How Māori Support Whānau to Promote Digital Inclusion

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Abstract

The Digital Inclusion Blueprint Te Mahere mō te Whakaurunga Matihiko, seeks to ensure that all New Zealanders can participate in, contribute to, and benefit from, the digital world. One in five New Zealanders face barriers to digital inclusion and for Māori the challenges have been more substantial. By examining the digital interactions and experiences within Māori households, educators, researchers and policymakers may gain valuable insights that can inform and guide initiatives and policy to promote digital inclusion and equitable access to technology within the Māori community. Digital literacy is a keystone skill set, equipping individuals with the knowledge and ability to navigate, critically engage with, and leverage digital technologies effectively. This research explores how whānau in five Māori households navigate the use of digital technologies in learning and everyday life. The project explores barriers and enablers that support the use of digital technologies, in relation to key concepts in digital inclusion, as highlighted in the Digital Inclusion Blueprint Te Mahere mō te Whakaurunga Matihiko. It also explores the extent of how social relationships contribute to digital inclusion for Māori, specifically looking at how rangatahi (youth) support pākeke (adults) and kaumātua (older people) with digital technologies. The research uncovers the crucial role that rangatahi play in assisting pākeke and kaumātua, showcasing the impact of intergenerational connections as a key component of digital inclusion. In particular, the concept of 'mā te ariki, mā te tauira' emerges as a significant driver of digital inclusion within the Māori community, as younger generations often act as digital mentors, bridging the digital gap for their elders. Key recommendations emerging from this research include ways of empowering tamariki and rangatahi to educate and assist pākeke, kaumātua, and fellow whānau members in enhancing their digital literacy skills. This includes adopting a coaching approach and involving Māori across all generations in the co-design and development of culturally responsive support programs and resources, which would ensure that interventions address their specific needs, values, and aspirations, leading to more effective outcomes in the Māori community.

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Hei mihi

Ki te taha o tōku māmā

Ko Tainui tōku Waka

Ko Mōkau tōku Marae

Ko Kakepuku tōku Maunga

Ko Waikato tōku Awa

Ko Ngāti Maniapoto tōku Iwi

Ko Susan tōku Māmā

Ko Ady tōku Papa

Ko Aidee taku Pepi

Nō reira, tēnā koutou, tēnā koutou, tēnā tatou katoa

Contents

Glossary

To ensure that the reader is comfortable with the translation of the Māori terms used interchangeably throughout this text, a glossary has been included. Additionally, while there may be some variances to the kupu mentioned based on different dialects or dictionaries used, the terms given are as I perceive the translation to be and in the context of this thesis.

Kupu or word	Translation
Māori	Indigenous New Zealander
Pākeke	Adult
Tamariki	Child
Rangatahi	Teenager
Kaumātua	Elder
Mā te Ariki, mā te tauira	As we are chiefs, we are students (Dr. Rangihoua)
Whānau	Family, extended family
Aotearoa	New Zealand
Mana	status, a supernatural force in a person, place or object
Kaupapa	Topic, purpose
Tā moko	Tattoo
Kūmara	Sweet potato
Taiaō	World, Earth, natural world
Tino Rangatiratangā	self-determination, sovereignty, autonomy
Waka	Canoe
Wharenui	Meeting house
Tāonga	Treasure
Rongoā	Healing
Tīkanga	correct procedure, custom
Te Ao Māori	The Māori world
Mātauranga	Knowledge, wisdom
Tuakana	elder brother (of a male), elder sister (of a female), cousin
Teina	younger brother (of a male), younger sister (of a female), cousin
Koha	Gift
Kōrero mai	Talk to me
Aroha ki te tangata	Respect for the people you are working with
Whakapapa	Geneology
Manaakkitanga	Caring

Karakia	Prey
Kanohi kiteā	The seen face
Titiro whakarongo kōrero	Look and listen first: speak later
Manaaki ki te tangatā	Be generous in sharing with the hosting people
Kaua e takahia te mana o te tangata	Take care not to trample on the mana of people
Kia Tūpato	Be Cautious
Kaua e māhaki	Do not flaunt your knowledge
Kai	Food
Hui	Meeting
Kōrero	Speak
Kuia	Elder female
Kaka	Slang
Mokopuna (Moko)	Grandchild
Kanohi ki te kanohi	Face to face
Mahi	Work
hōhā	Grumpy
Tutu	Playing with
Wāhine	Woman
Hauora	Wellbeing
Whare	House
Akō	To learn
Whānaungatanga	relationship, kinship, sense of family connection
Tangata Whenua	People of the land
Kainga	Home
Kupu	Word
Te Whare Tapa Whā	Well-being as a meeting house

Chapter 1. Introduction

Whāia te mātauranga, me te wheako hoki.

Seek knowledge and experience.

I am opening this thesis, and each chapter, with a whakatauki. A whakataukī is a Māori proverb with unknown origins. I find this important as each whakatauki captures the essence of what will be discussed in the chapter.

1.1 Overview

Living in the digital age means we are deeply involved in a world where digital technology shapes and influences many parts of our daily lives, changing how we live (Digital Inclusion Research Group, 2017). In this digital world, acquiring the skills to effectively use information, communicate, and engage in meaningful social interactions is crucial, as being digitally literate is essential for success in a technology-dominated world. In Aotearoa New Zealand, Māori and Pacifica people experience disparities in several areas, including health, education, and economic well-being, leading to unequal outcomes (OCED, 2019). Additionally, these communities encounter obstacles in accessing digital technologies compared to other ethnic groups (Digital inclusion Research Group, 2017; Grimes & White, 2019; CAB, 2020; DIA, 2021). Digital inclusion is more than just having access to digital technologies; it includes the motivation to want to use the technology, skills or competencies to use technology successfully, and the ability to trust the information while knowing how to stay safe online (DIA, 2019). Digital inclusion refers to "an end-state where everyone has equitable opportunities to participate in society using digital technologies" (DIA, 2019, p. 7),

This research aimed to challenge deficit narratives in indigenous digital inclusion studies by investigating the digital experiences of Māori whānau. This project adopts a collective approach to digital inclusion. It seeks to understand how social relationships within whānau groups foster digital inclusion, sharing both their successes and challenges with technology and to honor their

experiences and uplift their mana. I used kaupapa Māori principles to guide the methodology of this research which was complemented with a Western-oriented qualitative approach. Participants included ten individuals from five whānau groups, each consisting of two members. I recruited my participants through my own personal relationships and through Awarua Whānau Services, a health and social service for Māori, situated in Invercargill. The data was gathered through a combination of semi-structured interviews and observations and were analysed using thematic analysis. The study intends to influence policy development and community initiatives by highlighting positive experiences and identifying digital needs and challenges of Māori whānau. By recognising the significance of social relationships within whānau groups, this project aims to highlight how Māori support each other to promote digital inclusion. Lastly, sharing the experiences of Māori whānau can empower these communities and encourage increased engagement with digital technologies, laying the groundwork for future projects to promote tino rangatiratanga (United Nations, 2007) using digital technology tools.

1.2 Brief Historical Context

Māori have a history of technological innovation and adoption with the incorporation of tools and technology evolving over centuries within Māori society (Mead, 2016). New Zealand's indigenous population is believed to have arrived in Aotearoa around the 13th century, with some estimations suggesting even earlier (Brooking 2004). Their remarkable journey to Aotearoa showcased their mastery of advanced navigation techniques, including celestial navigation and waka construction (Hikuroa, 2017). Their tools, initially made from stone and bone enabled the creation of carvings found on waka, meeting houses, and decorative taonga, along with traditional weapons and tools, vital for hunting, defense, and daily life. Māori practiced agriculture and horticulture, cultivating crops like kūmara, taro, and yams.

The way Māori have embraced technology is woven into cultural practices, such as the intricate art of tā moko, involving tattooing designs onto the skin. Additionally, traditional healing

methods, known as rongoā, draw on the deep-rooted knowledge of medicinal plants and techniques for treating illnesses and injuries (Hikuroa, 2017).

The arrival of European settlers in the early 19th century marked a turning point in Māori culture as Māori had to adapt to new technologies (Brooking, 2004). The fast growth of digital technologies presents new challenges for Māori and indigenous groups in using these resources while preserving tīkanga. The Māori community adopted the Internet quickly with the potential to have increased access to information, authentic Māori representation, collaboration with other indigenous communities, language revival, and knowledge sharing (Keegan & Sciascia, 2018). Understanding the nuances of Māori digital practices in contemporary times is at the heart of this project.

1.3 Significance of the study

Māori have been identified as a group that is less digitally included than the general population (Digital Inclusion Research Group, 2017; Grimes & White, 2019; CAB, 2020; DIA, 2021). This study aims to acknowledge the connection between digital inclusion and Māori individuals and their whānau. Access to digital resources is integral for education, employment, healthcare and communication (InternetNZ, 2018), however the ongoing digitisation of services – both public and private – has led to an increased risk of being or becoming digitally excluded (Helsper & Reisdorf, 2016; Anrijs et al., 2023). Understanding how Māori communities support their whānau in navigating this digital landscape is crucial as technology continues to reshape the way we interact with the world. There is little literature surrounding Māori experiences of digital technology, specifically how Māori navigate support for using technology. This study offers insights into how Māori support their whānau with digital inclusion, identifying the barriers and enablers for the use of digital devices. Digital inclusion is multifaceted, and Māori individuals often encounter multiple barriers when it comes to utilising digital devices (CAB, 2020). The New Zealand government defined digital inclusion as "all of us having what we need to participate in, contribute to, and benefit from the digital world" (DIA, 2019, p.9) a concept introduced in the

publication "Te Mahere mō te Whakaurunga Matihiko" (The Digital Inclusion Blueprint). The blueprint outlines four fundamental pillars of digital inclusion, being: motivation, access, skills and trust (p.10).

These four elements form the foundation for achieving digital inclusion, not only for Māori but for all individuals. The present study highlights how these four elements appear within five different Māori households. By understanding how Māori support digital inclusion, stakeholders can work together to develop targeted initiatives, policies, and resources that address the unique needs of these communities leading to a more inclusive, equitable, and digitally empowered society for all.

