincides with the customers. This is fairly a newer trend as 12 - 1 p.m. used to be a very suitable time for customers to come in their lunch breaks for different transactions. The customized personal experience with the NZCU staff members on a one-on-one basis was deemed really useful and provides value-added service.

Internet-based calculators can be used to compute mortgage payments and other features that make banking easier. Bank personnel offer consultative services by discussing with the customer a range of different options while doing it 'together' in the office using Internet. So, bank personnel using online technology with the customers is a friendly way of getting things done. One of the respondents was of the opinion that banks do not use "online technologies" and their websites to sell products; they don't direct customers to look at the websites for selling products. It's only when you become a customer, then only you can use the platform. ASB's budget planner tool was appreciated for its super organization but then not many people know how to use it. The respondents stressed the fact that banks should promote these features/technologies long before the customer signs up. Remembering lengthy PINS and passwords was deemed an ordeal; cash point card, for example, asks for 2nd, 5th and 7th digits verification that can be a "pain" but is acceptable for safety sake. Pop-up adverts in the middle of the transaction on mobile app can be frustrating.

Appendix 4: Online survey questionnaire

Q1 When was the last time you went to a bank branch?

- Within the last month
- More than a month ago but not more than 6 months ago
- More than 6 months but not more than one year ago
- More than one year ago
- Do not remember
- Never

Q2 For what reasons do you visit a bank branch. Please choose all that apply.

1. Deposit a cheque
2. Deposit cash
3. Withdraw cash
4. Open new account(s)
5. Make bill payments
6. Transfer money between my accounts
7. Make large transactions
8. Get a bank account balance
9. Pay other people (e.g. family or friend)
10. Order new debit/credit card(s)
11. Manage my credit and debit cards
12. Resolve debit/credit card decline issues
13. Deal with foreign currency
14. Make additional loan payments
15. Make final repayment of loan
16. Make tax payments
17. Manage term deposits
18. Obtain investment advice, information and management
19. Obtain home loan advice, information or application
20. Seek assistance/information regarding online banking
21. Reporting scams
22. Others (please specify): _____

Q3 How important is human contact for banking relationships in your opinion?

- Very important
- Important
- Neither important nor unimportant
- Unimportant
- Very unimportant

Q4 Would you like to provide a comment about human contact in banking relationships?

- Yes _____
- No

Q5 How many days per week are you most likely to keep cash with you?

- Not likely
- Once a week
- Two days a week
- Three days a week
- Four days a week
- Five days a week
- Six days a week
- Seven days a week

Q6 Do you use online banking? (This includes doing banking using a computer or a smartphone).

- Yes
- No

Q7 What are the factors that discourage you from using online banking? Please select all that apply.

1. I am satisfied with branch banking
2. It is not available through my bank
3. Do not have a device to use it on
4. I do not know how to use it
5. Fear the loss of human touch
6. Physical difficulties e.g. eyesight, fading memory etc.
7. Fear of an unauthorized access to my information
8. Hidden costs
9. Fear of being scammed (for example by fake websites)
10. It is difficult to use
11. Fear of making mistakes with transactions
12. Lack of information about online banking on bank's website
13. Too many pop-up adverts on website cause distraction/frustrations
14. Too young to be allowed to use online banking
15. Too many passwords/PINS to remember
16. Don't see any real value in using online banking
17. Other (please specify) _____
18. No disadvantages at all; just personal choice

Q8 Would you like to comment on why you do not use online banking?

- Yes _____
- No

Q9 What do you use online banking for? Please select all that apply.

1. Open new account(s)
2. Get a bank account balance
3. Make bill payments

4. Transfer money between my accounts
5. Pay other people (e.g. family or friend)
6. View or print electronic statements
7. Set-up message alerts
8. Order new debit/credit cards
9. Manage my credit and debit cards
10. Make additional loan payments
11. Make tax payments
12. Obtain investment advice, information and management
13. Resolve debit/credit card decline issues
14. Obtain home loan advice, information or application
15. Manage term deposits
16. Buy or sell foreign currency
17. Report scams
18. Provide feedback and complaints
19. Others (please specify): --------------------

Q10 Would you like to provide a comment on the factors that make online banking useful?

- Yes _____
- No

Q11 What features of online banking do you find useful? Please choose all that apply.

1. Convenience
2. Accessibility
3. 24/7 availability (for e.g. can use if after hours and on bank holidays)
4. Prompt service
5. Reliable and consistent bank service
6. Secure transactions
7. Better service charges and rates
8. Zero liability policy over contact-less payment methods
9. Control over spending
10. Customized services to make them how I like them
11. Variety of services and features (for e.g. payment reminders etc.)
12. Green banking (avoiding printing)
13. Others (please specify): _____

The next section asks questions about how you use online banking.

Q12 What device(s) do you use for online banking? Please choose all that apply.

1. Laptop computer
2. Desktop computer
3. Smartphone
4. Tablet

Q13 How long have you been using online banking services?

- Not more than 2 years
- More than 2 years but less than 10 years
- More than 10 years
- Do not remember

Q14 When do you mostly use online banking?

- At work
- During work breaks
- At home
- Other than at work or home
- Others (please specify): _____

Spending Patterns and Influences

In the next section, I am going to explore how online banking affects spending and consumption patterns.

Q15. To what extent do you agree or disagree with the following statements:

(5= strongly disagree, 4= disagree, 3= neither agree nor disagree, 2= agree and 1= strongly agree)

1. I am now spending more money with the use of online banking
2. I am now more aware of my fund flows (in and out) with the use of online banking features
3. I check available funds before deciding to spend my money
4. I feel I can easily purchase anything now because of online payment methods
5. My use of online banking is influenced by past consumption patterns and experiences.
6. My use of online banking is influenced by current funds available
7. Knowing how much money I have, means that I spend less
8. The nature of my work enables me to access online banking easily (for e.g. more desk work, access to computers, use a work phone etc.)
9. An educated person is likely to be a quicker learner of online banking than an uneducated one

Household use of Online Banking: This section explores how use of online banking is affected by personal characteristics.

Q16 Who is the main decision-maker in your household for financial matters?

- Myself
- Spouse/Partner
- Jointly with Spouse
- Adult Children
- Parents
- Grandparents
- Others (Please specify): _____

Q17 Has there been a change in your marital status in the last 10 years?

- Yes
- No

Q18 To what extent do you agree or disagree that there has been a change to your use of online banking because of your current marital status?

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree
- Not applicable

Q19 Would you like to comment on the changes to your use of online banking because of your current marital status?

- Yes _____
- No

Q20 Do you have children?

- Yes
- No

Q21 Select the number of children you have against each of the following age groups:

- Under 15 years ▼ 1 ... 8
- 15 to 29 years ▼ 1 ... 8
- 30+ years   ▼ 1 ... 8

Q22 How different is your frequency of using online banking to that of your children?

- Extremely
- Very
- Moderately
- Slightly
- Not at all
- Do not know

Q23 How different is your reason(s) for using online banking to that of your children?

- Extremely

- Very
- Moderately
- Slightly
- Not at all
- Do not know

Q24 Would you like to provide a comment on how your use of online banking differs from that of your children?

- Yes _____
- No

Q25 To what extent do you agree or disagree with the following statements

(5= strongly disagree, 4= disagree, 3= neither agree nor disagree, 2= agree and 1= strongly agree)

1. My age affects how I learn and use online banking
2. I am less willing to learn about online banking than people younger than me
3. I hesitate in learning about online banking apps
4. I do not use online banking because I do not have the latest smart devices to use it on
5. I am usually distressed when I face difficulty in learning how to use online banking
6. I enjoy spending time talking to bank staff at the branch office
7. I am more willing to learn about online banking than people older than me
8. Physical deficiencies faced by people over 65 years of age can serve as an impetus for them to learn how to use online banking

26 To what extent do you agree or disagree with the following statements:

(5= strongly disagree, 4= disagree, 3= neither agree nor disagree, 2= agree and 1= strongly agree)

1. My relationship with the bank branch is more for getting advice and information than for getting money in and out
2. I like the personal customer services obtained at the branch
3. My use of online banking services is different to the rest of my household
4. I feel confident in searching for information about banking and its products through search engines
5. I am usually careful when using ATMs and banking Kiosks in public spaces (for e.g. observe safety while entering PIN codes etc.)
6. When I make online transactions, I always ask for a physical address I can check
7. I am connected to bank staff through LinkedIn
8. I like to keep some cash for places (such as morning markets or other small traders) where EFTPOS is not available
9. I am generally careful in sharing personal information online
10. I am usually enthusiastic about using new technologies

11. I do not give my card details to someone over the phone unless I initiated the call and know the organization is trusted and reputable
12. I think branch banking is a good way for people to interact with bank staff and develop relationships

13. People aged 65 or older do not use online banking extensively because they don't know how to use it

14. People aged 65 or older are more inclined to learn new ways of banking through online and mobile platforms

15. Spending has increased substantially in younger generations with the use of online banking channels

16. I keep traditional business cards of bank staff to be able to make contact when necessary

17. I have set up regular payments through my online banking account

18. Due to the small screen size on mobile devices, I make larger transactions using online banking through my PC or laptop

19. I am likely to switch from one bank to another in search of better online banking services

20. I feel my banking issues are resolved more rapidly using online complaint/feedback process than through branch staff

21. I am more willing to provide personal information on online banking than those older than me

22. I want to live independently and that is why online banking is more useful for me to do things on my own

23. I do not feel the need to speak to a bank representative to resolve my banking problems

24. I try to only use ATMs that are attached to physical bank branches

25. I feel safe doing banking on a public computer like at a library or in the university

26. I feel frustrated at the complexity of login procedures for online banking

27. I often feel overwhelmed by the glut of information available online

28. I prefer using online payment methods rather than cheque and cash

29. I prefer to use my cellular network instead of Wi-Fi for online banking

30. In my experience, online banking in New Zealand is better than online banking offered by other countries (e.g. swifter, more responsive, more variety in services, more convenient)

31. Having online banking strengthens my relationship with the bank

32. There are other banks providing better online banking services than mine

33. I think that providing additional security around online banking transactions is of particular importance

34. It is a good idea to keep some cash on hand to get through an emergency (for e.g. earthquake)

35. There have been changes in my use of online banking since I upgraded my phone/tablet

36. My use of online banking has increased since I bought a smartphone

37. I often feel frustrated at having to click past promos pitching bank products on apps

38. I rely on word-of-mouth from friends about new apps

39. I have set-up notifications to see when somebody logs in to my account from a new device

Online Banking through Apps- This section asks your use of apps (application software) for online banking.

Q27 Which online banking apps do you use? Please select all that apply.

1. ANZ Direct Mobile's Apple Pay
2. ANZ GoMoney
3. ANZ FastPay app
4. ASB app
5. BNZ app
6. HSBC Mobile Banking app
7. HSBC app
8. Kiwibank app
9. The Co-operative Bank app
10. TSB's mobile Internet Banking app
11. Westpac Cash Critter
12. Westpac Cash Tank
13. Westpac CashNav
14. Westpac One
15. Others (Please specify): _____
16. Do not use apps

Q28 Which non-bank financial apps do you use? Please select all that apply.

1. Cash Passport
2. Doxo
3. Mint
4. New Zealand Stocks app
5. PayPal
6. Pocket Smith
7. SnapTax
8. Other (Please specify): _____
9. None of these

Q29 Are you interested in learning about new apps or features added to existing apps for better services?

- Definitely
- Very Probably
- Probably
- Possibly
- Probably Not
- Definitely Not
- Not sure

Q30 Have you recommended an app to someone lately?

- Yes (please provide app name): ------------
- No
- Do not remember
- Do not use apps

This section is to learn about the reasons for a preference of branch banking over online banking.

Q31 What advantages of branch banking appeal to you? Select all that apply.

- Convenience
- Accessibility
- Prompt service
- Reliable and consistent bank service
- Secure transactions
- Better service charges and rates
- Prompt availability of information
- Control over spending
- Social interaction opportunities
- Other (please specify): _____

Q32 To what extent do you think it might be difficult for you to switch from branch banking to online banking?

- I will never switch
- Very easy
- Easy
- Neither easy nor difficult
- Difficult
- Very difficult
- Not sure

Q33 Would you like to comment on the extent to which switching from branch banking to online banking might be difficult for you.

- Yes _____
- No

Q34 Would you be willing to learn online banking use in future?

- Learning it already
- Definitely
- Very Probably
- Probably
- Possibly
- Probably Not
- Definitely Not

Q35 Would you like to comment on your willingness to learn online banking use in future?

- Yes _____
- No

DEMOGRAPHIC INFORMATION

What is your age?

- Under 15 years
- 15-19 years
- 20-29
- 30-39
- 40 to 64 years
- 65+ years

What is your gender?
- Male
- Female
- Prefer not to answer
- Prefer to self-describe _____

What is the highest level of education you have completed?

- High school completion or equivalent
- Certificate/Diploma/Trade Qualification
- Bachelor's degree
- Master's degree
- Doctorate
- Other (please specify):_____

Which of the following best describes your current employment status?

- Student
- Not currently in paid employment
- Paid part-time employment
- Paid full-time employment
- Self-employed
- Retired

What is your annual household income (in New Zealand dollars)?

- $40,000 or less
- $ 40,001 - $70,000
- $ 70,001 - $100,000
- $100,001 or more
- Prefer not to answer

What is your marital status?

- Never married
- Now married/civil union/living with a partner
- Divorced / Separated
- Widowed

Consent for Follow-Up Interview:

This interview will be a detailed one-on-one discussion about your experiences in using online banking, and other related topics. The interview will help the researcher in her survey, by providing detailed responses for better data analysis. The main objectives behind this interview is to gather in-depth insights into individual experiences and get detailed opinions about your and your households' use of online banking. It will be a short 15- 20 minutes interview and can be taken over the phone/Skype or in person. The answers to this interview will strictly be kept confidential, and you will be asked to read an information sheet including details specific to the interview process after you provide consent to participate. The interview will be audio-taped/recorded based on the interview medium you

select. You will not be committed to taking this interview even after providing consent here. This means you may withdraw from this anytime you like.

Do you consent for a follow-up interview?

- Yes, I want to participate in a follow-up interview
- No, thanks

Thanks for agreeing to participate in the follow-up interview.

Please answer the following for me to contact you and arrange the interview:

I would like to be contacted via:

- Phone:
- Email:

I would like to be contacted on:

- Weekdays
- Weekends

I would like to be contacted at this time:

- Morning
- Afternoon
- Evening

Draw Terms and Conditions:

You agree and understand that you may win a gift card but there is no guarantee that you will win a gift card. The qualifying period for the draw will end on 15th May 2018.

This draw is open to all participants who completed the survey and provided their email address hereunder. The winning participant will be drawn at random under the supervision of at least one of the supervisors for this research project. Three winners will be selected from the Draw, and each of them will receive a gift card valued at NZD $50. The draw will be undertaken between 16th and 20th May 2018. The winner will be notified by email. Winners will be given a chance to choose one from a range of gift cards in the email notifying them of the Draw result. Each winner will be required to respond within 5 days of notification with their selected gift card and physical address. If no response is received within 5 days of notification, the gift card will be deemed unclaimed. In case the gift card(s) is left unclaimed, another draw will be conducted to select more winners. The draw is not open to the researcher and her two supervisors. The prize is non-exchangeable and not redeemable for cash or other prizes. The decision of the researcher and her supervisors on any aspect of the competition including the allocation of the prize will be final and binding, and no correspondence will be entered into.

By agreeing to participate in the Draw, you agree that you have read and understood the terms and conditions. Please provide your email address to enter the Draw:
- Email address: _____

If you would like to be informed of the research findings once this study is completed, please provide your email address:
- Email address: _____

Appendix 5: Survey postcard

Front side of postcard:

Back side of postcard:

Appendix 6: Follow-up interview questions

Objective: While focus groups aimed at identifying themes for the questionnaire and thus, was broad ranged, this follow-up interview will drill into the details to find out what users and non-users think about the effects of their personal characteristics on the use of online banking. These questions have been designed keeping the research questions in mind, and so their supplementary support should assist in achieving/addressing the research objectives/questions.

Interviewer's Notes:
Request them to fill in the demographics.
Before we start, I'd like to explain what we'll be doing during the interview, which should not take you longer than 20 minutes, as well as answer any questions you might have. I will ask you a few questions that will build on your answers to the online survey, although I am unaware of the exact responses you had given in the survey.
With your permission I would like to audio-record, our interview, as it will help me better focus on our conversation, and ensure I have an accurate record of your responses
[Pause for response; if subjects say no, then interview will not be recorded].
Before we begin the interview questions and answers, let me remind you of my definition of online banking that will be applicable throughout the interview:
Online banking: Also known as electronic banking, Internet-banking or virtual banking, online banking refers to an electronic payment system that allows bank customers to perform financial transactions through the bank's website rather than in person.

Do you have any questions?

Warm-up Questions (3-5 minutes):
First, I have to identify if they declared themselves as an online banking **user or non-user** during the survey. Then, if they are users, ask:
   a) Have you started using online banking in the recent past i.e. within the last 6 months or are you an old user?
   b) Can you remember why did you start using it?
   c) Can you remember how did you learn how to use online banking? (From a friend, self-taught, looked up on the Internet for answers, contacted the branch or…?)
   d) How would you describe your current level of knowledge regarding online banking (beginner, intermediate or advanced) OR?
   e) What is the frequency and intensity of your use of online banking?