1.4 Personal Rationale

My research into digital inclusion among Māori households was motivated by a range of factors. At the core, it's driven by a deep commitment to Māori culture and community well-being, with the belief that digital inclusion can empower and uplift the Māori community in the modern digital age. I was also concerned with the existing digital inequalities between Māori communities and the general population and recognised the need for equitable access to digital resources and opportunities for Māori. I have witnessed the challenges Māori individuals and households face when it comes to accessing and utilising digital technologies and wanted to explore how younger rangatahi and tamariki support others in their homes and their networks with digital technologies. I currently work for Awarua Whānau Services, a kaupapa Māori Health and Social Service situated in Invercargill. I wanted to give back and make a meaningful contribution to the community I work with and alongside. Advocating for policies and initiatives that promote digital inclusion and equitable access to technology for marginalised communities seems important because the current New Zealand research is limited. There also seems to be a gap in understanding the specific challenges and opportunities Māori whānau encounter, when using and accessing digital technologies, and I hope to contribute to filling this gap. Ultimately, this research is guided by a genuine desire to enhance the overall well-being and quality of life for Māori individuals and whānau, recognising the crucial role of digital literacy and supporting our

rangatahi to support others. Furthermore, my motivation for conducting this research was to see if there were differences between this research and current literature, the participants' experiences, and my own personal views.

1.5 Research Objectives

The purpose of this research is to explore how social relationships promote digital inclusion. In adopting an indigenous methodology (in combination with a western qualitative approach), the research project intended to lift the mana of the participants by sharing their stories of digital technology use in their daily lives as well as the struggles they experience with technology. One in five New Zealanders experience digital exclusion or face some barriers accessing digital devices and for Māori, the risks are substantial (DIA, 2021). The recent impact of COVID-19 on Māori reminds people what's at stake when the online world becomes the sole means of communicating, learning, accessing vital services and information, and doing business (Akuhato-Huntington, 2020; DIA, 2021). Therefore, it is important to explore how whānau are already navigating the digital world, and identify support networks Māori can access to improve digital inclusion for themselves and for their whānau.

The research aims are:

1. To identify enablers and barriers that influence digital inclusion for Māori whānau, providing insights into the factors that facilitate or hinder their access to, and effective use of, digital technologies.
2. To understand the impact of social relationships on digital inclusion among Māori households, examining the extent to which they contribute to digital inclusion.
3. To explore the intergenerational dynamics and support mechanisms within Māori communities, focusing on how tamariki/rangatahi, pākeke, and kaumātua collaborate and assist each other in achieving digital inclusion.

1.7 Thesis Outline

Chapter One: The introduction sets out the framework for this thesis, providing an overview of the background of the research, its rationale and significance. The chapter also briefly describes the research methods, including the research aims and questions. The chapter describes my personal motivation for selecting this research topic and why I believed it was significant for me.

Chapter Two: This chapter reviews literature concerning digital inclusion and the world of digital technology. It highlights the importance of understanding digital literacy and digital citizenship. The review explores digital terminology, concepts like the digital divide (unequal access to technology), digital inclusion (making sure everyone can benefit from technology), and digital exclusion (people left out of the digital world). The goal of this chapter is to uncover the main challenges and gaps in existing research, specifically highlighting how social relationships support digital inclusion.

Chapter Three: This chapter explains the research design and methods used to conduct this research. It also discusses how eurocentric (western) research methods were integrated into the research process. The chapter introduces and explains Kaupapa Māori principles in the context of this research, as well as the role of the researcher. The chapter provides a comprehensive overview of the research procedures and ethical considerations.

Chapter Four: This chapter presents the findings of the research project.

Chapter Five: This chapter discusses and synthesizes the key findings of this research outlining their relevance within the broader context of the research literature on digital inclusion and Te Ao Māori.

Chapter Six: This chapter concludes the thesis by summarising the important findings from this research investigation. In addition, the chapter shares my own learning experiences from this academic journey. Finally, the chapter discusses the limitations of this research, and outlines future research prospects and recommendations.

1.8 Conclusion

This chapter has introduced a research project that explores how Māori support whānau to promote digital inclusion. The chapter offered an overview of the background of the project, including its rationale and significance. The chapter highlighted the importance of this project from a research and personal viewpoint. The research aims were outlined, and these include: 1) To identify the enablers and barriers that influence digital inclusion for Māori whānau, providing insights into the factors that facilitate or hinder their access to and effective use of digital technologies. 2) To understand the impact of social relationships on digital inclusion among Māori households, examining the extent to which they contribute to digital inclusion. 3) To explore the intergenerational dynamics and support mechanisms within Māori communities, focusing on how tamariki/rangatahi, pākeke, and kaumātua collaborate and assist each other in achieving digital inclusion.

Chapter 2. Literature Review

He aha te mea nui o te ao? He tangata, he tangata, he tangata.

What is the most important thing in the world? It is people, it is people, it is people.

The purpose of this literature review is to explore the digital technology landscape, recognising digital literacy and digital citizenship as key concepts. The chapter also explores the concepts of the digital divide, digital inclusion, and digital exclusion, shedding light on the key challenges and existing gaps within current research literature. The chapter then discusses the Indigenous/Māori divide and Māori experiences with digital technology, before examining the social support systems that promote digital inclusion, and the digital frameworks employed to advance societal efforts for digital inclusion. Overall, this chapter discusses literature that led to the current research focus.

2.1. Digital Literacy and Digital Citizenship

Human beings are immersed in a society where digital technologies are constantly shaping, influencing and transforming various aspect of our daily lives (Digital Inclusion Research Group, 2017). The Internet is a place where we can share information, knowledge, communicate, connect, buy, access entertainment, work and learn (InternetNZ, 2018). This digital landscape requires us to adapt and cultivate new skills to navigate information, communicate effectively, and engage in meaningful interactions. Being 'digitally literate', therefore, holds immense importance, as it enables individuals to not only function efficiently but also to thrive in an interconnected world, driven by digital technologies.

The term 'digital literacy', introduced by Gilster (1997), describes the ability to understand and use information from a variety of digital sources. Eshet-Alkalai (2009) stated that besides involving the ability to use software or operate hardware, it also requires cognitive and social-

emotional skills to perform tasks and solve problems in digital environments. Digital literacy has many definitions, but as broadly defined, it refers to the ability to access, understand, evaluate and transform online information (Buckingham, 2015), especially in times when digital technologies have brought about information overload (Stephens, 2015). Scott-Melton, et al, (2018) explain the importance of having the ability to sift through copious amounts of information available online, critically evaluate sources, and find reliable information, going beyond the ability to use social media for entertainment. It is also important that people can safeguard their data and identity, as the digital realm exposes individuals to potential risks. Being a good online citizen requires understanding how to use digital tools and keep safe online. The term 'digital citizenship' refers to the responsible and ethical use of digital technologies, that includes using digital tools in a manner that promotes positive and respectful interactions with others (Scott-Melton, et al, 2018). Adopting secure online practices that are essential in maintaining personal security and digital literacy skills are foundational for digital citizenship (Pangrazio & Sefton-Green, 2021).

The digital world provides opportunities for global communication, teamwork and sharing ideas (InternetNZ, 2019). Without digital literacy, people might be left behind, hindering personal growth and societal progress (Chetty et al., 2018). In a global world, digital literacy can be compared with the ability to speak a universal language that encourages meaningful connections and mutual understanding among people from different backgrounds. Digital literacy is key to being engaged and successful in both local and global communities. Defining who is considered 'digitally literate' becomes more complex due to the varying skills required to use different technologies for different purposes and varying contexts. For instance, it may involve work-related skills like accessing government portals or using productivity software which differs from using digital tools for social communication. Proficiency in digital literacy ensures that individuals and wider communities are not left behind (Scott-Melton, et al, 2018, 2018). Unsurprisingly, a significant proportion of the world population remains at a disadvantage or risk becoming digitally excluded (Khalid & Pedersen, 2016). Digital New Zealanders (2017) also found that there is growing inequality between those who are digitally literate and those that are not, creating a potential digital divide (Scheerder et al., 2017).

2.2 Digital Inclusion/Exclusion and the Digital Divide

Globally, the digital landscape has swiftly evolved, encompassing 5.18 billion internet users worldwide, equivalent to 64.6 percent of the global population (DataReportal, 2023). The latest data analysis from GSMA Intelligence reveals a global count of 5.56 billion distinct mobile subscribers, which translates to 69.1 percent of the global population. The past year witnessed a 2.7 percent rise in mobile phone adoption, adding nearly 150 million new users. This rise is complemented by an increase in mobile device ownership, notably smartphones, facilitating access to digital services and information on the move. With active social media user identities numbering 4.88 billion globally in July 2022, social media has evolved into a central communication platform that influences social interactions, trade, and the dissemination of news and information.

Among these advancements, a new challenge has emerged; digital inclusion. Digital inclusion refers to creating opportunities for equal access, development of skills, and for all individuals to participate meaningfully in the digital world (Fisk et al., 2022). Digital inclusion has become a key goal for governments, to make sure everyone can benefit from digital devices (Digital New Zealanders, 2017). As societies become increasingly digitized, access to digital technologies and the skills to effectively use them have become essential for socio-economic participation. *Falling through the Net: A survey a/the 'Have Nots' in Rural and Urban America* was one of the first reports to identify the major disparities in computer ownership and Internet access (NITA, 1999). Subsequent research has revealed disparities in technology adoption influenced by factors such as age, ethnicity, educational attainment, income, and geographic location (Helsper & van Deursen, 2017; van Dyk, 2020; Scheerder et al., 2017; Gonzales, 2016). Without addressing these divides, further disparities could exacerbate existing inequalities, leaving marginalised communities further behind.

In New Zealand, digital adoption rates have been rising with 94.9% of the population having access to the internet at the beginning of 2022 (Datareportal, 2022). However, certain demographic groups still face barriers to access and digital literacy. These groups include seniors, people with disabilities, people living in rural communities, Pacific and Māori and families with

children living in low socioeconomic communities (Digital Inclusion Research Group, 2017). Becoming digitally included is now a societal issue as sociodemographic factors related to digitally disadvantaged groups reflect existing societal inequities (Digital New Zealanders, 2017). What we can tell from New Zealand's current research is that digital literacy skills can also help to bridge the gap of social inclusion (Elliot, 2018). New Zealand literature exploring the interconnectedness between social and digital inclusion is limited.

Broadly defined, digital exclusion refers to having unequal access and capacity to use digital technologies to participate in society (Schejter, 2015; Warren, 2007) and with ongoing digitisation of services – both public and private – has led to an increased risk amongst the general population of being or becoming digitally excluded (Helsper & Reisdorf, 2016; Anrijs et al., 2023). The challenge is that people who are digitally excluded are facing multiple barriers for the adoption of digital technologies, all linked to deeper underlying challenges of socioeconomical factors, accessibility, demographical changes, cultural bias and lower literacy skills. Providing access alone to digital devices to these populations might not solve the reason for being digitally excluded.

The digital divide has previously been known as the gap between those who had access to technology and those who did not. Chinn and Farlie (2004) described the digital divide as the inequalities between access and use of digital technology within groups. Warschauer (2003) also held this view and suggested that it is also about understanding the social, political, institutional and cultural contexts which shape people's lack of access to digital technologies, or their inability to use them effectively. A current leader in the field, Jan Van Dyk (2020), initially referred to the digital divide as a problem to solve by asking: What are the characteristics of those who experience digital exclusion, how and why? The digital divide research suggests that the most-observed personal categories affecting Internet access are gender, age, and ethnicity (Scheerder et al., 2017) and that digital technologies have primarily benefited those who already possessed various resources (Van Dijk, 2020). Therefore, the digital divide is defined as societal-level inequalities of digital access, digital capabilities, and digital outcomes (Scheerder, Van Deursen & Van Dijk 2017; Van Dijk 2020). The aim then of "closing the digital divide" is focused on providing meaningful access to Internet infrastructures, applications and services (Hilbert, 2011).

Within the New Zealand context, the digital divide "reflects a gap between those who have, and those who lack, the access, capability, motivation, and trust needed to meaningfully benefit from the Internet" (InternetNZ, 2018, p. 6). According to The Department of Internal Affairs (DIA), one in five people lack at least one of the four elements needed to be digitally included – motivation, access, skills or trust. The access divide is decreasing in New Zealand (Datareportal, 2023) which has prompted researchers to explore possible explanations as to why some of our populations are still experiencing digital exclusion. COVID-19 has further uncovered the existence of the divide for New Zealanders, with people's inabilities to connect with essential services due to economic and social pressure (OECD, 2020).

2.2.2 Key Challenges

A person might be facing more than just one challenge to digital inclusion, which makes finding a solution harder to navigate, especially when the use of digital technologies is to help mitigate social inequalities. A report conducted by Marianne Elliot (2018) titled "Out of the maze", interviewed 62 New Zealand people from digitally excluded groups. 40% identified as Māori, 35% as Pākehā and 16% as Pasifika and were mainly under 25 years old. The report outlined a range of barriers to digital inclusion, including cost, physical access, low motivation, resilience to setbacks, mixed levels of skills, and a lack of trust or safety online (Elliot, 2018). Consistently across each group, cost was the largest barrier to digital inclusion and was framed in the context of wider issues like unemployment, low income, poverty and inequality. Park (2017) also found similar challenges being costs to infrastructure, connectivity and ongoing use. It was also identified in New Zealand research that one important explanation for being digitally excluded is the cost of being connected to the Internet and purchasing digital devices. Despite improvements in digital infrastructure across New Zealand, access was affected by cost, and still seems to be a main challenge for digitally excluded people, as well as the motivation to use the Internet. A recent report published in New Zealand found that the main barriers included access to appropriate devices, limited digital literacy, general literacy difficulty, disability, language, finances and a lack of desire to be online (CAB, 2020). These difficulties can be underpinned by

other societal influences, and it is not uncommon for digitally excluded populations to experience one or more of these challenges.

Understanding the extent of the digital divide is crucial for effective policy making. The concept of digital inequality has alerted governments to prioritise a digitally included society and eliminate the digital divide (Digital Inclusion Research Group, 2017). This can be accomplished through policy that utilises digital inclusion frameworks, which have been specially designed to understand and measure the impact of government's digital inclusion initiatives and to provide common objectives for governmental, community and institutional programmes. The Australian Digital Inclusion index (Thomas, 2020) was created specifically to monitor progress in all aspects related to digital inclusion, something New Zealand does not utilise yet. Indexes can serve as a baseline for digital inclusion to be measured against, allowing the capacity to track changes and progress overtime. The 2019 report titled "Measuring the Margins: A Global Framework for Digital Inclusion" by the United Nations University provided a comprehensive framework designed to assist policymakers globally in assessing and promoting digital inclusion. The proposed framework emphasises the importance of incorporating key dimensions such as Internet penetration rates, device ownership, levels of digital literacy, and the quality of digital infrastructure to effectively measure and evaluate digital inclusion.

2.3 The Gaps

This section provides an overview of key gaps found in the literature including age, education, finances, gender, where people live (urban or rural areas), accessibility, and indigenous communities. It is vital to work on these gap differences to make sure everyone has a fair chance to enjoy the advantages of the digital age.

2.3.1 Age Gap

Over the past decade, individuals aged 65 and above have exhibited a notable increase in their adoption of digital technologies, including Internet usage and smartphones (Anderson & Perrin, 2017). However, older adults still seem to lag behind their younger counterparts in embracing technologies and are more inclined to discontinue use as they age (BerkowskI et al., 2018). A range of barriers hinders seniors' readiness to use new digital technologies, including a lack of interest, financial constraints, ergonomic challenges, technological complexity (Carpenter & Buday, 2007), limited knowledge (Gitlow, 2014), and apprehension about new technologies, compounded by low technology self-efficacy (Vroman et al., 2015). Hawthorn (2000) also notes that we should think about the physical changes that come with getting older, like problems with sight, hearing, and coordination.

Investigating the age gap, Turner (2016) found that as younger generations grow up and older people (who do not use digital technology) pass away, this gap might become less noticeable. Studies that support this idea have proven that people who used computers before they retired are almost nine times more likely to use the Internet compared to those who did not which supports Turner's theory (Gilleard & Higgs, 2008; Peacock & Künemund, 2007). 'Digital natives' is the term created by Mark Prensky used to describe younger people who are naturally good with technology because they have been around it from an early age (Prensky, 2005a). However, some experts have questioned this idea finding that the younger generation can use basic office software, send emails, text, use Facebook®, and surf the Internet, but lack in-depth knowledge of technology (Kennedy & Fox, 2013). Other various studies also question the term 'digital natives' as they revealed significant variation in young people's technological competence (Davies & Eynon, 2013; Hargittai, 2018; Van Deursen & Helsper, 2015).

Although there is a significant gap between young and older people's access to the Internet, today's youth are exhibiting differing degrees of expertise in using these technologies. Even among young people, barriers like limited access, literacy challenges, discrimination, and poverty persist (Marwick & Boyd, 2014; Digital New Zealanders, 2017). Additionally, preferences for paper-based forms or person-to-person interactions over online tasks hold true across all age

groups (CAB, 2020). Initiatives in New Zealand targeting digital inclusion are evenly distributed across various age groups, suggesting that age is not the predominant factor in determining participation (DIA, 2019).

2.3.2 Education Gap

The education gap is a social phenomenon where people with higher education levels use digital devices more than those with lower education (Nishijima et al., 2017). One study showed that teens who have a parent with a bachelor's degree (or above) are more likely to say they have access to a computer than teens whose parents have a high school diploma or less (94% vs. 78%) (Anderson & Jiang, 2018). In New Zealand, the education gap is evident in unequal Internet access for students, with lower decile schools facing a 28% lack, compared to 1% in high decile schools. (Digital New Zealanders, 2017). This could affect students' development, as digital skills develop not only in schools, but in home environments (Hartnett, 2016). An example of this gap is evident in online learning environments, where individuals with higher education are better equipped to excel in remote learning scenarios due to their familiarity with digital tools, research capabilities, and self-directed learning proficiencies (Schmid et al., 2021). For example, when examining the accessibility of massive open online courses (MOOCs), which aimed to provide quality college-level courses to a broader audience, one study showed that 72%, a considerable proportion of participants, held a bachelor's degree or higher (Ho, 2014).

2.3.3 Financial Gap

It is expected that individuals with higher incomes possess a wider range of devices and subscriptions to the Internet, streaming services, online learning and software. This suggests that individuals with higher incomes have higher levels of Internet access compared to lower-income individuals (Zickhur & Smith, 2012). These disparities highlight how digital access is viewed as an "investment" by the "access-rich" population, whereas it is regarded as a "luxury" by the "access-poor" (Robinson, 2009). In America, approximately 24% of adults with yearly household incomes

below $30,000 do not own a smartphone. Lower-income individuals also tend to lack home broadband services (43%) and desktop or laptop computers (41%). In contrast, 63% of households making $100,000 or more annually have home broadband services, smartphones, desktop or laptop computers, and tablets, whereas only 23% of lower-income households can claim the same range of devices (Vogels, 2021). Other researchers found that higher income tends to indicate households with a greater number of desktop and laptop computers, as well as game consoles, in comparison to those with lower incomes (Jansen, 2010; van Deursen & van Dijk, 2019). It is also worth noting that the level of income within a country significantly influences Internet access rates. Countries with higher income levels exhibit a remarkable 92% of their population using the Internet, whereas this figure drops significantly to 26% in low-income countries (DataReportal, 2023).

In New Zealand, the 2020 CAB report highlighted that cost acts as a significant obstacle for some individuals to be online and a strong correlation between income and Internet attitudes. The New Zealand Work Research Institute (2021) found that 42% of households with an income under $25,000 consider the Internet important, while this figure rises to 76% for households earning $100,000 or more. COVID-19 also highlighted a large gap among the lowest decile schools (decile 1-3), with 47% stating that more than half of their students lacked device access at home, compared to 7% in high decile schools (N4L, 2021; N4L, 2018); this discrepancy highlights the influence of income.