Questions for online banking users:

1. I found most bank customers favoured human contact through branch banking. Why do you think it plays a role even in a digital world like now?
2. What do you like and dislike about online banking?
3. How does your age influence your use of online banking?
4. I found men and women have different views on the risks involved in online banking. Why do you think that is?
5. When and where, do you prefer to do your online banking? And, why?
6. Why would you consider switching to another online bank?
   Explanation in case they don't understand: Would it be a variety in their online banking offers, service readiness, better rates and services, or just because someone recommends that particular bank to you?
7. What differences are there in your use of online banking compared with your household? What do you think accounts for these differences?
8. Do you have any particular experience with your online bank that you would like to share with me? Good or bad, anything!
9. Have you used online banking at more than one bank? If yes, how did they compare? What were their similarities? What were their differences? Did you prefer one over the other(s)? If so, why?

Questions for non-users:
Warm-up:

1. What do you visit the bank for, generally? (E.g. for depositing cash by going to the bank).
2. Have you considered switching to online banking at any time?
3. Just a brief note of what it is actually that makes you stick to branch banking. - E.g. opportunity to talk to real people.

Main:

1. Can you think of an experience that convinced you that you are better off without (switching to) online banking?
2. In what ways would you explain that your personal life circumstances do not allow/enable you to use online banking? For example- Is this because of your age or life-cycle changes or current employment?
3. Do you see yourself switching to online banking in 6 to 12 months for now? Why or why not?

Closing

Thank you very much for participating in the study. I appreciate your taking the time to talk with me.

(Hand-over the sheet for 2nd interview ONLY to online banking users and explain there is a possibility for a second interview within a few months)

Thank them as they fill in the sheet and ask them if they would like to receive the study findings for their review, when it is available.

Appendix 7: Interview consent form

Follow-Up Interview Participant Consent Form

Thank you for agreeing to participate in this follow-up interview.

Participant's Rights:

You are under no obligation to participate in this interview. If you decide to participate, you have the right to:

- Decline to answer any particular question;
- Withdraw from the interview at any time;
- Ask any questions about the study at any time during participation;
- Provide information on the understanding that your name will not be used unless you give permission to the researcher;
- Ask for the recorder to be turned off at any time during the interview.

I have read the Statement of Rights and agree with the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

I understand that all the personal information I give will be kept confidential to the extent permitted by law, and the names of all people in the study will be kept confidential by the researcher when she writes-up the results of the study. I am also aware that the entire interview will be audio taped. I understand that upon completion of the study, all records that contain personal identifiers will be destroyed, along with the audio recording.

I agree that if I provide my email address below, I should be provided access to a summary of the project findings when it is concluded.

I agree to participate in the follow-up interview under the conditions set out in this consent form.

Name: --

Email Address: -- (optional)

Thank you for participating in this interview today.

I would like to conduct a second interview in 2 to 3 months as a follow-up to further explore the findings from the online survey and the follow-up interviews.
Please indicate below whether you are happy to also be a part of the second interview.
- o I am interested in participating in the second interview
- o I am not interested in participating in the second interview

You can also provide a phone number if you wish to be contacted via phone: --------------
Further details/times/venue of the second interview will be shared in due course.

Many thanks,
SABA AZEEM

Appendix 8: Cross-tabulations

Table 37: Who is the main decision-maker in your household for financial matters?

		Myself	Spouse or partner	Jointly with Spouse	Adult children	Parents	Grand parents	Others	N
Age	15-19 years	**58.3%**	4.2%	4.2%	0.0%	33.3%	0.0%	0.0%	24
	20-29 years	**62.5%**	2.9%	16.2%	0.7%	16.2%	0.0%	1.5%	136
	30-39 years	**51.7%**	6.0%	40.9%	0.0%	0.7%	0.0%	0.7%	149
	40 to 64 years	**47.1%**	4.4%	**47.1%**	0.0%	0.0%	0.0%	1.3%	225
	65+ years	**50.0%**	5.2%	43.1%	0.0%	0.0%	1.7%	0.0%	58
Gender	Male	**50.8%**	6.0%	39.5%	0.5%	2.2%	0.0%	1.1%	185
	Female	**53.0%**	3.8%	35.4%	0.0%	6.5%	0.3%	1.0%	398
Education	High school	**60.0%**	2.1%	21.1%	0.0%	16.8%	0.0%	0.0%	95
	Cert/Dip/Trade qual.	**50.0%**	3.5%	42.1%	0.0%	1.8%	0.9%	1.8%	114
	Bachelor	**54.8%**	5.4%	34.3%	0.6%	3.6%	0.0%	1.2%	166
	Master	**50.0%**	3.8%	40.9%	0.0%	4.6%	0.0%	0.8%	132
	Doctorate	**47.7%**	7.7%	44.6%	0.0%	0.0%	0.0%	0.0%	65
	Others	**45.0%**	10.0%	35.0%	0.0%	5.0%	0.0%	5.0%	20
Employment Status	Student	**67.8%**	0.8%	14.9%	0.8%	14.9%	0.0%	0.8%	121
	Part-time	**47.7%**	4.6%	36.9%	0.0%	9.2%	0.0%	1.5%	65
	Full-time	**51.0%**	3.5%	41.4%	0.0%	2.3%	0.4%	1.5%	261
	Self-employed	43.6%	9.7%	**46.8%**	0.0%	0.0%	0.0%	0.0%	62
	Retired	47.2%	0.0%	**52.8%**	0.0%	0.0%	0.0%	0.0%	36
	Not employed	**44.7%**	17.0%	36.2%	0.0%	2.1%	0.0%	0.0%	47
Household Income	$40,000 or less	**69.4%**	6.3%	16.7%	0.0%	6.9%	0.0%	0.7%	144
	$40,001-$70,000	**54.6%**	4.2%	37.8%	0.0%	3.4%	0.0%	0.0%	119
	$70,001-$100,000	44.2%	5.8%	**45.2%**	0.0%	2.9%	1.0%	1.0%	104
	$100,001 or more	40.1%	3.4%	**51.0%**	0.0%	3.4%	0.0%	2.0%	147
Marital status	Never married	**73.9%**	3.2%	3.2%	0.5%	17.6%	0.0%	1.6%	188
	Married/partnered	33.8%	6.6%	**58.3%**	0.0%	0.3%	0.3%	0.8%	393
	Divorced/separated	**94.1%**	5.9%	0.0%	0.0%	0.0%	0.0%	0.0%	17
	Widowed	**96.1%**	0.0%	3.9%	0.0%	0.0%	0.0%	0.0%	51
Total		**44.5%**	4.4%	31.3%	0.1%	4.5%	0.1%	0.8%	

Table 38: How different is your frequency for using online banking to that of your children?

		Extremely	Very	Moderately	Slightly	Not at all	Do not know	N
Age	20-29 years	**46.67%**	6.67%	6.67%	0.00%	6.67%	33.33%	15
	30-39 years	**44.71%**	8.24%	9.41%	3.53%	15.29%	18.82%	85
	40 to 64 years	19.28%	10.84%	16.87%	7.83%	15.66%	**29.52%**	166
	65+ years	0.00%	0.00%	14.58%	4.17%	10.42%	**70.83%**	48
Gender	Male	24.75%	9.90%	16.83%	5.94%	10.89%	**31.68%**	101
	Female	24.53%	7.55%	12.74%	5.66%	15.57%	**33.96%**	212
Education	High school	26.32%	7.89%	10.53%	7.89%	15.79%	**31.58%**	38
	Cert/Dip/Trade qual.	16.67%	4.55%	19.70%	3.03%	12.12%	**43.94%**	66
	Bachelor	25.93%	8.64%	12.35%	11.11%	13.58%	**28.40%**	81
	Master	**29.73%**	9.46%	16.22%	2.70%	17.57%	24.32%	74
	Doctorate	25.00%	8.33%	10.42%	4.17%	12.50%	**39.58%**	48
	Others	14.29%	28.57%	0.00%	0.00%	14.29%	**42.86%**	7
Employment Status	Student	**33.33%**	12.50%	20.83%	4.17%	12.50%	16.67%	24
	Part-time	24.32%	5.41%	18.92%	5.41%	13.51%	**32.43%**	37
	Full-time	**27.03%**	10.81%	13.51%	4.73%	16.89%	**27.03%**	148
	Self-employed	**33.33%**	6.67%	11.11%	8.89%	11.11%	28.89%	45
	Retired	0.00%	0.00%	13.33%	3.33%	3.33%	**80.00%**	30
	Not employed	16.67%	6.67%	10.00%	10.00%	20.00%	**36.67%**	30
Household Income	$40,000 or less	14.63%	14.63%	17.07%	4.88%	14.63%	**34.15%**	41
	$ 40,001 - $70,000	18.84%	8.70%	15.94%	8.70%	13.04%	**34.78%**	69
	$ 70,001 - $100,000	28.36%	10.45%	8.96%	8.96%	10.45%	**32.84%**	67
	$100,001 or more	**31.58%**	4.21%	14.74%	2.11%	16.84%	30.53%	95
Marital status	Married/partnered	27.55%	7.48%	13.61%	5.44%	13.27%	**32.65%**	294
	Divorced/separated	0.00%	14.29%	7.14%	7.14%	14.29%	**57.14%**	14
	Widowed	11.76%	17.65%	14.71%	8.82%	17.65%	**29.41%**	34
Total		24.9%	8.8%	13.5%	5.8%	13.7%	33.3%	

Table 39: How different is your reason(s) for using online banking to that of your children?

		Extremely	Very	Moderately	Slightly	Not at all	Do not know	N
Age	20-29 years	**46.67%**	6.67%	0.00%	0.00%	13.33%	33.33%	15
	30-39 years	**34.12%**	8.24%	9.41%	8.24%	12.94%	27.06%	85
	40 to 64 years	13.86%	12.65%	13.86%	7.83%	21.69%	**30.12%**	166
	65+ years	0.00%	4.17%	12.50%	4.17%	10.42%	**68.75%**	48
Gender	Male	21.78%	8.91%	12.87%	11.88%	11.88%	**32.67%**	101
	Female	17.45%	10.38%	11.32%	4.72%	19.34%	**36.79%**	212
Education	High school	21.05%	18.42%	10.53%	2.63%	18.42%	**28.95%**	38
	Cert/Dip/Trade qual.	12.12%	9.09%	7.58%	6.06%	18.18%	**46.97%**	66
	Bachelor	18.52%	8.64%	16.05%	8.64%	18.52%	**29.63%**	81
	Master	24.32%	6.76%	12.16%	9.46%	20.27%	**27.03%**	74
	Doctorate	20.83%	8.33%	10.42%	6.25%	8.33%	**45.83%**	48
	Others	0.00%	28.57%	14.29%	0.00%	14.29%	**42.86%**	7
Employment Status	Student	20.83%	12.50%	12.50%	8.33%	**29.17%**	16.67%	24
	Part-time	21.62%	8.11%	13.51%	8.11%	16.22%	**32.43%**	37
	Full-time	20.27%	12.16%	11.49%	6.76%	16.89%	**32.43%**	148
	Self-employed	26.67%	8.89%	15.56%	4.44%	11.11%	**33.33%**	45
	Retired	0.00%	3.33%	6.67%	3.33%	16.67%	**70.00%**	30
	Not employed	13.33%	6.67%	10.00%	13.33%	20.00%	**36.67%**	30
Household Income	$40,000 or less	9.76%	17.07%	14.63%	0.00%	24.39%	**34.15%**	41
	$ 40,001 - $70,000	14.49%	8.70%	17.39%	8.70%	18.84%	**31.88%**	69
	$ 70,001 - $100,000	20.90%	11.94%	5.97%	2.99%	11.94%	**46.27%**	67
	$100,001 or more	23.16%	8.42%	12.63%	6.32%	16.84%	**32.63%**	95
Marital status	Married/partnered	21.50%	8.53%	10.58%	6.83%	16.04%	**36.52%**	293
	Divorced/separated	0.00%	14.29%	14.29%	7.14%	14.29%	**50.00%**	14
	Widowed	8.82%	20.59%	14.71%	5.88%	20.59%	**29.41%**	34
N(%)		19.4%	10.0%	11.1%	6.7%	16.4%	36.4%	

Appendix 9: Stepwise regression output

Table 40: Stepwise regression- summary of outcomes

Affecting Variables	Dimensions	Unstandardized β	Adjusted R²	S.E.	Sig.
Age	Preference for human contact	-0.19	0.02	0.05	0.00
	Likelihood of keeping cash	0.47	0.04	0.1	0.00
	Experience (in yrs) with online banking	0.22	0.12	0.03	0.00
	Differences in households' frequency of online banking use	0.83	0.14	0.12	0.00
	Differences in households' reasons of online banking use	0.76	0.08	0.14	0.00
	Learning interest	0.35	0.06	1.59	0.00
Gender	Likelihood of keeping cash	-0.48	0.04	0.21	0.02
	Learning interest	0.55	0.08	0.13	0.00
Education	Recent branch visit	0.07	0.03	1.07	0.03
Household income	Experience (in yrs) with online banking	0.04	0.12	0.02	0.04
	Learning interest	-0.12	0.08	0.05	0.01
Employment status	Use of online channel for banking	0.01	0.00	0.09	0.02
Marital status	Preference for human contact	0.14	0.02	0.06	0.03
	Differences in households' frequency of online banking use	-0.39	0.14	0.16	0.01

Table 41: Regression output: When was the last time you went to a bank branch?

Model Summary[b]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.14[a]	0.02	0.01	1.07	1.83

a. Predictors: (Constant), Marital status, Gender, Household Income, Education, Employment Status, Age
b. Dependent Variable: Last branch visit

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	13.32	6	2.22	1.94	.07[b]
	Residual	670.11	585	1.15		
	Total	683.44	591			

a. Dependent Variable: Last branch visit

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	1.69	0.27		6.25	0.00
	Age	-0.08	0.05	-0.08	-1.44	0.15
	Gender	0.12	0.09	0.06	1.38	0.17
	Education	0.07	0.03	0.09	2.13	**0.03**
	Employment Status	0.07	0.04	0.09	1.93	0.06
	Household Income	0.04	0.03	0.05	1.19	0.23
	Marital status	0.00	0.07	0.00	-0.05	0.96
a. Dependent Variable: Last branch visit						

Table 42: Regression output: How important is human contact for banking relationships in your opinion?

Model Summary[c]										
				Std. Error of the Estimate	Change Statistics					Durbin-Watson
Model	R	R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change	
2	0.16	0.03	0.02	1.06	0.01	4.50	1	589	0.03	1.87

Predictors: (Constant), Age, Marital status
Dependent Variable: Need for personal interaction at a bank

ANOVA[a]					
	Sum of Squares	df	Mean Square	F	Sig.
Regression	17.39	2	8.69	7.70	0.00
Residual	664.84	589	1.13		
Total	682.23	591			

a. Dependent Variable: Need for personal interaction at a bank
Predictors: (Constant), Age, Marital status

Coefficients[a]					
		Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	2.92	0.19		15.77	0.00
Age	-0.19	0.05	-0.19	-3.92	**0.00**
Marital status	0.14	0.07	0.10	2.12	**0.03**

Table 43: Regression output: How many days per week are you most likely to keep cash with you?

				Std. Error of the Estimate	Change Statistics					
Model	R	R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
2	0.21	0.05	0.04	2.61	0.01	5.30	1	589	0.02	2.18

Model Summary^c (heading spanning the table above)

Predictors: (Constant), Age, Gender
Dependent Variable: Cash Days

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
2	Regression	188.258	2	94.129	13.841	0.000
	Residual	4005.761	589	6.801		
	Total	4194.019	591			

a. Dependent Variable: Cash Days
Predictors: (Constant), Age, Gender

Coefficients^a

Model		Unstandardized Coefficients B	Std. Error	Standardized Coefficients Beta	t	Sig.
2	(Constant)	1.958	0.594		3.295	0.00
	Age	0.474	0.103	0.185	4.592	**0.00**
	Gender	-0.483	0.210	-0.093	-2.302	**0.02**

a. Dependent Variable: Cash Days

Table 44: Regression output: Do you use online banking?

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.09^a	0.01	0.01	0.14	0.01	5.20	1	603	0.02

ANOVA^a

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	0.11	1	0.11	5.20	.02^b
	Residual	12.44	603	0.02		
	Total	12.54	604			

a. Dependent Variable: Use of online channel for banking
b. Predictors: (Constant), Employment Status

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	0.99	0.01		73.14	**0.00**
	Employment Status	0.01	0.00	0.09	2.28	**0.02**

a. Dependent Variable: Use of online channel for banking

Table 45: Regression output: How long have you been using online banking services?

Model Summary[c]										
				Std. Error of the Estimate	Change Statistics					
Model	R	R Square	Adjusted R Square		R Square Change	F Change	df1	df2	Sig. F Change	Durbin-Watson
2	0.35	0.13	0.12	0.66	0.01	4.01	1.00	589.00	0.05	2.14

Predictors: (Constant), Age, Household Income
Dependent Variable: Experience (in yrs) with online banking

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	36.30	2.00	18.10	42.10	.00 [b]
Residual	253.90	589.00	0.40		
Total	290.20	591.00			

a. Dependent Variable: Experience (in yrs) with online banking
b. Predictors: (Constant), Age, Household Income

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	1.28	0.12		10.59	0.00
Age	0.22	0.03	0.33	8.54	**0.00**
Household Income	0.04	0.02	0.08	2.00	**0.05**

a. Dependent Variable: Experience (in yrs) with online banking

Table 46: Regression output: When do you mostly use online banking?