2.3.4 Gender Gap

In developed countries, Internet use continues to grow among both men and women, as they encounter digital technology in their workplaces, schools, and homes (Van Dijk, 2005). However, the gender factor remains an influencer of Internet use, especially in countries with high Internet penetration (Helsper & Reisdorf, 2016). Conventional gender stereotypes suggest that women possess lower technological competence (Dholakia & Chiang, 2003). While it has been argued that women might be inherently disadvantaged due to perceived technological skills deficiency

and greater technophobia, there is also an argument asserting that the technology itself does not address women's needs (Hilbert, 2011). Notably, research reveals that while both genders access the Internet and mobile devices, distinct disparities exist in the specific devices they prefer (Odaci & Kalkan, 2010).

Women, particularly in low- to middle-income countries, continue to face disparities in digital device ownership (Rowntree & Shanahan, 2020). However, international research uncovers that gender-based digital exclusion is primarily attributed to limited access, affordability, education, skills and literacy deficiencies (Hilbert, 2011), alongside embedded gender biases and socio-cultural norms (Correa, 2016). Women living in developing countries often suffered more gender-related discrimination when compared to their counterparts in developed countries (Hilbert, 2011). Women are also more likely to be unemployed and have fewer employment and educational opportunities (Chadwick et al., 2013). Motivation also emerges as a significant factor contributing to the lack of inclusion, with one study revealing that around 25% of women who refrain from online engagement express a general disinterest in using the Internet (Intel., et al, 2012).

There is limited New Zealand based research on the gender gap. However, one report showed some indication that a slightly higher percentage of women required assistance for digital technology (CAB, 2020). Moreover, the realm of coding or obtaining qualifications involving digital technologies tends to be more male dominated (OECD, 2018). While certain initiatives evaluated by the DIA (2019) did target women and girls, these programmes focused on areas beyond the realm of basic digital skills, concentrating on teaching coding—an expertise that is not necessarily essential for digital inclusion.

2.3.5 Urban vs Rural Gap

The urban vs rural gap suggests that living in a rural area is linked to less use of devices, lower internet use, and fewer online activities (Velaga et al., 2012). The urban vs rural divide literature has heavily focused on access within developed and developing countries and even though access has improved, the rural-urban divide remains (Rivera et al., 2014; China Internet Network

Information Center, 2020). In the NTIA (National Telecommunications and Information Administration) 2015 report, rural users were less likely than urban users to use devices like desktops, laptops, tablets, and Internet-enabled mobile phones. They also use the Internet less from home and work. One study found that rural residents are less likely to use email, social media, and online video/voice chats (Carlson & Goss, 2015). Research does show a correlation between rural living, income, gender and education (Carlson & Goss, 2015), however the urban-rural divide remains even after equating for socioeconomical status.

This means that lower education and lower income do not always explain the lag in Internet adoption within the rural communities. Other academics (LaRose et al,. 2012) vouch that digital exclusion is related to demographics, experience and psychological attitudes. Research on the urban vs rural divide within New Zealand is a little outdated, but previous research failed to support the contention that individual rural users are any slower in the uptake of new technologies than the urban New Zealander (Howell, 2001). However, these findings do not speak to Internet quality or reliability, and it has been documented that people in rural areas have lower levels of access to high-quality Internet connections (Stern et al., 2009).

2.3.6 Accessibility Gap

The 2017 World Internet Project highlighted that the Internet contributes to enhancing the quality of life for individuals with disabilities. Nevertheless, people facing disabilities encounter additional hurdles in terms of accessing, trusting, acquiring skills, and finding motivation to use the Internet (Digital Inclusion Research Group, 2017). While having a disability doesn't inherently imply digital exclusion, it is acknowledged that people with disabilities form a group susceptible to digital exclusion (Grimes & White, 2019). In America, people with disabilities are three times as likely as those without a disability to never go online (15% vs. 5%) (Perrin & Atske, 2021).

The Internet is designed to accommodate a broad spectrum of users with varying needs, extending beyond mere access and skills delivery. Visual, auditory, or motor impairments can all pose challenges that impede someone's ability to fully engage online. The most recent disability

survey in New Zealand showed that 24% of our population is living with a disability (StatsNZ, 2013). That is 1 in 4 New Zealanders live with some form of physical, sensory, learning, mental or other impairment.

The disability gap in digital inclusion is closely intertwined with the challenges faced by other minority groups that are already digitally excluded. Among disabled individuals, a significant proportion—35%—are aged over 65. Additional barriers for disabled individuals are lower incomes and employment rates. The accessibility gap is further emphasised by figures indicating that 34% of disabled women lack educational qualifications, a stark contrast to the 15% of non-disabled women in the same situation. Additionally, the intersectionality of disability, ethnicity, and education demonstrates the complexity of the challenge and the need for comprehensive solutions (Stats NZ, 2013).

The New Zealand Government does establish a Web Accessibility Standard (Bureau of Internet Accessibility, Mar 30, 2022), outlining guidelines for creating web pages that ensure access for the widest array of users. Yet, creating digital platforms that cater to all disabilities presents complex challenges, especially when considering the diverse spectrum of needs. A participant in the DIA's (2021) user insight report, who is blind, suggested the removal of all images and pictures from the Internet. In contrast, another participant with an intellectual learning disability expressed a preference for abundant visual content in response to the same question.

2.3.7 Indigenous Gap

In various countries, there are noticeable disparities in Internet access between the majority population and minority groups (van Deursen & van Dijk, 2019). International studies have also revealed a similar divide, with Indigenous populations having lower levels of inclusion compared to the mainstream populations. In Australia, there have been notable improvements in the accessibility and digital skills of Indigenous populations. However, significant gaps persist when comparing Indigenous Australians to the general population, even when considering their socioeconomic status (Wilson et al., 2019). Similarly in America, Turner's (2016) report observed

white individuals in lower socioeconomic brackets are more digitally connected than African Americans. Additionally, living in rural places affected African Americans more than the general population in terms of using the Internet (Choi et al., 2022). It is important to note that the lower digital adoption among Indigenous populations cannot be solely attributed to their indigenous status. A comprehensive literature review on Indigenous digital disparities highlighted several influencing factors, including device costs, geographic location, insufficient support systems, and limited literacy levels (Intahchomphoo, 2018). The United Nations (UNU-EGOV, 2019) mentions that most websites are in English, so people with low education level, who are uncomfortable with the English language, are significantly disadvantaged when using the Internet. The COVID-19 pandemic exposed disparities in educational participation, particularly affecting children and families from ethnic minority backgrounds and Indigenous communities, who faced challenges accessing and using digital technologies (OECD, 2020).

The international literature tends to emphasise what technology can offer Indigenous communities, rather than acknowledging the capabilities and potentials that Indigenous people possess in their use of technology (Winter & Boudreau, 2018). One study also found many initiatives were aimed at providing Internet access rather than fostering skills and trust within Indigenous communities (Campbell-Meier et al., 2020). It is believed that by recognising and validating Indigenous ways of knowing, researchers can better uncover the biases in Western thinking that have influenced technological development practices. Additionally, it was observed that some researchers employ negative language when discussing the intersection of Indigenous people and digital technology. In the context of New Zealand and its Indigenous populations, there is a need for research that incorporates perspectives from Māori and Pasifika communities (Campbell-Meier, et al., 2020).

2.4 Māori Digital Experiences

New Zealand's bicultural foundations and historical injustices towards Tangata Whenua make New Zealand unique when exploring digital inclusion in relation to other indigenous populations. Within New Zealand, Māori and Pacific Peoples encounter unequal health outcomes, lower

educational achievements, and increased material hardship (OECD, 2019). Furthermore, Māori and Pasifika individuals face unique challenges in accessing digital technologies compared to other ethnic groups in New Zealand, as highlighted by the Digital New Zealanders Report (2017). Local research indicates that Māori individuals are more likely to experience digital inclusion when compared to the broader population (CAB, 2019; Digital Inclusion Research Group, 2017; DIA, 2021).

Past efforts have shed light on the extent of digital exclusion among Māori households with the cost to access the Internet and devices being the greatest barrier to digital inclusion (DIA, 2021). For instance, Figuracion's (2015) research revealed that 68% of Māori households had internet access, contrasting with the 86% of all households. Similar findings were echoed by the World Internet Project (WIPNZ, 2018) survey. The most recent user insight report projected that Māori households are 16% less likely to have Internet access compared to non-Māori households (DIA, 2021). Unfortunately, the lack of annual data or research focusing on Māori and Pacific Peoples' digital connectivity makes it challenging to measure improvements over time and precisely determine the extent of this digital divide. Recognising the importance of access to relevant information and services for the well-being of all New Zealanders, the Department of Internal Affairs (DIA, 2019) is taking steps to ensure Māori-led organisations and experts play a central role in shaping a world-leading, indigenous-supported digital future. Key research questions include exploring Māori aspirations for digital inclusion, successful strategies to meet those aspirations, and discovering opportunities for improvement.

Several programs and initiatives were established to digitally connect Māori, such as the Ka Hao: Māori Digital Technology Development Fund, aiming to enhance Māori economic development through increased participation in the ICT sector. Te Wananga O Aotearoa also offered digital skill classes to educate whānau on device usage. Although not directly targeting the "digitally excluded," these initiatives had the potential to pave the way for Māori-driven digital inclusion programmes and Māori led digital technologies. Regrettably, both projects are no longer funded. One could argue that these initiatives may have fallen short because they were a one-dimensional approach. To achieve comprehensive digital inclusion, collaborative efforts involving

communities, iwi, hapu, and whānau are vital to deliver effective solutions that bridge the digital divide for Māori individuals, reflecting the latest digital inclusion recommendations published by the DIA (2021).