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.09[a]	0.01	0.01	0.83

a. Predictors: (Constant), Education
b. Dependent Variable: Preferred time (place) for online banking use

ANOVAᵃ					
Model	Sum of Squares	df	Mean Square	F	Sig.
1 Regression	2.99	1.00	2.99	4.33	.04ᵇ
Residual	406.50	590.00	0.69		
Total	409.49	591.00			

a. Dependent Variable: Preferred time (place) for online banking use
Predictors: (Constant), Education

Coefficientsᵃ					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
1 (Constant)	3.13	0.08		37.21	0.00
Education	-0.05	0.03	-0.09	-2.08	**0.04**

a. Dependent Variable: Preferred time (place) for online banking use

Table 47: Regression output: How different is your frequency of using online banking to that of your children?

Model Summaryᶜ					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
2	0.37	0.14	0.13	1.92	1.76

Predictors: (Constant), Age, Marital status
Dependent Variable: Differences in households' frequency of online banking use

ANOVAᵃ					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	181.13	2.00	90.57	24.63	0.00
Residual	1154.67	314.00	3.68		
Total	1335.80	316.00			

Dependent Variable: Differences in households' frequency of online banking use
Predictors: (Constant), Age, Marital status

Coefficientsᵃ					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.88	0.45		1.94	0.05
Age	0.83	0.12	0.42	6.89	**0.00**
Marital status	-0.38	0.16	-0.15	-2.43	**0.01**

a. Dependent Variable: Differences in households' frequency of online banking use

Table 48: Regression output: How different is your reason(s) for using online banking to that of your children?

Model Summary[b]				
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.290[a]	0.08	0.08	1.90

a. Predictors: (Constant), Age
b. Dependent Variable: Differences in households' reasons of online banking use

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	103.74	1.00	103.74	28.82	.00[b]
Residual	1133.81	315.00	3.60		
Total	1237.55	316.00			

a. Dependent Variable: Differences in households' reasons of online banking use
b. Predictors: (Constant), Age

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	0.32	0.68		0.47	0.64
Age	0.76	0.14	0.29	5.37	**0.00**

a. Dependent Variable: Differences in households' reasons of online banking use

Table 49: Regression output: Are you interested in learning about new apps or features added to existing apps for better services?

Model Summary[d]					
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
3	0.27	0.08	0.07	1.59	2.05

Predictors: (Constant), Age, Gender, Household Income
Dependent Variable: Learning interest

ANOVA[a]					
Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	120.99	3	40.33	15.88	0
Residual	1493.33	588	2.54		
Total	1614.32	591			

Dependent Variable: Learning interest
Predictors: (Constant), Age, Gender, Household Income

Coefficients[a]					
	Unstandardized Coefficients		Standardized Coefficients		
Model	B	Std. Error	Beta	t	Sig.
(Constant)	1.09	0.37		2.91	0.00

Age	0.35	0.06	0.22	5.40	**0.00**
Gender	0.55	0.13	0.17	4.30	**0.00**
Household Income	-0.12	0.05	-0.10	-2.43	**0.02**

a. Dependent Variable: Learning interest

Appendix 10: Interaction effects
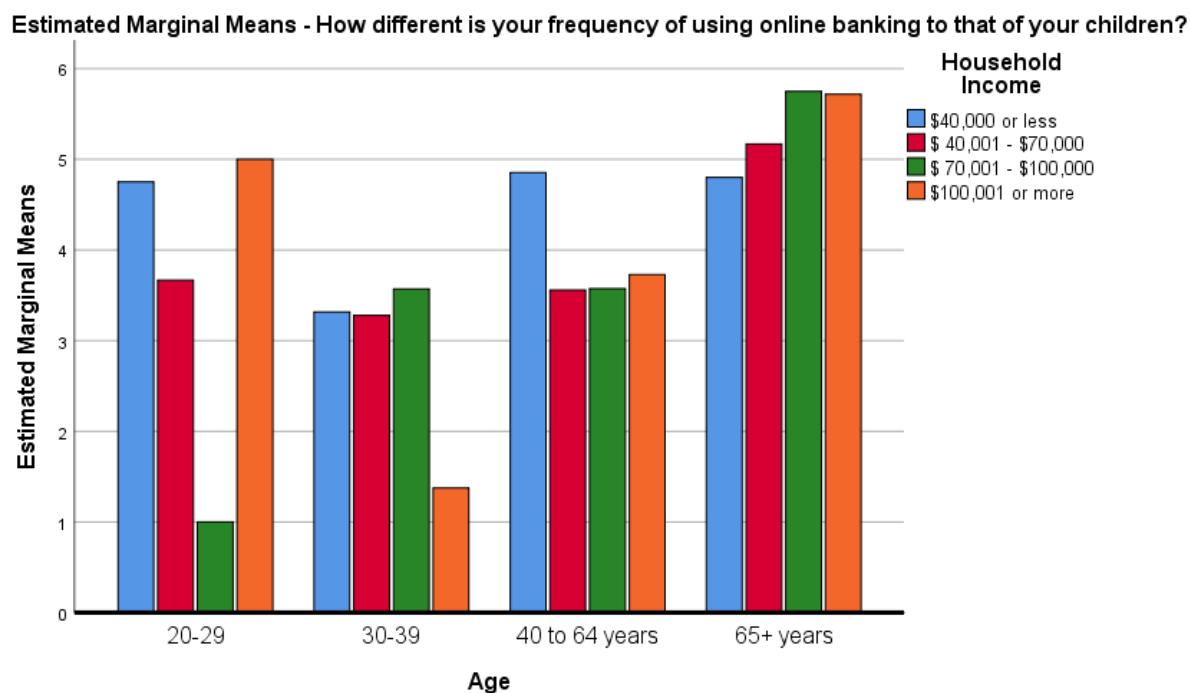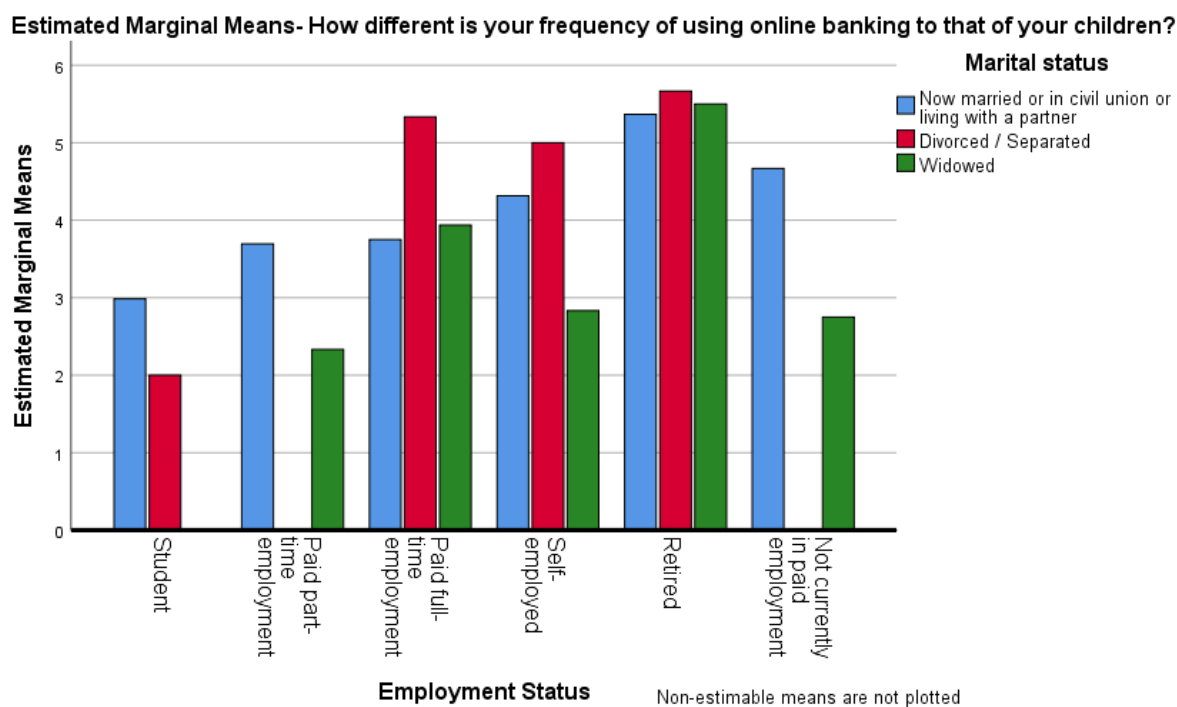
Differences in households' frequency of online banking use

Table 50: Test of between-subject effects: Differences in households' frequency of online banking use

Tests of Between-Subjects Effects					
Dependent Variable: How different is your frequency of using online banking to that of your children?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	359.232[a]	36	9.979	2.981	.000
Intercept	1477.646	1	1477.646	441.472	.000
Age	139.438	3	46.479	13.886	**.000**
Gender	13.974	1	13.974	4.175	**.042**
Household income	17.388	4	4.347	1.299	.271
Age * Gender	21.801	3	7.267	2.171	.092
Age * Household Income	103.081	12	8.590	2.566	**.003**
Gender * Income	18.341	4	4.585	1.370	.245
Age * Gender * Income	19.222	9	2.136	.638	.764
Error	923.797	276	3.347		
Total	5709.000	313			
Corrected Total	1283.029	312			
a. R Squared = .280 (Adjusted R Squared = .186)					

Figure 8: Profile plot using bar chart showing interaction between age and household income

Table 51: Test of between-subject effects (second interaction): Differences in households' frequency of online banking use

Tests of Between-Subjects Effects					
Dependent Variable: How different is your frequency of using online banking to that of your children?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	325.704[a]	56	5.816	1.559	.012
Intercept	755.242	1	755.242	202.426	.000
Education	4.295	5	.859	.230	.949
Employment status	53.739	5	10.748	2.881	**.015**
Marital status	26.602	2	13.301	3.565	**.030**
Education * Employment status	102.203	21	4.867	1.304	.172
Education * Marital status	16.177	8	2.022	.542	.824
Employment status * Marital status	49.826	7	7.118	1.908	**.069**
Education * Employment status * Marital status	30.219	7	4.317	1.157	.328
Error	958.857	257	3.731		
Total	5734.000	314			
Corrected Total	1284.561	313			
a. R Squared = .254 (Adjusted R Squared = .091)					

Figure 9: Profile plot using bar chart showing interaction between employment and marital status

Note: Some level combinations of factors are not observed, thus the corresponding population marginal mean is not estimable.
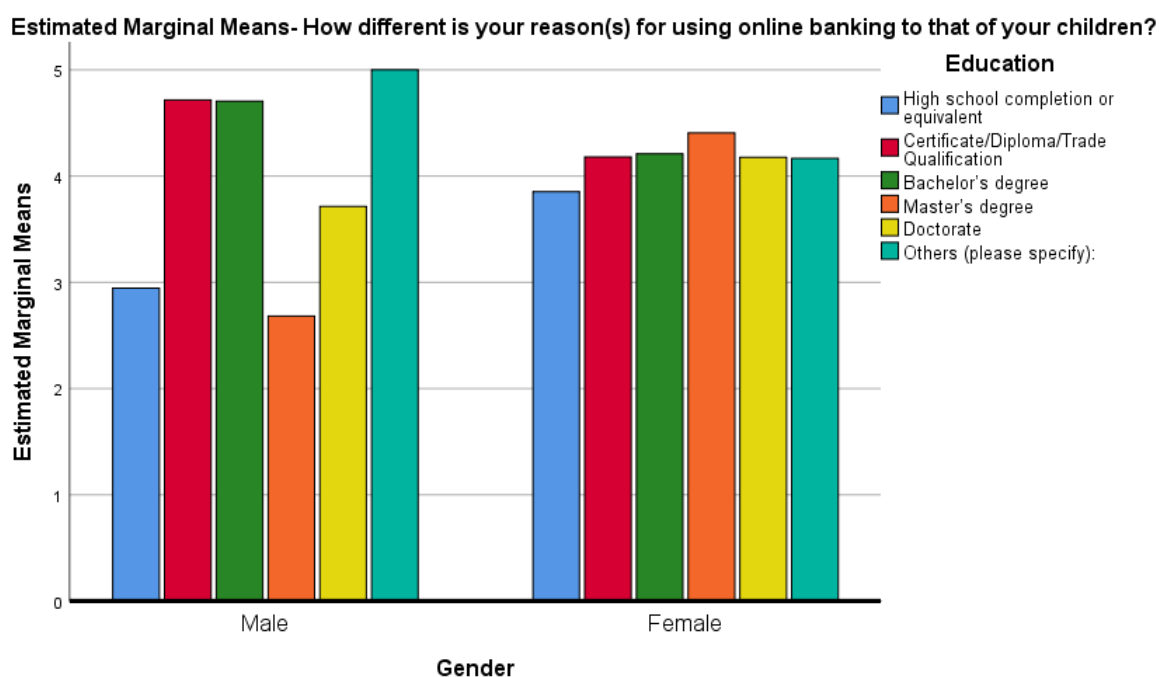
Differences in households' reasons of online banking use

Table 52: Test of between-subject effects (second interaction): Differences in households' reasons of online banking use

Tests of Between-Subjects Effects					
Dependent Variable: How different is your reason(s) for using online banking to that of your children?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	211.425[a]	40	5.286	1.471	.041
Intercept	1141.380	1	1141.380	317.578	.000
Age	80.379	3	26.793	7.455	.000
Gender	.488	1	.488	.136	.713
Education	21.057	5	4.211	1.172	.323
Age * Gender	2.264	3	.755	.210	.889
Age * Education	23.773	13	1.829	.509	.918
Gender * Education	40.668	5	8.134	2.263	**.049**
Age*Gender*Education	22.686	10	2.269	.631	.787
Error	977.572	272	3.594		
Total	6189.000	313			
Corrected Total	1188.997	312			
a. R Squared = .178 (Adjusted R Squared = .057)					

Figure 10: Profile plot using bar chart showing interaction between gender and education

Estimated Marginal Means- How different is your reason(s) for using online banking to that of your children?
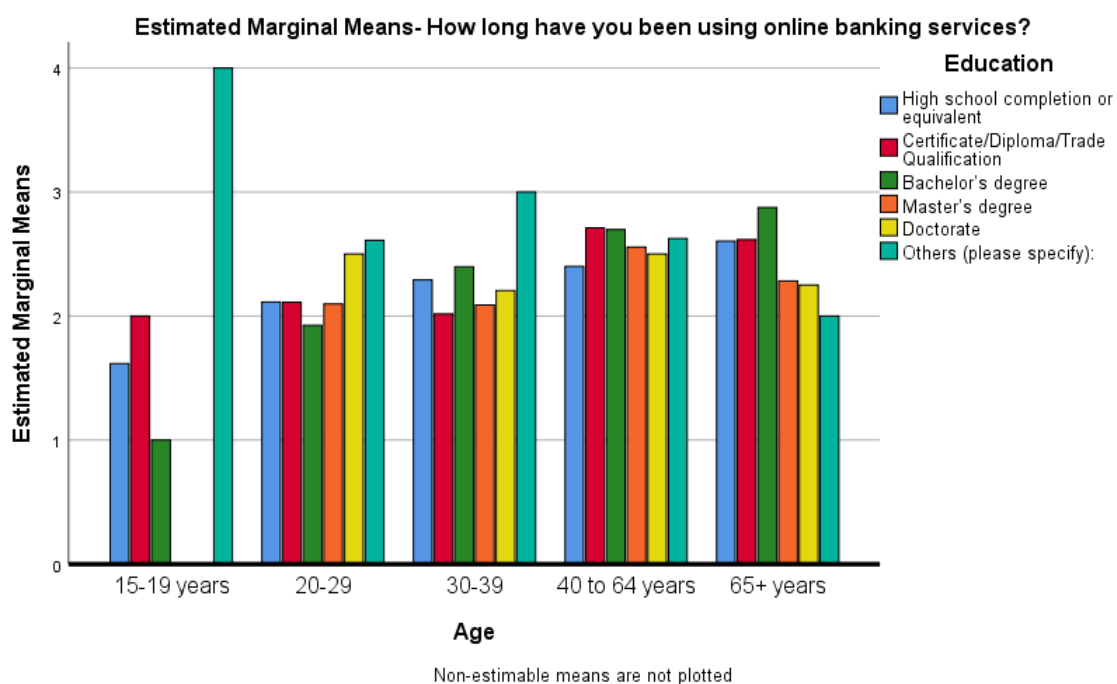
Experience (in yrs) with online banking

Table 53: Test of between-subject effects: Experience (in yrs) with online banking

Tests of Between-Subjects Effects					
Dependent Variable: How long have you been using online banking services?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	106.968[a]	106	1.009	2.527	.000
Intercept	685.093	1	685.093	1715.613	.000
Age	10.618	4	2.655	6.647	**.000**
Education	2.223	5	.445	1.114	.352
Household Income	5.132	4	1.283	3.213	**.013**
Age * Education	11.564	18	.642	1.609	**.054**
Age * Household Income	9.277	16	.580	1.452	.113
Education * Household Income	7.307	19	.385	.963	.504
Age * Education * Household Income	16.829	40	.421	1.054	.385
Error	193.674	485	.399		
Total	3602.000	592			
Corrected Total	300.642	591			
a. R Squared = .356 (Adjusted R Squared = .215)					

Figure 11: Profile plot using bar chart showing interaction between age and education

Estimated Marginal Means- How long have you been using online banking services?