2.5 Digital Inclusion Frameworks

In the endeavour to bridge the gap between those who are digitally included and those who are excluded, various frameworks have been developed to address digital exclusion and promote digital inclusion. The e-Inclusion Pyramid, established by the European Commission in 2005, is structured with access to technology as its foundation, which is then followed by digital skills, digital literacy, and ultimately digital empowerment. The European Commission has set an ambitious target for digital transformation by 2030, aiming for 80% of the population to possess at least some level of digital skills. This initiative is guided by the motto "gigabit for all and 5G everywhere" (European Commission, 2021), as nearly 40% of Europeans currently lack basic digital skills. In Australia, the "Digital Inclusion Roadmap", developed by the Australian Digital Inclusion Alliance (Wilson, 2019), focuses on key areas such as affordable access to digital devices and connectivity, digital skills development and training, digital content and services that are relevant and accessible, and building trust and confidence in using digital technologies. Frameworks like these provide valuable insights and guidelines for addressing digital exclusion and promoting digital inclusion. New Zealand's Digital Inclusion Blueprint Te Mahere mō te Whakaurunga Matihiko serves as a notable example of a national strategy that acknowledges the multidimensional nature of digital inclusion. Launched in 2019, the New Zealand Digital Inclusion Blueprint is a landmark initiative that outlines a strategic approach to addressing digital exclusion.

2.6 New Zealand’s Strategy for Digital Inclusion

The concept of digital inclusion, as defined by the New Zealand government, is described as "all of us having what we need to participate in, contribute to, and benefit from the digital world" (DIA, 2019, p. 9). To address this goal, the Department of Internal Affairs published The Digital

Inclusion Blueprint Te Mahere mō te Whakaurunga Matihiko in 2019. The primary focus of this blueprint is to ensure that every individual in New Zealand can easily and confidently access and utilise digital devices and the internet (p. 6). The four key elements of digital inclusion are motivation, access, skills and trust (p.10).

2.6.1 Motivation

The term “motivation” relates to how digital technology enhances users’ daily lives and by having a meaningful reason to engage with the digital world (DIA, 2019). Research suggests a lack of interest is still the main reason people do not go online (Welsh Government, 2016; Leung, 2014; Crump & McIlroy, 2003; Feirmel, 2016). Van Dijk and Helsper (2015) argue that the first access problem is the mental barrier and that a lack of confidence can be a significant factor preventing a person moving from a hesitant user to someone who realises and gains the benefits of being online. Additional research uncovered that some individuals refrain from using the Internet due to a lack of motivation, perceiving the online information as unhelpful, or considering the technology irrelevant to their lives (Friemel, 2016).

2.6.2 Access

The term “access" refers to the ability of individuals to conveniently and readily connect to and use digital technologies and the Internet (DIA, 2019). The latest census data in New Zealand found 86% of households had Internet access (StatsNZ, 2020) and is projected to be 99% by 2025 (InternetNZ, 2018). However, it's important to note that people still need devices and subscriptions, not just Internet access. Internet access is linked to income, education, gender, and age (Helsper, 2008; Korupp & Szydlik, 2005; Zickuhr & Smith, 2012).

2.6.3 Skills

The term "skills" refers to an individual's ability to effectively and confidently use digital technologies and navigate the digital landscape (DIA, 2019). Effective digital skills include confidently and safely accessing and using digital devices and content, which requires understanding both hardware and software. Key research findings around New Zealand's approach to digital skills are influenced by prominent authors and organisations worldwide (Lordache et al, 2017). These frameworks generally agree that digital skills involve using various technologies, understanding their critical aspects, and creating content to enhance communication.

2.6.4 Trust

The term “trust” means trusting the Internet and online services and having the digital literacy to manage personal information and understand and avoid harm (DIA, 2019). Trust in the device is fundamental but also the trust in the information that is gathered. Research has found that nearly half of their respondents (45%) agree that there is no such thing as privacy online (Crothers et al., 2016) and 68% are active in trying to protect their online privacy. According to an InternetNZ (2018) survey, 88% of New Zealanders reported positives outweigh the negatives when using the Internet. However, risks and concerns about the Internet can be a barrier to accessing its benefits. New Zealanders do have concerns about the Internet and are interested in what they can do to stay safe online. Most take at least some steps to protect themselves and their data (InternetNZ, 2021). CERT NZ, NetSafe, InternetNZ and other organisations are working to help protect New Zealanders online. Public awareness campaigns and strategies are one important way of addressing trust as a key element of digital inclusion.

2.7 Social Influence on Digital Inclusion

In the context of New Zealand, and the broader global landscape, it becomes important to acknowledge the substantial impact of social dynamics on digital device usage. Literature identifies family context as a pivotal catalyst or hindrance in achieving digital inclusion (Correa et al., 2013; Correa, 2014). One notion has arisen with youth stepping in as "digital facilitators" within families, assisting parents in navigating the swift technological changes (Katz, 2010; Kiesler et al., 2000). Korupp and Szydlik's (2005) study found households with children or adolescents are more likely to possess computers and have internet access, elevating family context above economic capital (meaning that they found the family situation matters more than how much money they have). Equally significant is the revelation that children rank as the second most important source of learning for individuals aged 55 and older, right after themselves (Correa et al., 2013). It has also been found that private support from family and friends carries more weight for seniors compared to professional or online assistance and merely providing home Internet access can help bridge the divide without interventions that support parents or younger children (Starky et al,. 2018). For older adults, the primary use of computers and the Internet revolves around communication and social support, and their preferred learning setting tends to be private rather than professional (Freimel, 2016). Interestingly, some authors found that people with the lowest ICT skills seem to have the most difficulty in obtaining high-quality formal support and are therefore often dependent on informal support of poor quality (Courtois & Verdegem, 2016; Helsper & van Deursen, 2017). Digital training still emerges as a key avenue for enhancing digital skill, especially for older adults (Betts et al., 2019; Delello & McWhorter, 2017; Pihlainen et al., 2021), but various studies are shedding light on the importance of informal assistance to support formal instructors (Asmar et al., 2020; Helsper & Van Deursen, 2017).

While a considerable body of literature explores social and family influences on digital inclusion, this phenomenon is limited within the New Zealand context. In Te Ao Māori, collective knowledge takes precedence, emphasising that communal practices shape individual and collective behaviours (Grix, 2019). This suggests that digital inclusivity could be seen as not solely an individual's responsibility; as its nature is inherently social.

Overall, the research literature suggests that the importance of informal learning environments and a person's social environment profoundly shapes their Internet use and technology comprehension, with attitudes and knowledge about digital media often transmitted across generations within a family (Straubhaar et al., 2012). To better comprehend digital inclusion, New Zealand-based research should thoroughly analyse the multifaceted influences of the family's social network. It's essential to comprehend how digital technologies have already been embraced and adapted by individuals in digitally excluded communities to effectively address the digital divide. To unravel this intricate puzzle, particularly concerning Māori whānau grappling with digital exclusion, exploring the social context of how whānau navigate digital devices within their homes and social networks could pave the way for future projects and initiatives. Therefore, the key research questions in the study include:

- What are the enablers and barriers to digital inclusion for whānau?
- To what extent do social relationships influence digital inclusion for Māori?
- In what ways do tamariki/rangatahi support pākeke and kaumātua with digital inclusion?

2.8. Conclusion

This chapter provides a review of key literature surrounding digital inclusion and the realm of digital technology. It highlights the significance of having digital literacy and citizenship while introducing terms of the digital divide, digital inclusion, and digital exclusion. By uncovering key challenges and gaps in current research, the chapter uncovers the role of social relationships in supporting digital inclusion.

Chapter 3. Methodology

Kua takoto te Mānuka

The leaves of the Manuka tree have been laid down (a challenge has been laid down or there is a challenge ahead of you)

3.1 Introduction

This chapter discusses the design employed for this research, beginning with the research purpose and exploration of the philosophical positions and assumptions surrounding indigenous research and how Eurocentric methods contributed to the research process. It describes the embodiment of Kaupapa Māori Principles within the research procedures and the researcher's role as an insider. The chapter then shifts its focus to the use of qualitative methods, specifically semi-structured interviews and observations, for data collection and thematic analysis as the chosen qualitative data analysis approach. The research procedures are comprehensively discussed, including the ethics implications of this research.

3.2 Research Purpose

Digital inclusion literature has begun to identify a need for research from indigenous worldviews (Bartikowski et al., 2018; Campbell-Meier et al., 2020). Research findings have suggested that indigenous peoples are 'failing' to engage with digital devices, reinforcing deficit thinking by concluding that unwillingness to engage is due to internal motivational shortfalls (Greenbrook et al., 2011; Parker, 2017). A Kaupapa Māori belief is that the survival of the individual is inseparable from the wellbeing of the collective. This research explores and implements a strength-based approach in the design of indigenous digital inclusion research. Smith (1999) suggests that to get the research approach 'right', it is important to employ the most appropriate methods for the people.

The primary focus of this investigation is to explore the experiences of Māori whānau using digital devices. Therefore, the methodology of this research draws strongly from Kaupapa Māori Epistemology, using qualitative methods to contribute to Māori enhancement and tino rangatiratanga (self-determination and empowerment). The investigation poses the following research questions:

1. What are the enablers and barriers to digital inclusion for whānau?
2. To what extent do social relationships influence digital inclusion for Māori?
3. In what ways do tamariki/rangatahi support pākeke and kaumātua with digital inclusion?

3.3 Kaupapa Māori Epistemology

Kaupapa Māori is derived from very different epistemological foundations, and it is these which give Kaupapa Māori its distinctiveness from Western philosophies (Nepe, 1991). Kaupapa Māori research is scientific, open-ended, ethical, systematic, and accountable (Smith, 1999) although it can be paradoxical within research academia. When undergoing research with Māori the researcher must centre Māori epistemologies as a starting point for the research (Cooper, 2012), which Bishop (1996) defines it simply as research by Māori, for Māori and with Māori. Irwin (1994) highlighted that research needs to be 'culturally safe' which involves mentorship from kaumātua (elders) and is undertaken by a Māori researcher, not a researcher who happens to be Māori. Traditional Māori ethics and philosophy drive Māori epistemology (Tīkanga Māori) with its purpose to challenge the universal approach to research, addressing Māori needs and giving full recognition to Māori culture and value systems (Reid, 1998).

Kaupapa Māori Epistemology has been known to reflect a form of critical theory since its focus has been on emancipation (Jones, et al., 1990; Smith, 1997; Smith, 1999). More recently however, Eketone (2008) contests that Kaupapa Māori is informed by both critical theory and constructivism. Although both these theories derive from Western terminology, Kaupapa Māori is an epistemological approach, rather than a substantive theory (Smith, 1997). Pihama (2001) also states that Kaupapa Māori epistemology has an independent status in that it is not reliant

on Western theories such as critical theory. Eketone (2008) argues that Kaupapa Māori is about Māori advancement and development more than the struggle for power, however the author agrees that a connection to critical theory is attractive because it provides a justification for the struggles of Māori people and Mātauranga.