Non-estimable means are not plotted

Likelihood of keeping cash

Table 54: Test of between-subject effects: Likelihood of keeping cash

Tests of Between-Subjects Effects					
Dependent Variable: How many days per week are you most likely to keep cash with you?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	318.464ᵃ	22	14.476	2.055	.003
Intercept	1092.331	1	1092.331	155.063	.000
Employment status	18.462	5	3.692	.524	.758
Marital status	25.968	3	8.656	1.229	.298
Employment * Marital status	177.555	14	12.682	1.800	**.035**
Error	4008.293	569	7.044		
Total	10658.000	592			
Corrected Total	4326.757	591			
a. R Squared = .074 (Adjusted R Squared = .038)					

Figure 12: Profile plot using bar chart showing interaction between employment and marital status

Estimated Marginal Means of Cash Days
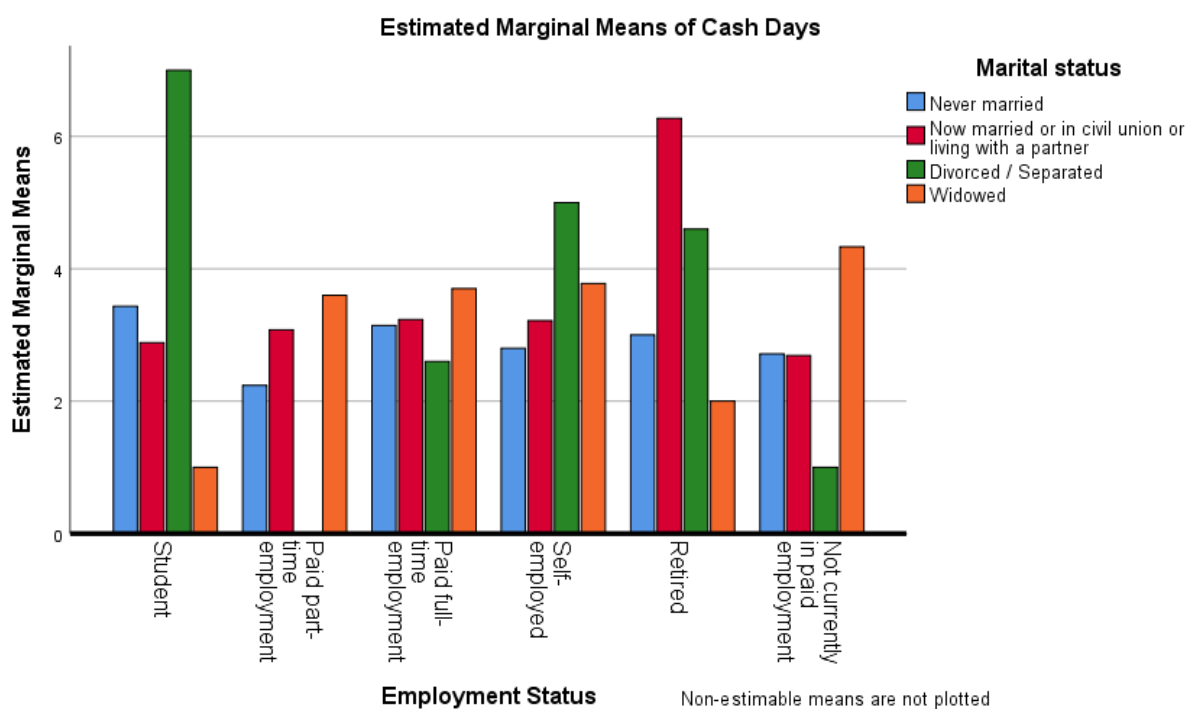
Learning interest

Table 55: Test of between-subject effects: Learning interest

Tests of Between-Subjects Effects					
Dependent Variable: Are you interested in learning about new apps or features added to existing apps for better services?					
Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	343.644ᵃ	52	6.609	2.906	.000
Intercept	1458.340	1	1458.340	641.280	.000
Age	65.704	4	16.426	7.223	**.000**
Gender	3.626	1	3.626	1.595	.207
Education	28.853	5	5.771	2.537	**.028**
Age * Gender	16.077	4	4.019	1.767	.134
Age * Education	81.053	18	4.503	1.980	**.009**
Gender * Education	4.260	5	.852	.375	.866
Age*Gender*Education	84.831	15	5.655	2.487	**.002**
Error	1191.632	524	2.274		
Total	7454.000	577			
Corrected Total	1535.276	576			
a. R Squared = .224 (Adjusted R Squared = .147)					

Figure 13: Profile plot using bar chart showing interaction between age and gender

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?

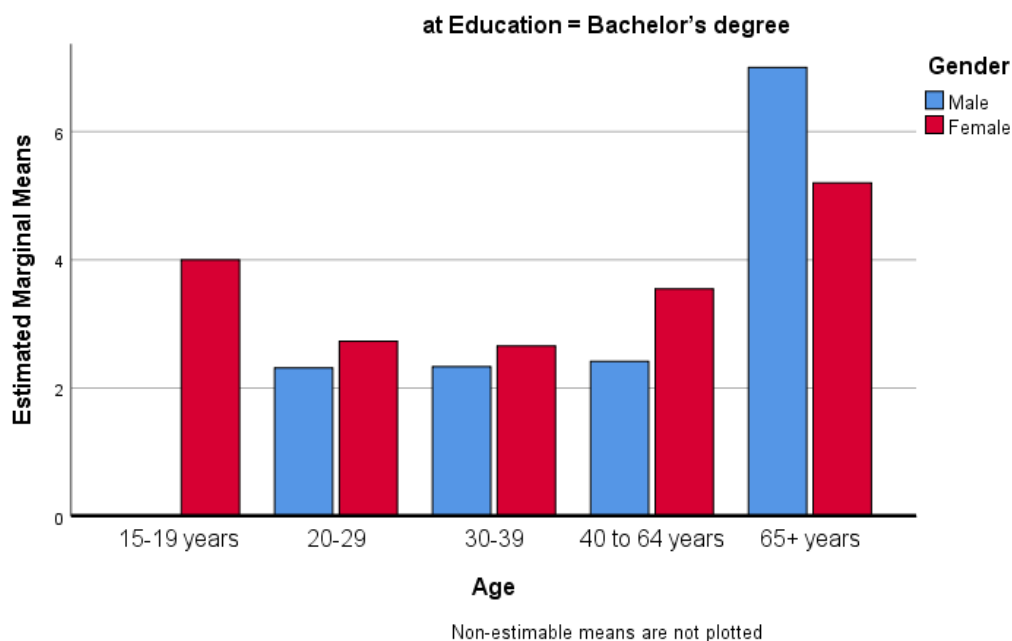at Education = Bachelor's degree
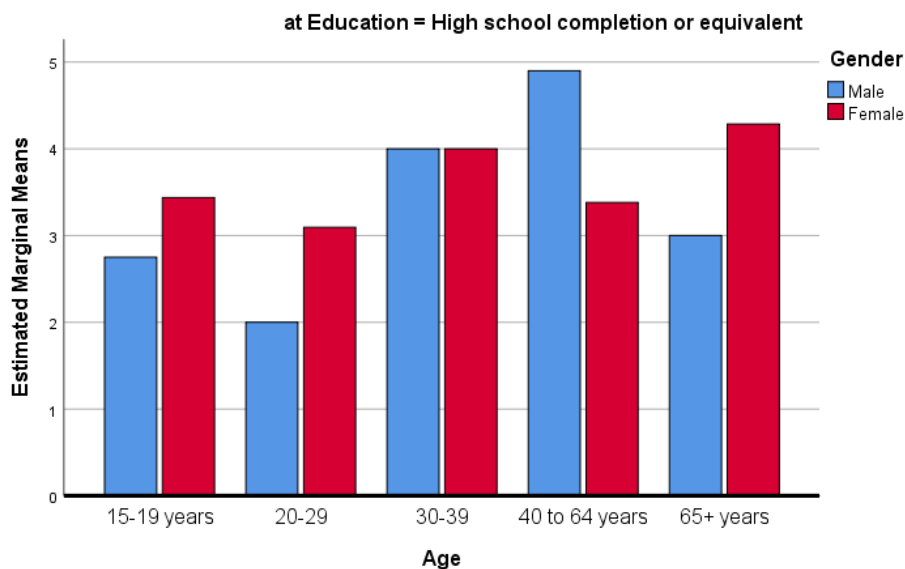

Non-estimable means are not plotted

Figure 14: Profile plot using bar chart showing three-way interaction between age and gender at education = high school

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?

at Education = High school completion or equivalent

Figure 15: Profile plot using bar chart showing three-way interaction between age and gender at education = Certificate/diploma or trade qualification

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?
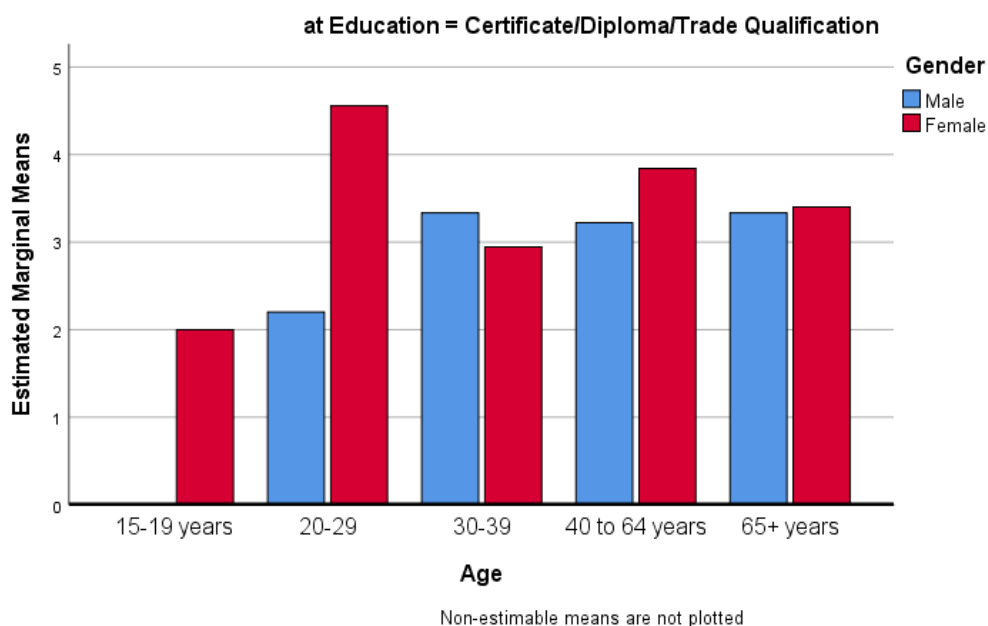
at Education = Certificate/Diploma/Trade Qualification

Non-estimable means are not plotted

Figure 16: Profile plot using bar chart showing three-way interaction between age and gender at education = Bachelor

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?

at Education = Bachelor's degree

Non-estimable means are not plotted
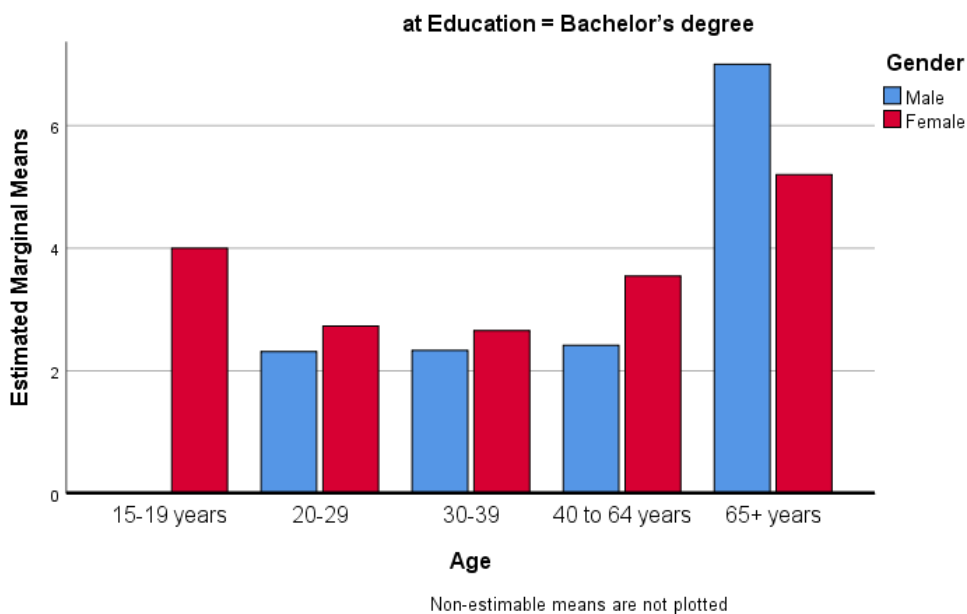
Figure 17: Profile plot using bar chart showing three-way interaction between age and gender at education = Master

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?
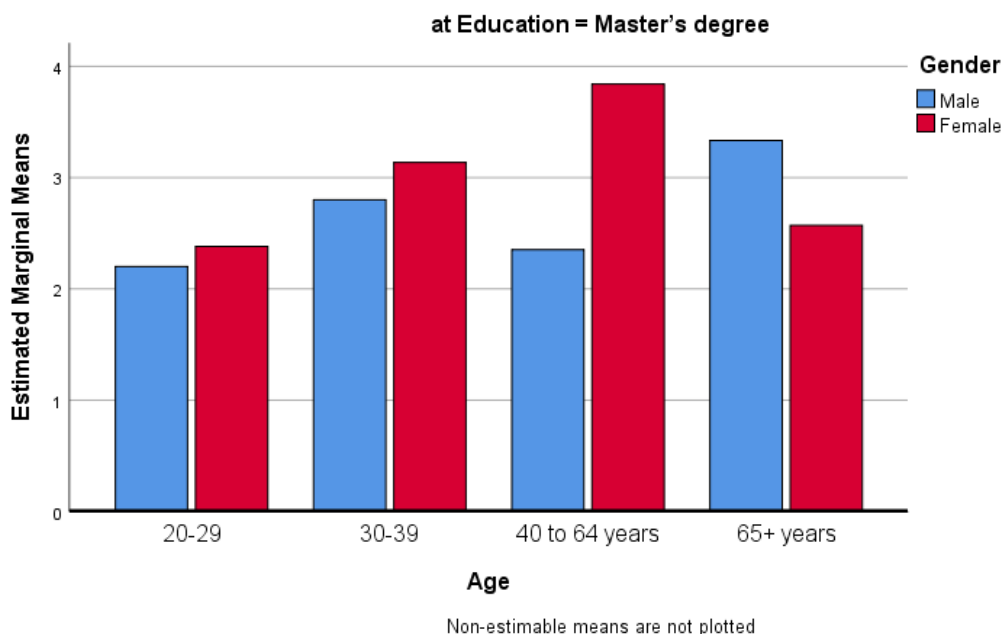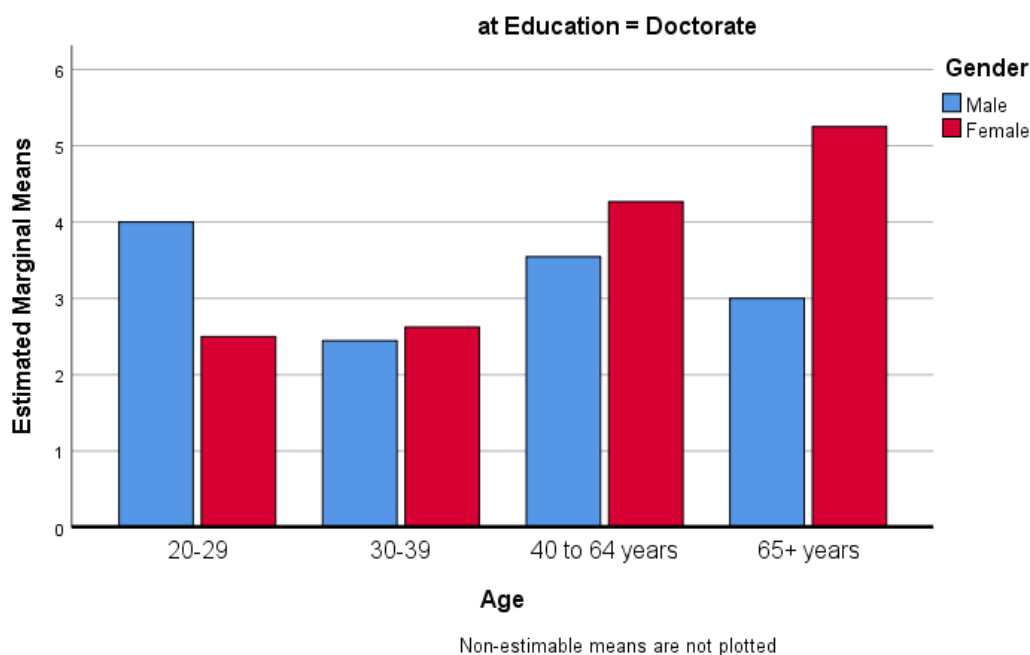
at Education = Master's degree

Non-estimable means are not plotted

Figure 18: Profile plot using bar chart showing three-way interaction between age and gender at education = Doctorate

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?

at Education = Doctorate

Non-estimable means are not plotted

Figure 19: Profile plot using bar chart showing three-way interaction between age and gender at education = Others