3.4 Māori-centred Research

The overarching principles of Kaupapa Māori research have been evolving since the 1980s and specific methodologies are still developing today (Te Ara Tika, 2019). Kaupapa Māori research predominantly involves Māori participants and uses Māori analysis to produce Māori knowledge which meets the quality standards of Māori (Cunningham, 2000). This research is grounded in Māori-centred research (Te Ara Tika, 2019) which requires having a theoretical understanding of the world, the problem, and the methods to guarantee validity and reliability (Smith, 1999). Māori-centred research more broadly, involves Māori in all levels of the research (Cunningham, 2000). Hohepa et al. (2004) also consider Māori understandings as being central to the process of research and analysis while incorporating contemporary strategies that embody the need for tino rangatiratanga (Bishop, 1996; Smith, 1997). To conduct ethical research both Māori and non-Māori research tools can be utilised (Chilisa, 2011). Furthermore, non-indigenous people have an obligation to support Māori research as treaty partners. Smith (1999) reiterates the value of mentoring and advocacy roles non-Māori researchers can play in supporting Kaupapa Māori research.

As a researcher, one must be consistently mindful of their approach and positioning when working with participants. Walker (2003) referred to principles of tuakana/teina and considered himself a teina to the participants. Tuakana/teina has many meanings in different cultures, but for this research, the tuakana hold more Mātauranga and guides the teina. Adopting a Kaupapa Māori approach in this research, I see myself as a learner and the participants being the teachers who are gifting their stories. Without these stories, this research would not be possible (Hollis,

2006). Tīkanga Māori is and always will be, the best model to engage with Māori, especially when gaining an understanding of the digital world through a Māori lens (Piripi, 2018).

While the emphasis in Kaupapa Māori research is not on how it is carried out so much as the effects it has, some core guidelines for the process have been suggested. The following are taken from Barnes (2000), Smith (2000), Swadener and Mutua (2008), and Walker et al. (2006);

1. Researchers must be prepared to disclose personal information.

2. The researcher is the non-expert and thus seeks out kaumātua or community leaders, establishes a relationship and engages in emotional and spiritual support.

3. The purpose of the research and accountability must be clarified.

4. Qualitative research methods tend to fit more comfortably within a Māori way of doing.

5. Māori maintain conceptual, methodological and interpretative control over protocol and research.

6. Strong emphasis must be placed on the use of a kōrero mai approach that allows participants to tell their stories in their own ways.

Kaupapa Māori research tends to be costly in terms of time, as the processes involved in maintaining integrity and the respect of participants can be lengthy and difficult. There is also a need to be extremely thorough in the care taken to fulfil the requirements of Kaupapa Māori research.

3.4.1 Insider / Outsider

The insider/ outsider concept appears commonly amongst academics involved in indigenous research (Smith, 1999; Mead, 2003; Kwame, 2017). It is appropriate to acknowledge the role of the researcher as an insider, as this is how I am positioned in this research project. An insider is someone who belongs to a group or community in which they undertake research (Brannick &

Coghlan, 2007). The benefits of having an insider approach to this research is that I already have a rapport with the participants, therefore they can be more open with me, allowing greater depth of data to be gathered (Talbot, 1999). This positioning does not come without scepticism by some academics, but approaching this research as an 'insider' has also been recognised as ethical, respectful, reflective, critical and grounded in humility (Smith, 1999). Kiro (2000) proposes that it "takes one to know one" and Māori research is based on the principle that only an insider can understand the variances of the social phenomenon (Hollis-English, 2012). It is important that I voice my involvement as a 'insider' to the research participants (Smith, 2006).

3.5 Kaupapa Māori Principles

The next sections discusses how Linda Smith's (1999) seven Kaupapa Māori principles informed this research which have been supported and expanded upon by other theorists (Smith, 1997; Bishop, 1996, 2005; Smith, 1999, 2006; Pihama, 2001; Mead, 2003; Eketone, 2008; Cram, 2009; MUHEC, 2017).

3.5.1 Aroha ki te tangata (Respect for the people you are working with)

Aroha ki te tangata (a respect for people) is about allowing people to define their own space and to meet on their own terms. This concept is also reflected in Te Ara Tika (Hudson, 2010) through whakapapa and Manaakitanga. People are diverse and therefore requires that the researcher is consciously aware of what the participants bring to the research process. In this research, this was demonstrated by consulting with Awarua Whānau Services Kaihoutū (CEO) and General Manager at the beginning of the recruitment phase about what would be appropriate when working with whānau. The researcher also approached a kaumātua that uses Awarua Whānau Services about key considerations when working with Māori. Cram (2009) suggested that kaumātua can be involved in the process as they make connections with local knowledge and Mātauranga Māori. In this project, this was also demonstrated before every interview by asking

someone elder if they wanted to share the opening and closing karakia (prey). I was mindful of keeping information private, confidential and secure (Hudson, 2010). Participants were made aware of the research process and the security of their private information.

3.5.2 Kanohi kitea (The seen face)

He kanohi kitea is about the importance of meeting with people face to face. This allows the researcher to see the participant and for them to see the researcher. Its deemed important to meet face to face in a Māori society as it builds trust in the relationships, which Cram (2009) identifies as a critical component for Māori communities. This was a very important principle that was implemented throughout the research journey. General kōrero (conversations) were conducted with potential participants which provided an opportunity to discuss the advantages and disadvantages of being involved in the study. This started whānaungatanga between the participants and I. Interviews and observations were conducted face to face. The use of qualitative methods aligns well with this principle.

3.5.3 Titiro whakarongo kōrero (Look and listen first: Speak later)

This principle addresses the importance of looking and listening so that you develop understandings and find a place from which to speak. Titiro, whakarongo kōrero symbolises the process whereby the researcher's role is one of watching, listening, learning and waiting until it is appropriate to speak. Following this principle helps build whānaungatanga and trust. The researcher is a teina in a privileged situation and is about the art of capturing their voices by allowing whānau to set the agenda and the pace. By listening I was able to understand the stories whānau shared, by allowing them to speak freely, and understanding my place in their space.

3.5.4 Manaaki ki te tangata (Be generous in sharing with and hosting people)

Manaakitanga is about making participants comfortable and acknowledges that the research must be a collaborative process. It refers to the co-construction of the research journey and being accountable to the participants and their information (Smith, 1999). To achieve co-construction participants transcripts were given back to them to ensure accurate reporting. Each whānau was offered to have the interviews in their homes and or to be compensated if they had to travel. This enabled whānau to participate in the study. Kai and refreshments were provided during every hui and after the study each whānau were gifted a kōha for their time.

3.5.5 Kaua e takahia te mana o te tangata (Take care not to trample on the mana of people)

This principle acknowledges the fact that people are the experts in their own lives, including challenges, needs and aspirations. The research journey needs to be enjoyable and enlightening for whānau which can happen through an agreed way of working together (contract and consent) so it is clear what the research is about and how we know when the destination is reached. This presents a unique opportunity for researchers to acknowledge the participants ideas about current and future research in this field. Throughout the research process I made sure I communicated the findings with whānau, I was clear about ownership of the research and their ideas were acknowledged with respect.

3.5.6 Kia tūpato (Be cautious)

Kia tupato is linked to the insider/outsider status in the sense of being politically astute, culturally safe and reflexive (Simth, 1999). This principle also refers to taking care to protect participants confidentiality and anonymity by following moral and ethical obligations (Hudson, 2010). It alerts researchers to be cautious and aware of their own processes when working with Māori, while also creating a comfortable space for kōrero. During the research process I made sure whānau were left in the same or a better space before they engaged in the research by being clear about

the research agenda and caring for their well-being (e.g, koha and check ins). I created opportunities for whānau to demonstrate their own tīkanga (e.g., karakia). Some whānau also found it important to know the support services associated with research, if they had any issues or concerns along the way.

3.5.7 Kaua e māhaki (Do not flaunt your knowledge)

Kia ngakau mahaki means to be humble in your approach by not flaunting your knowledge. It asks the researcher to acknowledge the co-construction of collective ownership of the research journey and being consciously aware of power dynamics and ethics (Hudson, 2010). By asking myself the question 'On whose back am I promoting my expertise?' (Smith, 2006) kept me mindful of the importance of listening and not pre-determining answers.