Estimated Marginal Means of Are you interested in learning about new apps or features added to existing apps for better services?

at Education = Others (please specify):

Non-estimable means are not plotted
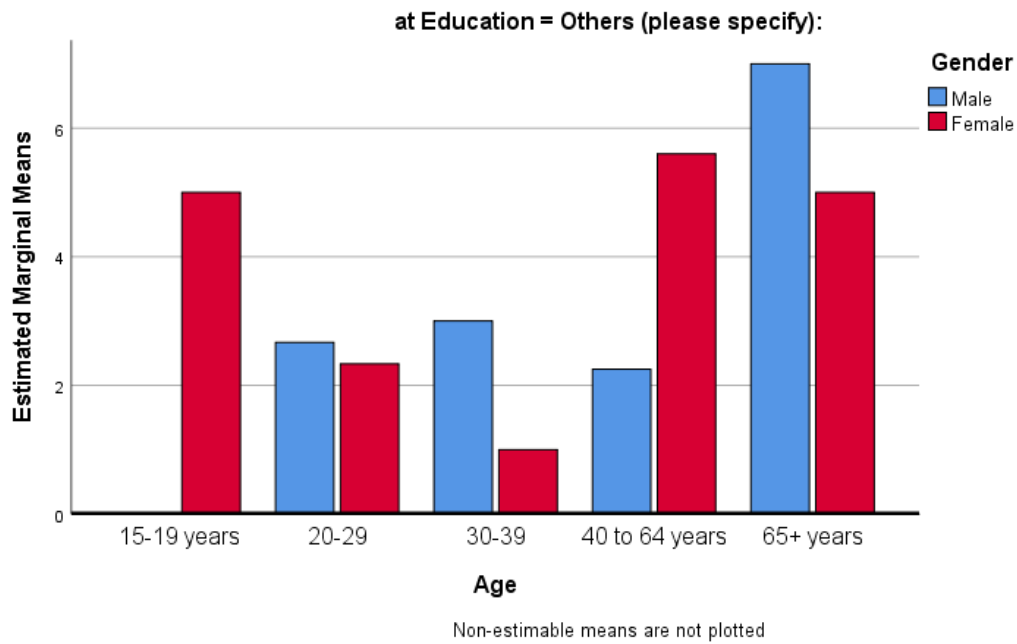
Appendix 11: Descriptive statistics for summated scales

Table 56: Budget management

Items/statements	N	Mean[32]	Median	Std. Deviation[33]
Funds awareness	668	1.8	2.0	0.8
Checking funds	668	1.9	2.0	1.0
Purchase with ease	668	2	2.0	1.0
Past consumption patterns	656	3.3	3.0	0.9
Current funds available	656	2.2	2.0	1.0
Spending less	656	2.5	2.0	1.0
Generational spending	611	2.5	3.0	0.9
Online payment methods	581	1.7	2.0	0.9
Summated scale: Budget management	758	2.3	2.0	0.5

Table 57: Age-related attitudes

Items/statements	N	Mean	Median	Std. Deviation
Age effect	640	3.0	3.0	1.2
Less willing to learn	640	2.1	2.0	0.9
More willingness to learn	640	2.7	3.0	1.0
Physical deficiency	640	4.5	5.0	0.9
Learning difficulty	619	3.1	3.0	1.1
Learning inclination	619	3.2	3.0	0.9
Willingness to provide personal info	604	2.7	2.0	1.3
Summated scale: Age-related attitudes	758	3.0	3.0	0.4

Table 58: Learning new things

Items/statements	N	Mean	Median	Std. Deviation
Hesitation	640	2.1	2.0	1.1
Distress	640	1.9	2.0	1.0
Confidence	630	2.2	2.0	0.9
Enthusiasm	587	2.3	2.0	1.1
Learning	656	2.8	3.0	1.1
Frustration	525	3.8	4.0	1.3
Overwhelm	523	3.8	4.0	1.3
Summated scale: Learning new things	758	2.5	3.0	0.6

---

[32] Item median tells us the distribution of the dataset from the lowest to highest values.

[33] Standard deviation depicts how close the data points are to the mean value of each item

Table 59: Preference for personal interactions

Items/Statements	N	Mean	Median	Std. Deviation
Socialization	640	3.2	3.0	1.1
Advice and info	630	2.2	2.0	1.1
Customer services	630	2.5	2.0	1.0
LinkedIn	565	3.1	4.0	1.2
Branch interactions	555	2.5	2.0	1.2
Business cards	619	3.5	4.0	1.2
Online complaint process	605	3.5	4.0	1.3
No human contact needed	604	3.8	4.0	1.2
Relationship with bank	604	3.3	3.0	0.9
Summated scale: Preference for personal interactions	758	3.1	3.0	0.5

Table 60: Security perceptions

Items/statements	N	Mean	Median	Std. Deviation
Public ATMs	630	2.0	2.0	0.9
Physical address	333	2.8	2.0	1.1
Personal info	600	1.8	2.0	0.8
Card details	615	1.5	1.0	0.7
Branch ATMs	603	1.8	1.0	1.2
Public computers	519	3.8	4.0	1.2
Private mobile data	553	2.5	2.0	1.4
Additional security	604	1.9	2.0	0.8
Cash	604	2.0	2.0	0.9
Online notifications	522	2.6	2.0	1.2
Summated scale: Security perceptions	758	2.2	2.0	0.5

Table 61: Perceptions of customer service

Items/statements	N	Mean	Median	Std. Deviation
Switching	614	4.3	5.0	1.2
Online banking in New Zealand	604	2.7	3.0	0.8
Better services	604	3.0	3.0	0.7
Word-of-mouth	522	3.2	3.0	1.0
Summated scale: Perceptions of customer service	758	3.4	3.0	0.6

Table 62: Hardware requirements

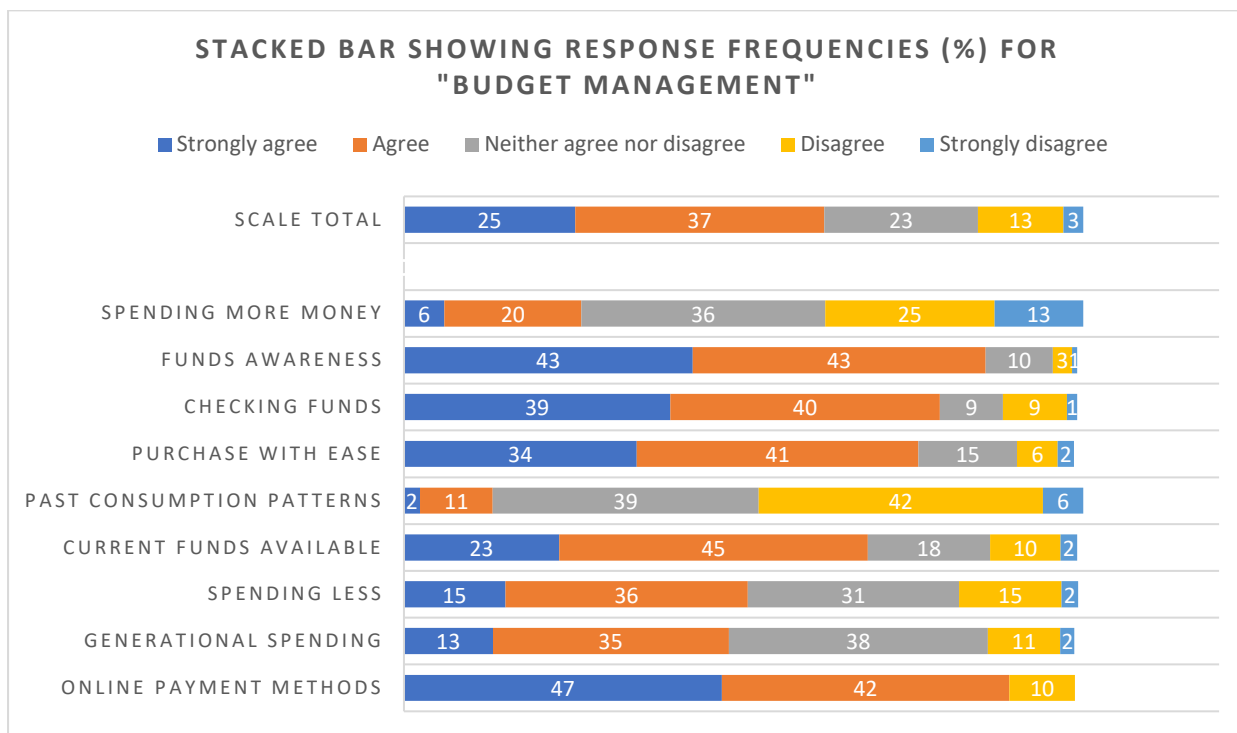| Items/statements	N	Mean	Median	Std. Deviation
Latest device	640	4.4	5.0	0.9
Small mobile screens	619	3.2	3.0	1.3
Device upgrade	522	3.0	3.0	1.0
Increased use on smartphone	522	2.3	2.0	1.0
Summated scale: Hardware requirements	758	3.4	3	0.6

Table 63: Online banking convenience

Items/statements	N	Mean	Median	Std. Deviation
Nature of job	656	2.3	2.0	1.1
Cash for certain markets	504	4.0	4.0	0.9
Automatic payments	619	1.8	2.0	0.9
Independence	605	2.3	2.0	1.2
Ads on apps	522	3.1	3.0	1.0
Summated scale: Online banking convenience	758	2.7	3.0	0.5

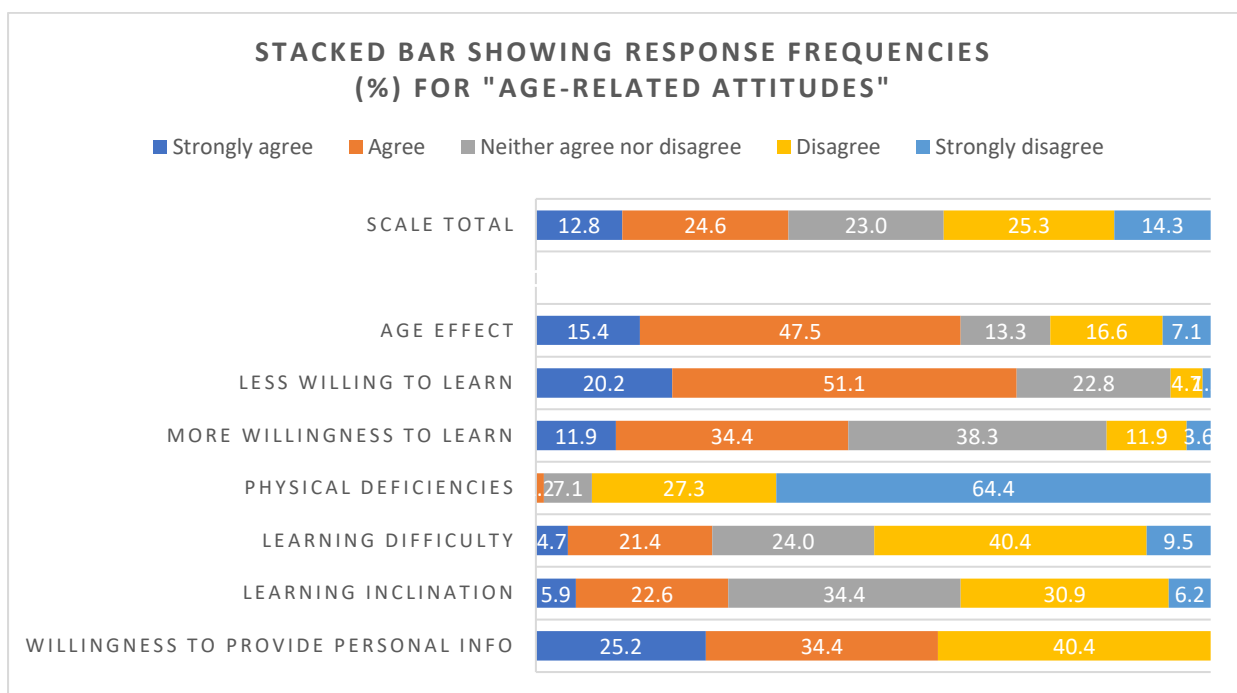*Appendix 12: Stacked bar graphs showing response category frequencies*

Summated scale: Budget management Scale (FA 1-9):

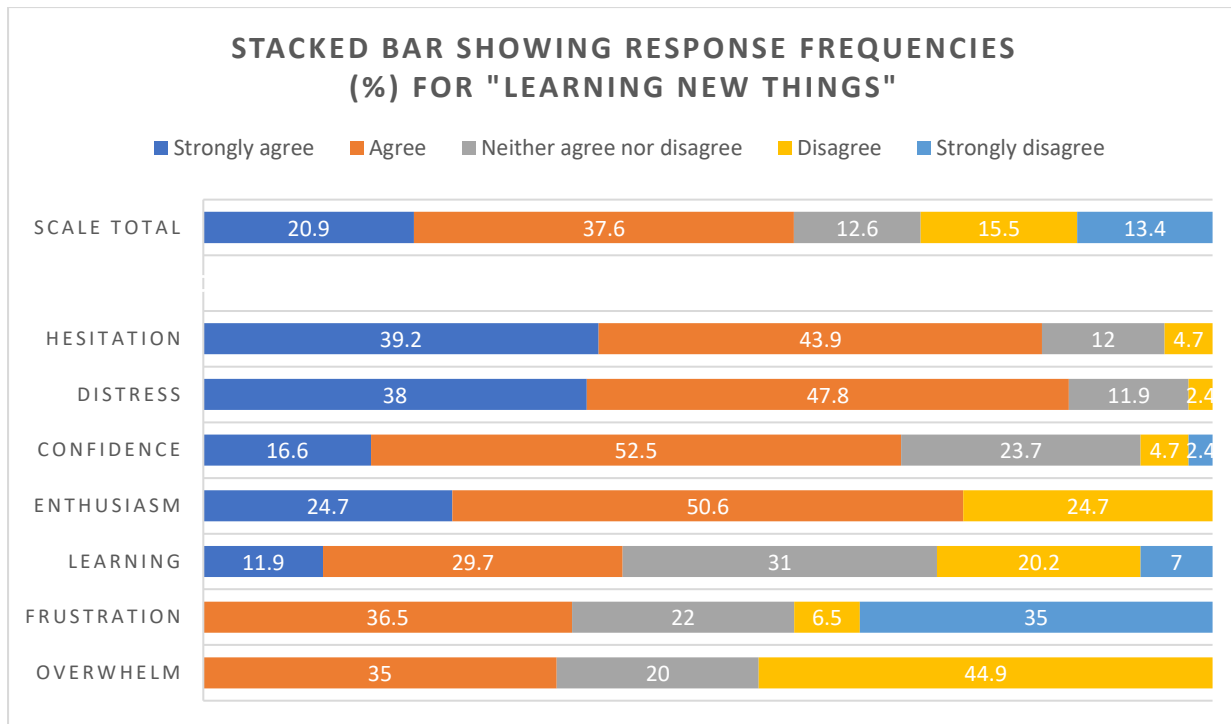*Figure 20: Stacked bar graph for budget management with a scale total*

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "BUDGET MANAGEMENT"

Legend: ■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Category	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	25	37	23	13	3
SPENDING MORE MONEY	6	20	36	25	13
FUNDS AWARENESS	43	43	10	3	1
CHECKING FUNDS	39	40	9	9	1
PURCHASE WITH EASE	34	41	15	6	2
PAST CONSUMPTION PATTERNS	2	11	39	42	6
CURRENT FUNDS AVAILABLE	23	45	18	10	2
SPENDING LESS	15	36	31	15	2
GENERATIONAL SPENDING	13	35	38	11	2
ONLINE PAYMENT METHODS	47	42	10		

Summated scale: Age-related attitudinal Scale (AA 1-7):

Figure 21: Stacked bar graph for age-related attitudes with a scale total

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "AGE-RELATED ATTITUDES"