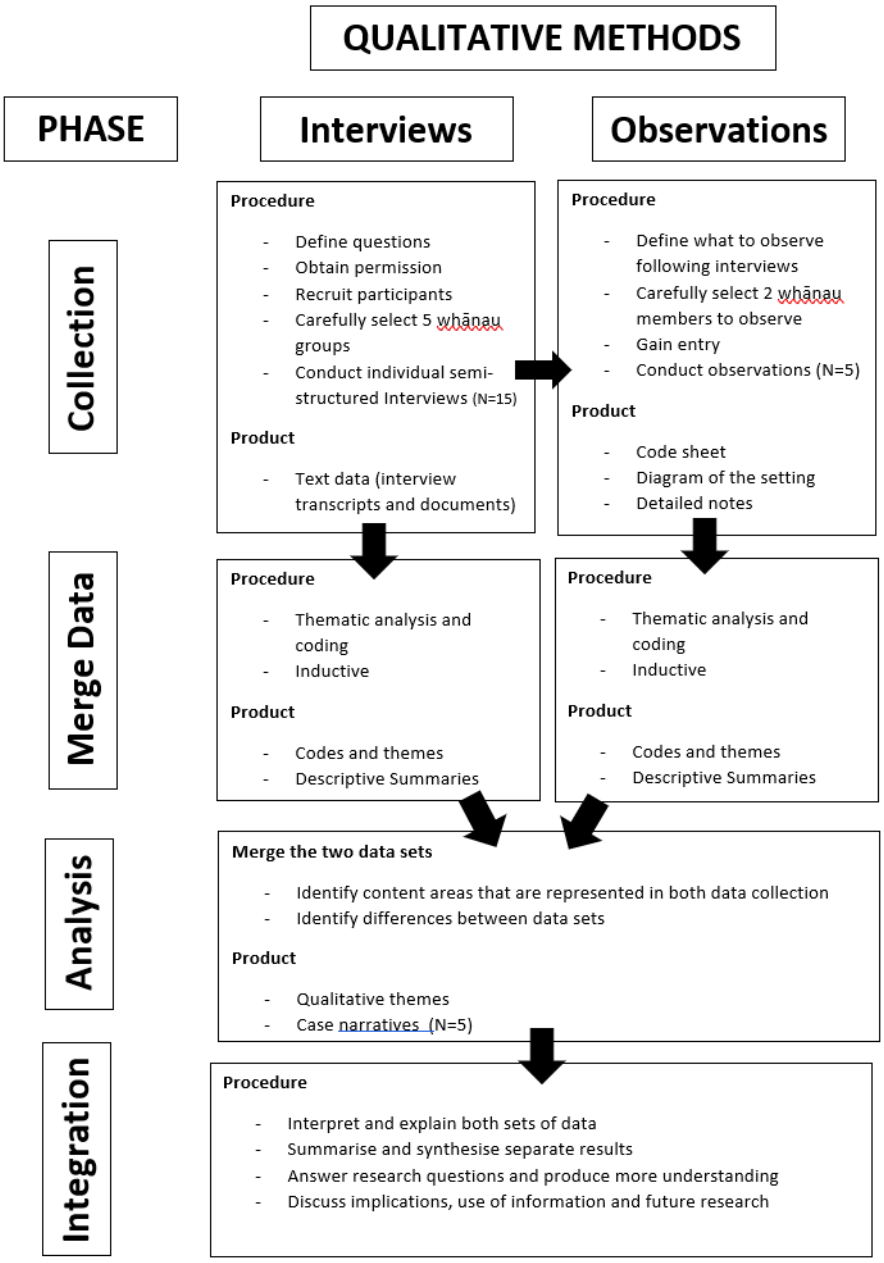
Having discussed the foundations and principles of Kaupapa Māori, we now turn to the western research methods that also contributed to the research process.

The skill of matching the problem with an 'appropriate' set of investigative strategies is what defines research methods. Qualitative methodology acknowledges the idea that reality is a social construct and a space where experiences of people are valued (Nash et al., 2005). Qualitative methods enable participants to be in their natural settings to exchange their views, enabling voices to be heard, which aligns well with the purpose of this research. As Chilisa (2011) stated, Māori and non-Māori research tools can be utilised within a kaupapa Māori framework, fitting with the emancipatory purpose of Māori-centred research (Cunningham, 2000; Smith, 1999). Qualitative research is based on the belief that knowledge is constructed by people and how they make meaning of an activity or experience (Merriam & Tisdell, 2015). Furthermore, Māori culture originate from oral rather than written traditions which enables their voices to be heard through these methods (History of Māori language, 2023). A negative aspect of qualitative research is the dependence on words, as these often can have multiple meanings and consequently can adopt complex terminology and theories (Miles et al., 2014).

3.6 Qualitative methods

The overarching research design employed qualitative methods, which included interviews and observations as per Figure 3.1.

Figure 3.1: Overall Research design



3.7 Data Collection

Data collection involved the use of semi-structured interviews and observations. These are detailed below.

3.7.1 Semi-structured Interviews

One qualitative research method that was utilised in this research project is one-on-one, semi-structured interviews. Interviews allow the individual to define the world in unique ways (Merriam & Tisdell, 2015). DeMarrais (2004) defines a research interview as "a process in which a researcher and participant engage in a conversation focused on questions related to a research study" (p. 55). This research adopted a transformative, decolonizing interviewing approach, combining phenomenological strategies to engage participants in meaningful dialogue while uncovering the essence of their lived experiences, with a focus on indigenous research goals (Hudson, 2010). Adopting this approach allowed discussions to be open and evolving which advantages participants level of autonomy by exploring participants own framework of meanings based on their life experience (Walsh-tapiata, 2003; Hollis-English, 2012). Roulston (2011) also suggests that interviewing is the best technique when working with a few selected individuals. The key to getting good data from interviewing is to ask good questions, so Merriam & Tisdell (2015) suggest conducting pilot interviews to learn which questions are confusing and which need rewording. Although interviews are popular for collecting qualitative data, there are limitations. They can be costly and time-consuming which means there is a smaller sample size. Since this research used phenomenological interviewing, where participants had to recount past experiences, I had to consider that they might not have been able to recall certain information. There could also be data recording errors. To mitigate these limitations all interviews were audio-recorded with the participants' permission and transcribed. Trial interviews were conducted in the early stages of my data collection process, and these allowed me to fine tune the questions in the interview protocol (Appendix D). Observations complemented the interviews as another method for data collection.

3.7.2 Observations

Observations allowed the researcher to have a first-hand encounter with the phenomenon rather than a second-hand account of the world obtained in the interview. In this study, observations were conducted after the interviews and were co-constructed with the participants. Therefore, after completing each interview, we all discussed instances where the participants might have sought help or might have helped others with their use of technology. Once the whānau group discussed this, I observed the interactions within each whānau group using the observation protocol (see Appendix E). The observations across these groups highlighted a collaborative effort and promoted intergenerational learning. Table 3.1 details the types of situations I observed.

Training is important in becoming a good observer. Patton (2015) highlights the key observational skills are learning to pay attention, learning how to write descriptively, knowing how to separate detail from trivia and using systematic methods to validate observations. LeCompte and Schensul (2010) consider that researcher curiosity drives what they initially observe, and this is often decided after the interviewing process. Bogdan and Biklen (2011) suggest that researchers need established rapport (whānaungatanga) by fitting into the participants routine, finding common ground, being friendly and showing interest in the activity which aligns well with the main principles of Kauapapa Māori research (Mead, 2003; Smith, 1999). Researchers are rarely total participants or total observers therefore I situated myself as a collaborative partner, as my identity was clearly known to the participants, and we were equal partners in the research process which included also defining the event to be observed. Adler and Adler (1987) refer to this as a "peripheral membership role," which is different from having an active membership role. Here researchers observe and interact closely without participating.

Table 3.1: Breakdown of observations in this study

Whānau	Observation
Whānau Group one	Kamātua was supported by younger whānau member on how to purchase an online item. This showed how they navigate safety of using the internet when using credit card details and trusted websites.
Whānau Group Two	Younger rangatahi helped māmā create an Instagram account. This involved downloading the application, setting up a profile, explaining what it is used for and how to use the software.
Whānau Group Three	Rangatahi supported Dad to post a picture on Facebook. This involved choosing the picture, using the uploading on Facebook and helping write an appropriate caption. It also involved seeing who could see the photo and setting it too private.
Whānau Group Four (Rural)	Wife supported husband to set up an excel spreadsheet to show how he can better organise his business finances. This involved where to save, access and edit the spreadsheet and explained the benefits of using the spreadsheet.
Whānau Group Five	Younger whānau member helped older whānau member with basic phone use. This involved where to access anything Bluetooth or connecting to other internet sources.

3.8 Procedures

Two external community members were consulted for this project. One of the kaumātua that attended the kaumātua group through Awarua Whānau Services, Christina Te Raukahawai Tanirau and Marcus Tuwairua (Ngai Tahu) who worked at SIT as a cultural connector. The Kōrero with whāea Christina was an informal conversation. The outcome from this consultation made me think about my position as the researcher being completely observational. This informed the methodology through 'Titiro Whakarongo Kōrero' (look and listen first: speak later) and 'Kaua e Māhaki' (Do not flaunt your knowledge). Marcus and I had a formal hui in his office. The outcome from this consultation highlighted 'Aroha ki te Tangata' (Respect for the people you are working with). Marcus developed an interest in the study and provided extra community support and guidance throughout the research project.

Participants were invited to one interview, which included interviewing each whānau member followed by an observation with both the whānau members. This research used criterion sampling/ purposive sampling (Campbell et al., 2020) as the population was selected upon certain common characteristics in which they were Māori that used technology and had supported other whānau members with their use. I recruited the participants through Awarua Whānau Services situated in Invercargill with permission of the Kaihoutū (CEO) and General Manager of Awarua Whānau Services. For the initial recruitment phase I had a discussion with whānau that I had a relationship with, and fitted the criteria for the research project. By explaining the research project, I let whānau decide whether they wanted to participate. I did not force participants to be part of the study. The participants that were interested in the study contacted me via phone or Facebook messenger. I replied to the participants with a set of questions regarding the inclusion criteria to confirm that they met the requirements. Through meeting face to face and Facebook messenger all 5 whānau groups were given an information pack which included an information sheet (Appendix A), a consent form (Appendix B) and a transcript release form (Appendix C).

Table 3.2.: Breakdown of participants in this study: Whānau group dynamic including Age, living arrangements and support relationships.

Whānau	Participant 1	Participant 2
Whānau Group one	**W0101** – Aged 35-45, lives with 75 year old Mum, Partner, and young daughter aged 3. Works and supports Aunty.	**W0102** – 70 year old Aunty, lives alone, requiring support from niece, supports sister.
Whānau Group Two	**W0201** – Aged 30 - 40, lives with daughter (16), son (13), Mokopuna often stay, older son sometimes stays. Working full-time.	**W0202**- Aged 16, lives with little brother and Mum. Will stay with Dad occasionally and his whānau, older brother sometimes stays. Going to school.
Whānau Group Three	**W0301**- Aged 50-60, lives with two tamariki (20 & 16), partner. Sometimes has	**W0302** – 16 year old, lives with Dad, Mum, Older sister. Supports grandparents on

	granddaughter stay and supports Mum. Staying at home about to go back to mahi.	both sides. Seeks support from older sister. Going to school.
Whānau Group Four (Rural)	**W0401**- Aged 30-40, has 3 young pepi at home (4, 2 & new born), lives with partner. Supports friends, partner, parents, partners of parents. Parental leave.	**W0402** – Aged 30-40 , dad of the whānau, works on the farm. Lives rurally. Supports own Dad.
Whānau Group Five	**W0501**- Aged 25-30, lives with Mum and her partner or at mates, has 2 tamariki (4 & 9) who live with Nanny. Studying.	**W0502-** Nanny is aged 50-60, Lives with her son and his Mokopuna. She contacts her immediate whānau every day (daughter and moko) Supports her Mum with technology. Owns her own business.