Legend: ■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

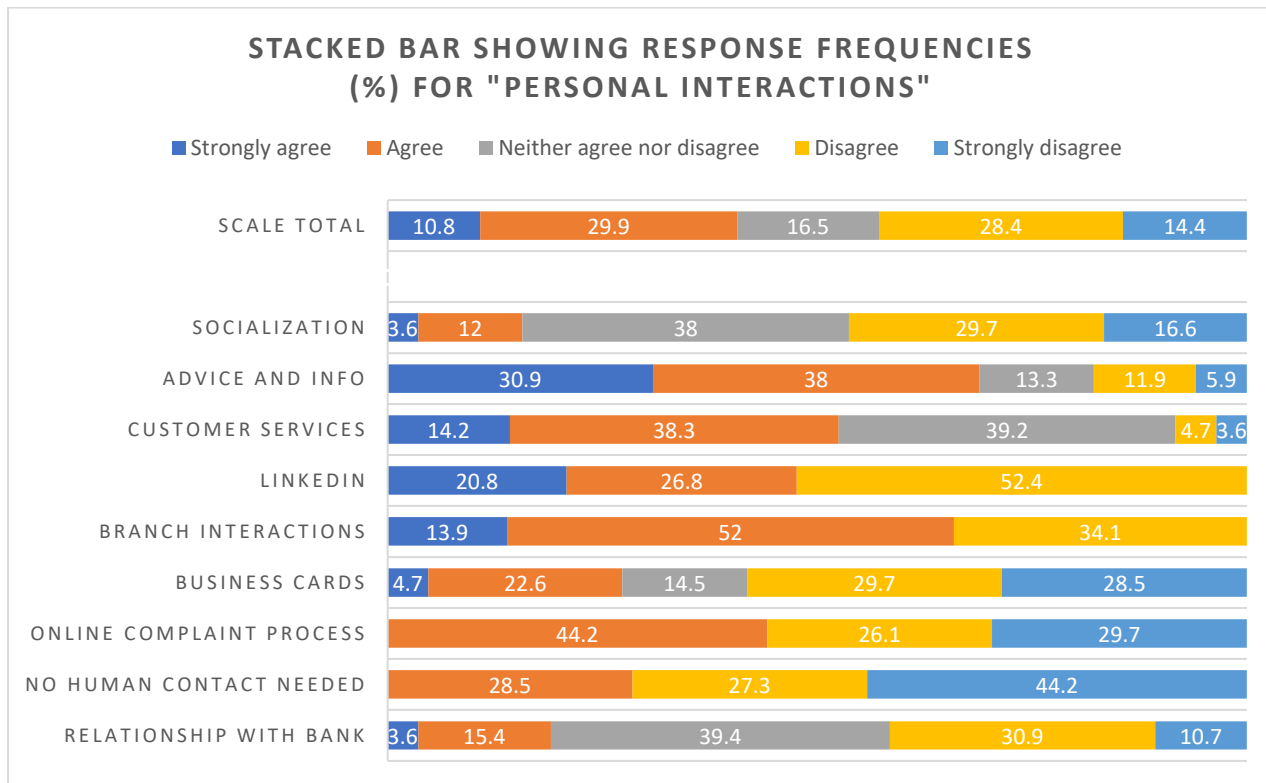| Category	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	12.8	24.6	23.0	25.3	14.3
AGE EFFECT	15.4	47.5	13.3	16.6	7.1
LESS WILLING TO LEARN	20.2	51.1	22.8	4.7	1.1
MORE WILLINGNESS TO LEARN	11.9	34.4	38.3	11.9	3.6
PHYSICAL DEFICIENCIES		1.2	7.1	27.3	64.4
LEARNING DIFFICULTY	4.7	21.4	24.0	40.4	9.5
LEARNING INCLINATION	5.9	22.6	34.4	30.9	6.2
WILLINGNESS TO PROVIDE PERSONAL INFO	25.2	34.4	40.4		

Summated scale: Learning new things (LI 1-7):

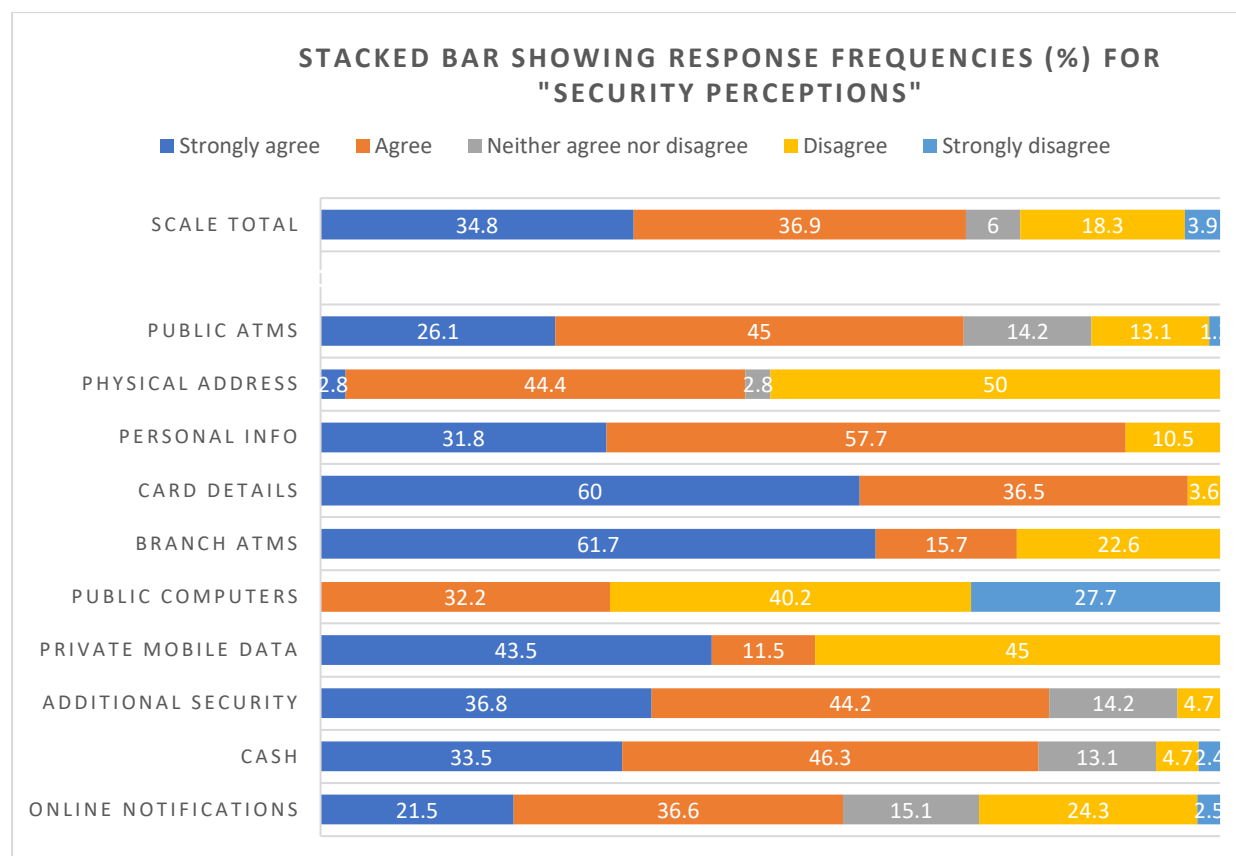*Figure 22: Stacked bar graph for statements underlying learning new things with a scale total*

STACKED BAR SHOWING RESPONSE FREQUENCIES
(%) FOR "LEARNING NEW THINGS"

Legend: ■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Category	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	20.9	37.6	12.6	15.5	13.4
HESITATION	39.2	43.9	12	4.7	
DISTRESS	38	47.8	11.9	2.4	
CONFIDENCE	16.6	52.5	23.7	4.7	2.4
ENTHUSIASM	24.7	50.6		24.7	
LEARNING	11.9	29.7	31	20.2	7
FRUSTRATION		36.5	22	6.5	35
OVERWHELM		35	20	44.9	

Summated scale: Preference for personal interactions (PI 1-9):

Figure 23: Stacked bar graph for users' preferences for personal interactions with a scale total

STACKED BAR SHOWING RESPONSE FREQUENCIES
(%) FOR "PERSONAL INTERACTIONS"

Legend: ■ Strongly agree ■ Agree ■ Neither agree nor disagree ■ Disagree ■ Strongly disagree

Category	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	10.8	29.9	16.5	28.4	14.4
SOCIALIZATION	3.6	12	38	29.7	16.6
ADVICE AND INFO	30.9	38	13.3	11.9	5.9
CUSTOMER SERVICES	14.2	38.3	39.2	4.7	3.6
LINKEDIN	20.8	26.8		52.4	
BRANCH INTERACTIONS	13.9	52		34.1	
BUSINESS CARDS	4.7	22.6	14.5	29.7	28.5
ONLINE COMPLAINT PROCESS		44.2		26.1	29.7
NO HUMAN CONTACT NEEDED		28.5		27.3	44.2
RELATIONSHIP WITH BANK	3.6	15.4	39.4	30.9	10.7

Summated scale: Security perceptions (SEC 1-10):

Figure 24: Stacked bar graph for statements underlying security perceptions with a scale total

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "SECURITY PERCEPTIONS"

Summated scale: Perceptions of customer service (SERV 1-4):

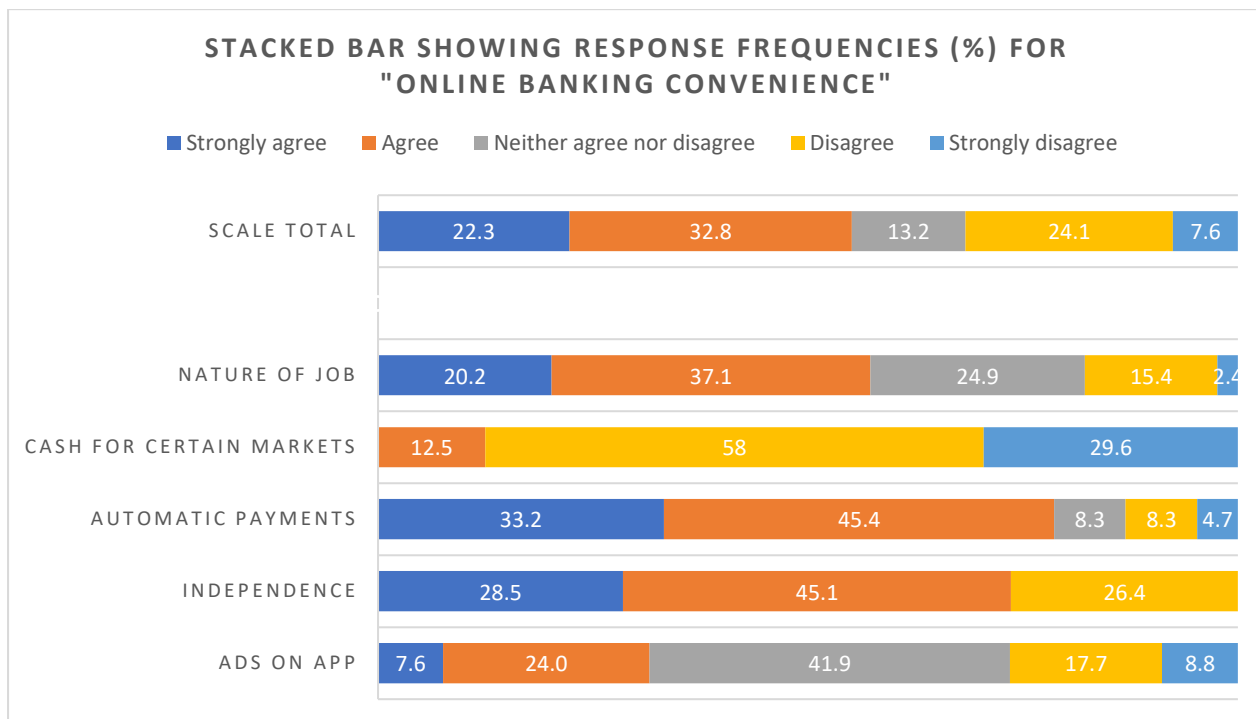*Figure 25: Stacked bar graph for perceptions of online banking services with a scale total*

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "PERCEPTIONS OF CUSTOMER SERVICES"
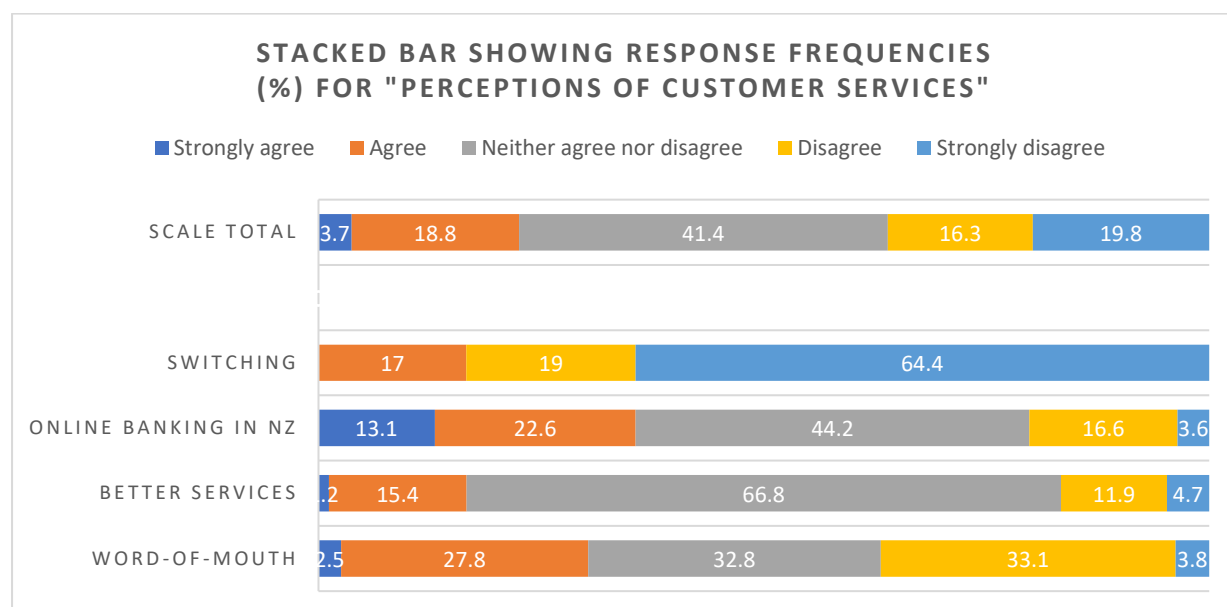
Summated scale: Perceptions of hardware requirements (HAR 1-4):

Figure 26: Stacked bar graph for statements underlying users' perceptions of hardware requirements with a scale total

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "HARDWARE REQUIREMENTS"

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	10	22	18.8	28	21.4
LATEST DEVICE	2.4	3.6		33.5	60.6
SMALL MOBILE SCREENS	9.5	15.4	19.3	36.8	19
DEVICE UPGRADE	6.3	26.5	31.8	32.8	2.5
INCREASED USE ON SMARTPHONE	25.2	50.5	13	10	1.3

Summated scale: Perceptions of online banking convenience (CONV 1-5):

Figure 27: Stacked bar graph for statements underlying users' perceptions of convenience with a scale total

STACKED BAR SHOWING RESPONSE FREQUENCIES (%) FOR "ONLINE BANKING CONVENIENCE"

- Strongly agree
- Agree
- Neither agree nor disagree
- Disagree
- Strongly disagree

	Strongly agree	Agree	Neither agree nor disagree	Disagree	Strongly disagree
SCALE TOTAL	22.3	32.8	13.2	24.1	7.6
NATURE OF JOB	20.2	37.1	24.9	15.4	2.4
CASH FOR CERTAIN MARKETS		12.5		58	29.6
AUTOMATIC PAYMENTS	33.2	45.4	8.3	8.3	4.7
INDEPENDENCE	28.5	45.1		26.4	
ADS ON APP	7.6	24.0	41.9	17.7	8.8

Appendix 13: Kruskal-Wallis test output

Table 64: Kruskal-Wallis hypothesis test summary for age

	Null Hypothesis	**Sig.**	**Decision**
	Hypothesis Test Summary		
1	The distribution of Budget management scale is the same across categories of Age.	.000	Reject the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Age.	.000	Reject the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Age.	.000	Reject the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Age.	.000	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Age.	.000	Reject the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Age.	.000	Reject the null hypothesis.
7	The distribution of Hardware requirements scale is the same across categories of Age.	.065	Retain the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Age.	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 65: Mean ranks of the summated scales based on age (total respondents =758)

	Ranks		
	Age	N	Mean Rank
Budget management scale	15-19 years	162	374.28
	20-29 years	459	362.79
	30-39 years	108	456.50
	40 to 64 years	29	386.33
Age-attitudes scale	15-19 years	162	398.81
	20-29 years	459	372.69
	30-39 years	108	408.46
	40 to 64 years	29	271.66
Learning new things scale	15-19 years	162	377.36
	20-29 years	459	376.25
	30-39 years	108	354.25
	40 to 64 years	29	537.00
Personal interactions scale	15-19 years	162	425.22
	20-29 years	459	370.03
	30-39 years	108	386.33
	40 to 64 years	29	248.53
Security perceptions scale	15-19 years	162	430.83
	20-29 years	459	346.58
	30-39 years	108	460.54
	40 to 64 years	29	312.00
Customer services scale	15-19 years	162	414.56
	20-29 years	459	347.81

	30-39 years	108	466.17
	40 to 64 years	29	362.43
Hardware requirements scale	15-19 years	162	384.14
	20-29 years	459	369.12
	30-39 years	108	422.75
	40 to 64 years	29	356.84
Online banking convenience scale	15-19 years	162	429.08
	20-29 years	459	384.41
	30-39 years	108	283.29
	40 to 64 years	29	383.07

Table 66: Kruskal-Wallis Test statistics (age)

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	23.991	3	0.00
Age-attitudes scale	25.351	3	0.00
Learning new things scale	22.211	3	0.00
Personal interactions scale	34.57	3	0.00
Security scale	57.664	3	0.00
Customer services scale	39.443	3	0.00
Hardware requirements scale	7.231	3	0.06
Online banking convenience scale	40.786	3	0.00
a. Kruskal Wallis Test			
b. Grouping Variable: Age			

Table 67: Median values of groups based on age (in years)

Summated scales	15-19	20-29	30-39	40 to 64	Total
Budget management	2.3	2.2	2.3	2.3	2.3
Age attitudes scale	2.9	3.0	3.0	3.1	3.1
Learning new things scale	2.8	2.6	2.6	2.7	2.7
Personal interactions scale	3.3	3.1	3.0	3.0	3.1
Security perceptions scale	2.4	2.2	2.2	2.1	2.2
Customer service scale	3.5	3.3	3.3	3.5	3.3
Hardware requirements scale	3.3	3.3	3.3	3.3	3.3
Online banking convenience scale	2.7	2.5	2.6	2.6	2.6

Table 68: Kruskal-Wallis hypothesis test summary for gender

	Hypothesis Test Summary		
	Null Hypothesis	Sig.	Decision
1	The distribution of Budget management scale is the same across categories of Gender.	.000	Reject the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Gender.	.340	Retain the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Gender.	.001	Reject the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Gender.	.000	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Gender.	.000	Reject the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Gender.	.000	Reject the null hypothesis.
7	The distribution of Hardware requirements scale is the same across categories of Gender.	.000	Reject the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Gender.	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 69: Mean ranks of the summated scales based on gender

	Ranks		
	Gender	N	Mean Rank
Budget management scale	Male	198	381.86
	Female	542	366.35
	Total	740	
Age-attitudes scale	Male	198	355.11
	Female	542	376.12
	Total	740	
Learning new things scale	Male	198	349.75
	Female	542	378.08
	Total	740	
Personal interactions scale	Male	198	348.00
	Female	542	378.72
	Total	740	
Security perceptions scale	Male	198	408.00
	Female	542	356.80
	Total	740	
Customer services scale	Male	198	435.80
	Female	542	346.65
	Total	740	
Hardware requirements scale	Male	198	356.05
	Female	542	375.78
	Total	740	

Online banking convenience scale	Male	198	320.14
	Female	542	388.90
	Total	740	

Table 70: Kruskal-Wallis Test statistics (gender)

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	1.142	1	0.285
Age-attitudes scale	3.276	1	0.070
Learning new things scale	3.389	1	0.066
Personal interactions scale	5.752	1	0.016
Security perceptions scale	13.156	1	0.000
Customer services scale	32.208	1	0.000
Hardware requirements scale	1.603	1	0.205
Online banking convenience scale	20.607	1	0.000
a. Kruskal Wallis Test			
b. Grouping Variable: Gender			

Table 71: Median values of groups based on gender

Summated scales	Male	Female	Total
Budget management scale	2.3	2.2	2.3
Age attitudes scale	3.0	3.1	3.0
Learning new things scale	2.6	2.7	2.7
Personal interactions scale	3.0	3.1	3.0
Security perceptions scale	2.2	2.2	2.2
Customer service scale	3.3	3.5	3.3
Hardware requirements scale	3.3	3.3	3.3
Online banking convenience scale	2.6	2.6	2.6

Table 72: Kruskal-Wallis hypothesis test summary for education

	Hypothesis Test Summary		
	Null Hypothesis	Sig.	Decision
1	The distribution of Budget management scale is the same across categories of Education.	.000	Reject the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Education.	.000	Reject the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Education.	.000	Reject the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Education.	.000	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Education.	.000	Reject the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Education.	.000	Reject the null hypothesis.

7	The distribution of Hardware requirements scale is the same across categories of Education.	.000	Reject the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Education.	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 73: Mean ranks of the summated scales based on education

Ranks			
	Education	N	Mean Rank
Budget management scale	High school completion or equivalent	270	339.32
	Cert/Dip/Trade	92	414.52
	Bachelor's degree	171	406.16
	Master's degree	207	366.85
	Doctorate	9	637.00
	Total	749	
Age-attitudes scale	High school completion or equivalent	270	352.13
	Cert/Dip/Trade	92	375.00
	Bachelor's degree	171	356.95
	Master's degree	207	419.74
	Doctorate	9	375.00
	Total	749	
Learning new things scale	High school completion or equivalent	270	377.60
	Cert/Dip/Trade	92	461.87
	Bachelor's degree	171	361.50
	Master's degree	207	337.30
	Doctorate	9	532.50
	Total	749	
Personal interactions scale	High school completion or equivalent	270	412.10
	Cert/Dip/Trade	92	312.59
	Bachelor's degree	171	417.13
	Master's degree	207	320.91
	Doctorate	9	343.50
	Total	749	
Security perceptions scale	High school completion or equivalent	270	401.37
	Cert/Dip/Trade	92	417.41
	Bachelor's degree	171	363.08
	Master's degree	207	334.54
	Doctorate	9	307.50
	Total	749	

Customer services scale	High school completion or equivalent	270	401.83
	Cert/Dip/Trade	92	337.88
	Bachelor's degree	171	402.24
	Master's degree	207	340.50
	Doctorate	9	225.50
	Total	749	
Hardware requirements scale	High school completion or equivalent	270	397.03
	Cert/Dip/Trade	92	393.24
	Bachelor's degree	171	322.87
	Master's degree	207	386.89
	Doctorate	9	244.50
	Total	749	
Online banking convenience scale	High school completion or equivalent	270	403.87
	Cert/Dip/Trade	92	315.42
	Bachelor's degree	171	352.84
	Master's degree	207	377.04
	Doctorate	9	492.00
	Total	749	

Table 74: Kruskal-Wallis Test statistics (education)

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	41.307	4	0.000
Age-attitudes scale	30.843	4	0.000
Learning new things scale	35.519	4	0.000
Personal interactions scale	65.550	4	0.000
Security perceptions scale	25.139	4	0.000
Customer services scale	24.469	4	0.000
Hardware requirements scale	22.108	4	0.000
Online banking convenience scale	22.396	4	0.000
a. Kruskal Wallis Test			
b. Grouping Variable: Education			

Table 75: Median values of groups based on education

Summated scales	High school	Cert/ Dip /Trade	Bachelor	Master	Doctorate	Total
Budget management scale	2.2	2.3	2.2	2.3	2.4	2.3
Age attitudes scale	3.0	3.1	3.0	3.1	3.1	3.0
Learning new things scale	2.6	2.8	2.6	2.6	2.7	2.7
Personal interactions scale	3.1	3.0	3.1	3.0	2.9	3.0
Security perceptions scale	2.1	2.1	2.2	2.1	2.3	2.2
Customer service scale	3.5	3.5	3.3	3.3	3.3	3.3
Hardware requirements scale	3.3	3.3	3.3	3.3	3.3	3.3
Online banking convenience scale	2.7	2.6	2.6	2.6	2.8	2.6

Table 76: Kruskal-Wallis hypothesis test summary for employment status

	Null Hypothesis	Sig.	Decision
	Hypothesis Test Summary		
1	The distribution of Budget management scale is the same across categories of Employment Status.	.525	Retain the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Employment Status.	.000	Reject the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Employment Status.	.007	Reject the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Employment Status.	.019	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Employment Status.	.000	Reject the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Employment Status.	.001	Reject the null hypothesis.
7	The distribution of Hardware requirements scale is the same across categories of Employment Status.	.037	Reject the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Employment Status.	.592	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 77: Mean ranks of the summated scales based on employment status

Ranks	Employment Status	N	Mean Rank
Budget management scale	Student	666	377.96
	Paid part-time employment	92	390.65
	Total	758	
Age-attitudes scale	Student	666	393.59
	Paid part-time employment	92	277.52
	Total	758	
Learning new things scale	Student	666	372.56
	Paid part-time employment	92	429.73
	Total	758	
Personal interactions scale	Student	666	374.46
	Paid part-time employment	92	415.99
	Total	758	
Security perceptions scale	Student	666	364.74
	Paid part-time employment	92	486.38
	Total	758	
Customer services scale	Student	666	370.42
	Paid part-time employment	92	445.24
	Total	758	
Hardware requirements scale	Student	666	374.05
	Paid part-time employment	92	418.97
	Total	758	
Online banking convenience scale	Student	666	378.16
	Paid part-time employment	92	389.23
	Total	758	

Table 78: Kruskal-Wallis Test statistics (employment status)

Test Statistics[a,b]	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	0.404	1	0.525
Age-attitudes scale	54.183	1	0.000
Learning new things scale	7.393	1	0.007
Personal interactions scale	5.463	1	0.019
Security perceptions scale	39.056	1	0.000
Customer services scale	12.063	1	0.001
Hardware requirements scale	4.372	1	0.037
Online banking convenience scale	0.287	1	0.592
a. Kruskal Wallis Test			
b. Grouping Variable: Employment Status			

Table 79: Median values of groups based on employment status

Summated scales	Student	Part-time	Full-time	Self-employed	Retired	Total
Budget management scale	2.3	2.3	2.3	2.3	2.3	2.3
Age attitudes scale	3.0	3.0	3.1	3.1	2.9	3.0
Learning new things scale	2.6	2.6	2.6	2.7	2.7	2.7
Personal interactions scale	3.1	3.1	3.0	3.1	3.0	3.1
Security perceptions scale	2.2	2.3	2.1	2.2	2.1	2.2
Customer service scale	3.3	3.3	3.3	3.5	3.5	3.3
Hardware requirements scale	3.3	3.3	3.3	3.4	3.3	3.3
Online banking convenience scale	2.6	2.8	2.6	2.6	2.8	2.6

Table 80: Kruskal-Wallis hypothesis test summary for household income

Hypothesis Test Summary			
	Null Hypothesis	Sig.	Decision
1	The distribution of Budget management scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Household Income.	.003	Reject the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
7	The distribution of Hardware requirements scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Household Income.	.000	Reject the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 81: Mean ranks of the summated scales based on household income

Ranks			
	Household Income	N	Mean Rank
Budget management scale	$40,000 or less	461	360.29
	$ 40,001 - $70,000	45	419.50
	$ 70,001 - $100,000	27	271.50
	$100,001 or more	54	456.50
	Total	607	
Age-attitudes scale	$40,000 or less	461	386.28
	$ 40,001 - $70,000	45	379.50
	$ 70,001 - $100,000	27	379.50
	$100,001 or more	54	437.42
	Total	607	
Learning new things scale	$40,000 or less	461	373.87
	$ 40,001 - $70,000	45	463.90
	$ 70,001 - $100,000	27	240.83
	$100,001 or more	54	354.25
	Total	607	
Personal interactions scale	$40,000 or less	461	397.69
	$ 40,001 - $70,000	45	283.90
	$ 70,001 - $100,000	27	357.00
	$100,001 or more	54	405.92
	Total	607	
Security perceptions scale	$40,000 or less	461	386.87
	$ 40,001 - $70,000	45	325.50
	$ 70,001 - $100,000	27	430.83
	$100,001 or more	54	312.00
	Total	607	
Customer services scale	$40,000 or less	461	388.13
	$ 40,001 - $70,000	45	442.10
	$ 70,001 - $100,000	27	345.83
	$100,001 or more	54	466.17
	Total	607	
Hardware requirements scale	$40,000 or less	461	389.87
	$ 40,001 - $70,000	45	272.40
	$ 70,001 - $100,000	27	480.67
	$100,001 or more	54	268.50
	Total	607	
Online banking convenience scale	$40,000 or less	461	394.32
	$ 40,001 - $70,000	45	277.20
	$ 70,001 - $100,000	27	335.67
	$100,001 or more	54	435.58
	Total	607	

Table 82: Kruskal-Wallis Test statistics (household income)

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	33.309	4	0.000
Age-attitudes scale	21.451	4	0.000
Learning new things scale	27.363	4	0.000
Personal interactions scale	29.603	4	0.000
Security perceptions scale	15.779	4	0.003
Customer services scale	34.649	4	0.000
Hardware requirements scale	42.102	4	0.000
Online banking convenience scale	25.781	4	0.000
a. Kruskal Wallis Test			
b. Grouping Variable: Household Income			

Table 83: Median values of groups based on household income

Summated scales	$40,000 or less	$ 40,001 - $70,000	$ 70,001 - $100,000	$100,001 or more	Total
Budget management scale	2.2	2.2	2.3	2.3	2.3
Age attitudes scale	3.0	3.0	3.1	3.1	3.0
Learning new things scale	2.7	2.7	2.7	2.6	2.7
Personal interactions scale	3.1	3.1	2.9	3.1	3.0
Security perceptions scale	2.1	2.2	2.2	2.2	2.2
Customer service scale	3.3	3.3	3.5	3.5	3.3
Hardware requirements scale	3.3	3.3	3.3	3.5	3.3
Online banking convenience scale	2.6	2.6	2.6	2.6	2.6

Table 84: Kruskal-Wallis hypothesis test summary for marital status

	Hypothesis Test Summary		
	Null Hypothesis	Sig.	Decision
1	The distribution of Budget management scale is the same across categories of Marital status.	.029	Reject the null hypothesis.
2	The distribution of Age-attitudes scale is the same across categories of Marital status.	.033	Reject the null hypothesis.
3	The distribution of Learning new things scale is the same across categories of Marital status.	.696	Retain the null hypothesis.
4	The distribution of Personal interactions scale is the same across categories of Marital status.	.005	Reject the null hypothesis.
5	The distribution of Security perceptions scale is the same across categories of Marital status.	.208	Retain the null hypothesis.
6	The distribution of Customer services scale is the same across categories of Marital status.	.061	Retain the null hypothesis.
7	The distribution of Hardware requirements scale is the same across categories of Marital status.	.783	Retain the null hypothesis.
8	The distribution of Online banking convenience scale is the same across categories of Marital status.	.073	Retain the null hypothesis.
Asymptotic significances are displayed. The significance level is .050.			

Table 85: Mean ranks of the summated scales based on marital status

	Ranks		
	Marital status	N	Mean Rank
Budget management scale	Never married	188	350.99
	Married/partnered	393	315.44
	Divorced / Separated	17	278.88
	Widowed	51	318.27
	Total	649	
Age-attitudes scale	Never married	188	312.79
	Married/partnered	393	335.28
	Divorced / Separated	17	312.29
	Widowed	51	295.03
	Total	649	
Learning new things scale	Never married	188	327.81
	Married/partnered	393	320.87
	Divorced / Separated	17	317.68
	Widowed	51	348.91
	Total	649	
Personal interactions scale	Never married	188	294.68
	Married/partnered	393	336.70
	Divorced / Separated	17	336.59
	Widowed	51	342.72
	Total	649	

	Never married	188	342.12
	Married/partnered	393	315.58
Security perceptions scale	Divorced / Separated	17	320.06
	Widowed	51	336.14
	Total	649	
Customer services scale	Never married	188	344.77
	Married/partnered	393	319.84
	Divorced / Separated	17	242.21
	Widowed	51	319.46
	Total	649	
Hardware requirements scale	Never married	188	323.10
	Married/partnered	393	329.04
	Divorced / Separated	17	304.32
	Widowed	51	307.74
	Total	649	
Online banking convenience scale	Never married	188	306.64
	Married/partnered	393	326.69
	Divorced / Separated	17	355.32
	Widowed	51	369.57
	Total	649	

Table 86: Kruskal-Wallis Test statistics (Marital status)

Test Statistics[a,b]			
	Kruskal-Wallis H	df	Asymp. Sig.
Budget management scale	9.008	3	0.029
Age-attitudes scale	8.755	3	0.033
Learning new things scale	1.442	3	0.696
Personal interactions scale	12.844	3	0.005
Security perceptions scale	4.552	3	0.208
Customer services scale	7.354	3	0.061
Hardware requirements scale	1.076	3	0.783
Online banking convenience scale	6.980	3	0.073
a. Kruskal Wallis Test			
b. Grouping Variable: Marital status			

Table 87: Median values of groups based on marital status

Summated scales	Never married	Married or partnered	Divorced or separated	Widowed	Total
Budget management scale	2.3	2.3	2.3	2.2	2.3
Age attitudes scale	3.0	3.1	3.0	3.1	3.0
Learning new things scale	2.6	2.6	2.7	2.9	2.7
Personal interactions scale	3.1	3.0	2.7	3.1	3.0
Security perceptions scale	2.2	2.1	2.1	2.1	2.2
Customer service scale	3.3	3.3	3.3	3.5	3.3
Hardware requirements scale	3.3	3.3	3.5	3.3	3.3
Online banking convenience scale	2.6	2.6	2.8	2.6	2.6

Appendix 14: Ordinal regression output

Table 88: Ordinal regression output for summated scale: "Budget management"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	529.585			
Final	419.329	110.256	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	363.738	174	.000
Deviance	354.257	174	.000
Link function: Logit.			

Parameter Estimates		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[strongly agree]	-25.27	1.40	325.11	0.00	-28.02	-22.52
	[agree]	-19.39	1.38	197.53	0.00	-22.09	-16.69
Location	[Age=15-19 years]	-0.41	0.63	0.43	0.51	-1.66	0.83
	[Age=20-29]	**-1.39**	0.58	5.74	**0.02**	-2.53	-0.25
	[Age=30-39]	-0.49	0.62	0.63	0.43	-1.70	0.72
	[Gender=Male]	0.87	1.14	0.59	0.44	-1.37	3.11
	[Gender=Female]	0.48	1.14	0.18	0.67	-1.75	2.71
	[Education=High school]	**-20.51**	0.34	3596.18	**0.00**	-21.18	-19.84
	[Education=Cert/Dip/Trade]	**-19.43**	0.37	2694.27	**0.00**	-20.17	-18.70
	[Education= Bachelor]	**-19.23**	0.25	6135.05	**0.00**	-19.71	-18.75
	[Income=$40,000 or less]	**-0.69**	0.24	8.44	**0.00**	-1.16	-0.23
	[Income=$40,001-$70,000]	**-0.89**	0.51	3.07	**0.08**	-1.89	0.11
	[Income=$70,001- $100,000]	**-2.35**	0.67	12.32	**0.00**	-3.67	-1.04
	[Income=$100,001 or more]	-0.03	0.39	0.01	0.93	-0.80	0.73
	[Maritalstatus=Never married]	0.71	0.42	2.86	0.09	-0.11	1.54
	[Maritalstatus=Married/partnered]	0.04	0.41	0.01	0.92	-0.75	0.84
	[Maritalstatus=Divorced/separated]	**-1.82**	0.91	4.01	**0.05**	-3.60	-0.04

Link function: Logit

Model: (Threshold), age, gender, education, household income, marital status

Dependent Variable: Budget management (summated scale)

Degree of freedom (df): 1

Lower and upper bound figures are at 95% confidence interval

Redundant parameters were set to zero and have been removed

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	419.329			
General	359.562	59.767	16	.000
Link function: Logit.				

Table 89: Ordinal regression output for summated scale: "Age-related attitudes"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	449.922			
Final	375.686	74.235	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	475.727	174	.000
Deviance	329.436	174	.000
Link function: Logit.			

Parameter Estimates							
		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[agree]	-1.68	1.85	0.82	0.37	-5.31	1.95
	[neither agree nor disagree]	4.30	1.87	5.31	0.02	0.64	7.96
Location	[Age=15-19 years]	**1.67**	0.84	4.02	**0.05**	0.04	3.31
	[Age=20-29]	0.71	0.77	0.85	0.36	-0.80	2.21
	[Age=30-39]	1.12	0.83	1.83	0.18	-0.50	2.74
	[Gender=Male]	-1.22	1.16	1.11	0.29	-3.48	1.05
	[Gender=Female]	-0.39	1.15	0.12	0.73	-2.64	1.86
	[Education=High school]	-0.74	1.20	0.38	0.54	-3.10	1.62
	[Education=Cert/Dip/Trade]	1.22	1.24	0.97	0.32	-1.21	3.65
	[Education=Bachelor]	-0.87	1.20	0.53	0.47	-3.22	1.48
	[Education=Master]	0.70	1.20	0.34	0.56	-1.65	3.06
	[Income=$40,000 or less]	**0.65**	0.31	4.23	**0.04**	0.03	1.26
	[Income=$40,001-$70,000]	0.60	0.64	0.88	0.35	-0.66	1.86
	[Income=$70,001- $100,000]	0.53	0.63	0.70	0.40	-0.71	1.76
	[Income=$100,001 or more]	**1.60**	0.49	10.71	**0.00**	0.64	2.55
	[Maritalstatus =Never married]	0.58	0.49	1.41	0.24	-0.38	1.55
	[Maritalstatus=Married/partnered]	**1.15**	0.48	5.78	**0.02**	0.21	2.08
	[Maritalstatus=Divorced/separated]	0.70	0.87	0.65	0.42	-1.00	2.39
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Age-related attitudes (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	375.686			
Final	293.303	82.383	16	.000
a. Link function: Logit.				

Table 90: Ordinal regression output for summated scale: "Learning new things"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	593.918			
Final	485.669	108.249	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	435.913	174	.000
Deviance	399.582	174	.000
Link function: Logit.			

Parameter Estimates		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[strongly agree]	-52.00	1327.24	0.00	0.97	-2653.34	2549.34
	[agree]	-48.80	1327.24	0.00	0.97	-2650.14	2552.54
Location	[Age=15-19 years]	-14.18	756.49	0.00	0.99	-1496.86	1468.51
	[Age=20-29]	-15.45	756.49	0.00	0.98	-1498.13	1467.24
	[Age=30-39]	-15.69	756.49	0.00	0.98	-1498.38	1466.99
	[Gender=Male]	**-16.59**	0.20	6723.93	**0.00**	-16.98	-16.19
	[Gender=Female]	-16.76	0.00	.	.	-16.76	-16.76
	[Education= High school]	-16.19	1090.55	0.00	0.99	-2153.63	2121.24
	[Education=Cert/Dip/Trade]	-14.23	1090.55	0.00	0.99	-2151.67	2123.20
	[Education=Bachelor]	-15.64	1090.55	0.00	0.99	-2153.07	2121.80
	[Education=Master]	-15.74	1090.55	0.00	0.99	-2153.17	2121.69
	[Income=$40,000 or less]	**-0.69**	0.23	9.00	**0.00**	-1.13	-0.24
	[Income=$40,001-$70,000]	-0.29	0.49	0.35	0.55	-1.25	0.67
	[Income=$70,001-$100,000]	**-2.49**	0.46	28.78	**0.00**	-3.40	-1.58
	[Income=$100,001 or more]	**-0.93**	0.37	6.25	**0.01**	-1.66	-0.20
	[Maritalstatus=Never married]	-0.41	0.37	1.25	0.26	-1.13	0.31
	[Maritalstatus=Married/partnered]	-0.33	0.34	0.92	0.34	-1.00	0.34
	[Maritalstatus=Divorced/separated]	-0.57	0.63	0.83	0.36	-1.81	0.66
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Learning new things (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	485.669			
General	268.384	217.285	16	.000
Link function: Logit.				

Table 91: Ordinal regression output for summated scale: Personal Interactions

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	751.824			
Final	545.575	206.249	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	1534.343	269	.000
Deviance	511.752	269	.000
Link function: Logit.			

Parameter Estimates		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[agree]	-2.97	1.52	3.83	0.05	-5.95	0.01
	[neither agree nor disagree]	2.85	1.54	3.42	0.06	-0.17	5.87
	[Personalinteractions= disagree]	5.75	1.54	13.88	0.00	2.72	8.77
Location	[Age=15-19 years]	**3.29**	0.68	23.14	**0.00**	1.95	4.63
	[Age=20-29]	**2.91**	0.62	21.81	**0.00**	1.69	4.14
	[Age=30-39]	**3.43**	0.69	24.68	**0.00**	2.08	4.79
	[Gender=Male]	**-2.89**	0.76	14.34	**0.00**	-4.38	-1.39
	[Gender=Female]	**-3.01**	0.75	16.27	**0.00**	-4.48	-1.55
	[Education=High school]	-0.58	1.16	0.25	0.62	-2.86	1.70
	[Education=Cert/Dip/Trade]	-2.05	1.21	2.88	0.09	-4.43	0.32
	[Education=Bachelor]	0.02	1.16	0.00	0.99	-2.24	2.28
	[Education=Master]	**-2.31**	1.17	3.88	**0.05**	-4.60	-0.01
	[Income=$40,000 or less]	**2.31**	0.32	50.83	**0.00**	1.68	2.95
	[Income=$40,001-$70,000]	0.45	0.54	0.69	0.41	-0.61	1.50
	[Income=$70,001-$100,000]	1.31	0.56	5.57	**0.02**	0.22	2.40
	[Income=$100,001 or more]	**2.61**	0.48	29.68	**0.00**	1.67	3.55
	[Maritalstatus=Never married]	**-1.12**	0.43	6.95	**0.01**	-1.96	-0.29
	[Maritalstatus=Married/ partnered]	0.06	0.40	0.03	0.87	-0.71	0.84
	[Maritalstatus=Divorced/ separated]	-0.01	0.75	0.00	0.99	-1.48	1.45
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Personal interactions (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	545.575			
Final	4388.537[a]	.[b]	32	.
a. The log-likelihood value cannot be further increased after maximum number of step-halving.				
b. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.				

Table 92: Ordinal regression output for summated scale: "Security perceptions"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	622.362			
Final	477.770	144.592	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	412.311	174	.000
Deviance	418.380	174	.000
Link function: Logit.			

Parameter Estimates							
		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[strongly agree]	-4.42	1.55	8.15	0.00	-7.45	-1.38
	[agree]	0.49	1.53	0.10	0.75	-2.51	3.49
Location	[Age=15-19 years]	0.11	0.71	0.02	0.88	-1.28	1.49
	[Age=20-29]	**-1.74**	0.68	6.55	**0.01**	-3.07	-0.41
	[Age=30-39]	0.16	0.71	0.05	0.82	-1.23	1.55
	[Gender=Male]	0.93	0.96	0.93	0.33	-0.95	2.81
	[Gender= Female]	0.09	0.95	0.01	0.92	-1.77	1.96
	[Education=High school]	0.35	0.98	0.13	0.72	-1.58	2.27
	[Education=Cert/Dip/Trade]	-0.57	1.02	0.31	0.58	-2.57	1.43
	[Education=Bachelor]	0.29	0.97	0.09	0.76	-1.60	2.19
	[Education=Master]	-0.03	0.98	0.00	0.97	-1.95	1.88
	[Income=$40,000 or less]	-0.38	0.25	2.28	0.13	-0.87	0.11
	[Income =$40,001-$70,000]	**-2.96**	0.51	33.43	**0.00**	-3.96	-1.95
	[Income =$70,001-$100,000]	0.53	0.48	1.18	0.28	-0.42	1.47
	[Income =$100,001 or more]	**-1.04**	0.43	5.75	**0.02**	-1.89	-0.19
	[Maritalstatus =Never married]	-0.08	0.38	0.05	0.83	-0.83	0.67
	[Maritalstatus =Married/ partnered]	-0.37	0.36	1.02	0.31	-1.08	0.34
	[Maritalstatus =Divorced/ separated]	-0.22	0.69	0.10	0.75	-1.56	1.13
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Security perceptions (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	477.770			
General	333.869	143.901	16	.000
Link function: Logit.				

Table 93: Ordinal regression output for summated scale: "Customer Service"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	755.770			
Final	615.388	140.382	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	684.573	174	.000
Deviance	544.541	174	.000
Link function: Logit.			

Parameter Estimates		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[agree]	-1.235	1.260	.961	.327	-3.705	1.234
	[neither agree nor disagree]	2.482	1.266	3.844	.050	.001	4.962
Location	[Age=15-19 years]	-.656	.608	1.166	.280	-1.847	.535
	[Age=20-29]	-1.037	.572	3.290	.070	-2.158	.084
	[Age=30-39]	.427	.615	.481	.488	-.779	1.632
	[Gender=Male]	**2.637**	.797	10.961	**.001**	1.076	4.199
	[Gender=Female]	1.560	.781	3.986	.046	.029	3.092
	[Education=High school]	-.058	.792	.005	.941	-1.611	1.494
	[Education=Cert/Dip/Trade]	-1.431	.836	2.930	.087	-3.069	.207
	[Education=Bachelor]	-.197	.786	.063	.802	-1.738	1.344
	[Education=Master]	-1.058	.794	1.775	.183	-2.615	.499
	[Income =$40,000 or less]	**1.321**	.229	33.252	**.000**	.872	1.770
	[Income =$40,001-$70,000]	**1.403**	.436	10.353	**.001**	.548	2.258
	[Income =$70,001-$100,000]	.945	.451	4.394	.036	.061	1.829
	[Income=$100,001 or more]	**2.155**	.401	28.900	**.000**	1.370	2.941
	[Maritalstatus=Never married]	.606	.351	2.984	.084	-.082	1.293
	[Maritalstatus=Married/ partnered]	.440	.330	1.781	.182	-.206	1.087
	[Maritalstatus= Divorced/ separated]	-.570	.611	.870	.351	-1.768	.628
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Customer service (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	615.388			
Final	539.698	75.689	16	.000
Link function: Logit.				

Table 94: Ordinal regression output for summated scale: "Hardware requirements"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	814.798			
Final	700.043	114.755	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	753.459	269	.000
Deviance	608.865	269	.000
Link function: Logit.			

Parameter Estimates							
		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[agree]	-5.572	1.250	19.869	.000	-8.022	-3.122
	[neither agree nor disagree]	-1.732	1.240	1.952	.162	-4.163	.698
	[Hardware= disagree]	1.159	1.231	.886	.347	-1.254	3.572
Location	[Age=15-19 years]	**-1.305**	.608	4.613	**.032**	-2.496	-.114
	[Age=20-29]	**-1.704**	.573	8.855	**.003**	-2.827	-.582
	[Age=30-39]	**-1.226**	.608	4.067	**.044**	-.417	-.034
	[Gender=Male]	**-2.490**	.725	11.807	**.001**	-3.911	-1.070
	[Gender=Female]	**-2.190**	.714	9.404	**.002**	-3.590	-.790
	[Education=High school]	**1.815**	.817	4.930	**.026**	.213	3.417
	[Education=Cert/Dip/Trade]	**2.382**	.851	7.841	**.005**	.715	4.050
	[Education=Bachelor]	1.348	.810	2.770	.096	-.239	2.936
	[Education=Master]	**2.297**	.819	7.875	**.005**	.693	3.902
	[Income=$40,000 or less]	**-0.576**	.212	7.413	**.006**	-.991	-.161
	[Income=$40,001-$70,000]	**-3.213**	.470	46.634	**.000**	-4.135	-2.291
	[Income =$70,001-$100,000]	.613	.427	2.061	.151	-.224	1.449
	[Income =$100,001 or more]	**-1.926**	.402	22.954	**.000**	-2.715	-1.138
	[Maritalstatus =Never married]	.171	.342	.248	.618	-.500	.841
	[Maritalstatus=Married/ partnered]	.274	.323	.716	.397	-.360	.907
	[Maritalstatus =Divorced/ separated]	.180	.588	.093	.760	-.974	1.333
Link function: Logit							
Model: (Threshold), age, gender, education, household income, marital status							
Dependent Variable: Hardware requirements (summated scale)							
Degree of freedom (df): 1							
Lower and upper bound figures are at 95% confidence interval							
Redundant parameters set to zero have been removed							

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	700.043			
Final	470.890[a]	229.153	32	.000
Link function: Logit.				
a. The log-likelihood value cannot be further increased after maximum number of step-halving.				
b. The Chi-Square statistic is computed based on the log-likelihood value of the last iteration of the general model. Validity of the test is uncertain.				

Table 95: Ordinal regression output for summated scale: "Online banking convenience"

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	731.543			
Final	617.035	114.508	16	.000
Link function: Logit.				

Goodness-of-Fit			
	Chi-Square	df	Sig.
Pearson	794.276	174	.000
Deviance	554.721	174	.000
Link function: Logit.			

Parameter Estimates		Estimate	Std. Error	Wald	Sig.	Lower Bound	Upper Bound
Threshold	[agree]	-4.460	1.331	11.228	.001	-7.070	-1.851
	[neither agree nor disagree]	-.374	1.312	.081	.776	-2.945	2.197
Location	[Age=15-19 years]	.397	.597	.442	.506	-.773	1.568
	[Age=20-29]	-.555	.554	1.002	.317	-1.641	.531
	[Age=30-39]	**-2.177**	.608	12.818	**.000**	-3.369	-.985
	[Gender=Male]	**-1.669**	.831	4.038	**.044**	-3.297	-.041
	[Gender=Female]	-1.354	.821	2.719	.099	-2.964	.256
	[Education=High school]	-1.436	.849	2.859	.091	-3.100	.228
	[Education=Cert/Dip/ Trade]	**-2.569**	.891	8.315	**.004**	-4.315	-.823
	[Education=Bachelor]	-1.233	.844	2.136	.144	-2.887	.421
	[Education=Master]	-.706	.850	.689	.407	-2.372	.961
	[Income =$40,000 or less]	.099	.225	.195	.659	-.342	.540
	[Income =$40,001-70,000]	**-1.325**	.438	9.136	**.003**	-2.185	-.466
	[Income =$70,001-100,000]	-.825	.448	3.385	.066	-1.703	.054
	[Income =$100,001 or more]	.488	.402	1.479	.224	-.299	1.275
	[Maritalstatus=Never married]	**-.782**	.367	4.555	**.033**	-1.501	-.064
	[Maritalstatus= Married/ partnered]	-.601	.347	2.994	.084	-1.281	.080
	[Maritalstatus =Divorced/ separated]	-.324	.629	.265	.606	-1.556	.908

Link function: Logit

Model: (Threshold), age, gender, education, household income, marital status

Dependent Variable: Online banking convenience (summated scale)

Degree of freedom (df): 1

Lower and upper bound figures are at 95% confidence interval

Redundant parameters set to zero have been removed

Test of Parallel Lines[a]				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Null Hypothesis	617.035			
General	.000[a]	617.035	16	.000
The null hypothesis states that the location parameters (slope coefficients) are the same across response categories.				
Link function: Logit.				
a. The log-likelihood value is practically zero. There may be a complete separation in the data. The maximum likelihood estimates do not exist.				

Appendix 15: Multicollinearity diagnostics

Table 96: Collinearity statistics between constructs obtained from principal component analysis

Coefficients[a]				
Iteration	**Independent Factors**	**Dependent Factor**	**Collinearity Statistics**	
			Tolerance	**VIF**
1	Age-related attitudes (F4)	Online banking barriers (F1)	0.99	1.01
	Personal interactions (F3)		0.99	1.01
	Budget management (F2)		1.00	1.00
2	Online banking barriers (F1)	Budget management (F2)	0.98	1.02
	Age-related attitudes (F4)		0.99	1.01
	Personal interactions (F3)		0.98	1.02
3	Online banking barriers (F1)	Personal interactions (F3)	1.00	1.01
	Budget management (F2)		1.00	1.00
	Age-related attitudes (F4)		1.00	1.00
4	Online banking barriers (F1)	Age-related attitudes (F4)	0.98	1.02
	Budget management (F2)		1.00	1.00
	Personal interactions (F3)		0.98	1.02

Note: All tolerance values are greater than 0.1, so it can be said with confidence that there are no collinearity issues found in this data set. No factors have a VIF (Variance Inflation Factor) value greater than 3. Smaller values represent more reliable estimates.