Inclusion criteria included the following:

- Participants must identify as Māori however, interviews are conducted in English.
- Participants must own a technology device such as a computer, smartphone, smart television, iPad, laptop.
- One whānau member must have supported the use of technology for another member.
- Participants need at least **one** other whānau member to participate in this study.
- One whānau member must have Internet connection.
- Participants must reside in New Zealand.

Each whānau group had a different approach in terms of consent and sharing of information. Some whānau whom I had an immediate relationship with were given the information pack and consent form prior to meeting for the interview. Other whānau members signed the consent form upon meeting for the interview. One whānau group were interviewed at the same time and other whānau groups had separate interviews at different times but then were available for the observation after their other whānau member was interviewed. Interviews were arranged by

phone or Facebook messenger and held in participants kainga or at Awarua Whānau Services. If all the whānau members were available, we all met together and shared a kai before I conducted separate interviews. Once the interviews were conducted, I discussed with each participant how I could observe some of the instances they discussed in a safe environment, this allowed me to see first-hand how whānau assisted other whānau members with their use of digital technologies.

I used these questions as a guideline (Appendix D). We started the interview with karakia if participants felt appropriate then I explained the interview process of making sure whānau felt comfortable and relaxed. With the participants permission, I audio recorded all interviews, and I assured participants that I would be the only one that could view the participant's information and that data would be stored in a secure location. One whānau group were interviewed together. This group included a rangatahi and he felt more comfortable to stay with his Dad. Both participants answered all questions separately.

Observations were conducted after each interview. The setting for the observations was established during the interview process so everyone was aware of the phenomenon being observed. To guide the observation, I used an observation protocol (Appendix E). On completion of the observation, I gave each whānau a food voucher and once the interview transcriptions were completed, they were given back to whānau to approve.

Once I collected the data, I listened to the recordings of the interviews and my audio-recording recount of the observation and transcribed word for word, including as much punctuation to make the text make sense. I then gave the option if whānau wanted their transcripts to approve, change, edit and comment where they felt were appropriate.

A presentation of the data was created once the research project was marked. This was facilitated in person at Awarua Whānau Services. For those that could not make it, the presentation was sent to them.

3.9 Analytical Process

One of the central concepts within Kaupapa Māori methodology requires that researchers have a conscious awareness of Māori systems, knowledge, people and processes. At the beginning of the interview I recorded nominal data which includes age and technology they use to see if there were any attitude differences between the responses. This helped to create more context for the narratives of the participants. I utilised the six-step reflexive thematic analysis by Braun & Clarke (2006). This approach is theoretically-flexible which means it can be used to answer different types of research questions (Clarke et al., 2019). By utilising reflexive thematic analysis I was able to keep the results as honest and as representative of the data as possible. By familiarising myself with the data in detail and broader picture, allowed me to get a real sense of how to integrate the data. I started the analysis by familiarising myself with the questions and the answers. In the next stage, I generated codes, which is a systematic way of organising and identifying meaningful data. In my coding analysis, I employed deductive reasoning by utilising the Digital Inclusion framework as a theoretical basis for identifying initial themes. This theory-driven approach provided a structured foundation for interpreting the data according to established concepts. However, I also utilised inductive reasoning by letting codes and themes emerge directly from the data, particularly in areas that were less theory-driven, such as motivation (especially in a New Zealand context). This approach enabled me to capture nuances and insights that might not have been initially accounted for, like mahi fostering skill development or reconnecting with Te Ao Māori. Clarke et al. (2019) explained it is important to go back and forth over the data, renaming and changing them as new answers appeared. While generating themes, I considered how relationships were formed between codes and themes and between different levels of existing codes. I reviewed my data and analysed my current themes against the coded data and the entire data-set - this was to ensure the analysis had not drifted too far from the data. I wanted to keep my themes straightforward and easy to understand as Braun and Clarke (2006) recommend caution about developing lots of different levels of themes, which may lead to an overly fragmented analysis. The main themes generated align with the Digital Inclusion framework: Access, Motivation, Skills, and Trust. Additionally, Support emerged as a fifth theme,

reflecting how whānau received assistance with technology based on the data. The key to analysis under Kaupapa Māori is to be able to appropriately interpret and understand information that has been intertwined with tīkanga Māori, Māori knowledge and understandings (Bishop, 2005). This is when the observational data supported what was captured in the interview data, as I was able to further explore themes that were first raised in the interviews. Where appropriate, a finding was related to Māori kupu to help further unpack and explain that finding.

3.10 Reflexivity

As I am utlising a Kaupapa Māori approach to my study I must take a reflexive position to recognise and interrogate my role within the study. Reflexivity involves practicing self-awareness throughout the research process, which helps make the practice and construction of knowledge visible to produce accurate analyses of the research (Kwame, 2017). Reflexivity requires me to be critical and aware of how my own identity, opinions, and interests and how these could affect different stages in my research. By questioning my interpretations and knowledge allows me to produce better and less distorted research accounts (Pillow, 2003). My role as the researcher and stance on this research is that I am an insider (Wigginton & Setchell, 2016). However, I do acknowledge that being an insider does have negative aspects, and I need to be aware of my own biases, particularly during the interview and analytic processes.

3.11 Ethics

To conduct this research, I applied for a full ethics application. This was approved by the Massey University Human Ethics Southern B Committee on the 12/07/2022. The ethics application Identification number is SOB 22/15.

3.12 Conclusion

In conclusion, this chapter described the research design and methodologies employed in this study. It has detailed the Kaupapa Māori principles used to guide this research and the integration of Eurocentric (Western) research methods into the research process. The chapter has provided an overview of the research procedures and ethical considerations.

Chapter 4. Findings

Hohonu ake te kete, pātia.

The basket that is deep can be reached.

4.1 Introduction

This section presents key findings of this research, organised under five main themes: (1) Access, (2) Motivation, (3) Skills, (4) Trust, and (5) Support. Each theme explores aspects related to the use of digital technologies within Māori households and how research participants support members of their whānau using digital technology.

4.2 Emerging themes

4.2.1 Theme: Access

The first key theme explores participants' access to digital technologies. Participants discussed their access to devices, speed of connection, the cost of devices and Internet connection, and specific factors related to accessing the Internet and devices during COVID. It includes examples of how whānau supported rangatahi, tamariki, pākeke and kaumātua with access, links between *access* and social connections, and how work or study contributed to participants' access to digital technologies.

4.2.1.1 Access to Devices

Participants were asked about their use and types of devices they preferred when completing tasks, and how participants supported access for other whānau members. Every participant reported that their cellphone was their main device. In four out of the five observations

conducted, I witnessed participants providing support while using a cellphone. The following quotes describe their access to devices:

> *I'm on my smartphone more because at nighttime relaxing on Facebook and Instagram and stuff and then Saturday, and Sunday is probably my smartphone. So it would be my smart-phone (W0101).*

> *My phone is a definite, Yeah, my phone is absolutely a definite. I mean, majority of the stuff that I do on my PC is just like, my phones are just small computers nowadays anyway, so my phone mainly I spend the most time on that because if I'm on the go or moving out for work, and studying, everything that I've got on my phone is on my computer as well (W0501)*

However, the preference for a device was sometimes discussed in relation to tasks. Two different whānau groups recognised that they would use a phone or computer at home depending on a specific task. The quotes below suggest that tasks like email or study tend to be performed on a computer, while for entertainament tasks or "when there is nothing to do", participants use a cellphone.

> *Yeah, probably both so my phone when there is nothing to do but then when there is stuff to do normally it's on like a computer (W0202).*

> *But then other than that, it's just nah not unless I have to send emails, reply. I guess I use my computer for that (W0502).*

Another participant recognised that not having access to the right equipment affected homework for their tamariki.

> *No, no. It's only annoying when the kids need to do homework because we don't have a laptop. Then it can get a bit harder (W0201).*

4.2.1.2 Cost & Internet Connection

A consistent finding related to *access* is that all participants reported good access to the Internet, suggesting that they did not identify potential barriers in access for themselves.

> *Have you got Internet like, "yeah" (W0502)*

> *Like the speed of Internet and stuff, it's it's, it's not too bad here to be fair (W0402)*

However, there were mixed thoughts around the cost of devices and costs related to Internet connection. Most whānau recognised that technology and the Internet were expensive but cost was not necessarily seen as a barrier to stop use. Nevertheless, rural participants experienced Internet access differently.

In the following quote, a participant from one whānau group explains that they lived rurally so had to sign up to a more expensive plan.

> *Cost to connection so we live rurally and Internet costs us significantly more than other places. So we're about 160 bucks a month, which is a lot. Cost of devices, they've about a grand for an iPhone which is expensive (W0401)*

> *It's expensive aye (W0402)*

Urban participants recognised that being connected and having the right devices can be expensive but did not consider this as a barrier to accessing digital technology. They did not report any significant issues with connections.

The price of them although it's such a common factor to look at devices and be like, Whoa, you know, that's that's going to be a good chunk out of my pocket. I still feel like it's like man doesn't really cost you that much to make across you like $17 to make an iPhone, but you sell it for 1700, You know, for me, I think there's that …. I think it's a barrier in general for other people... *Not very much personally (W0501)*

They can always be cheaper, but I don't really have thoughts because it is what it is (W0201)

However, the rural whānau commented on having unreliable connection to the Internet, which at times required them to search for alternative options to connect their devices.

Yes, it's probably just more Internet issues. When the Internet is working so that's run off the laptop so if we don't do that, then we have to hotspot our cellphones or it's just more admin ... just *sometimes it just doesn't work? Because we're out well, either we are out of data. So it takes us a while to know whether it's fault or whether we're out of data. But yeah, sometimes it just doesn't connect and there's no rhyme or reason (W0401)*

Another participant reflected on the impact of speed in the way their whānau performed tasks and participated in life. This participant valued high-speed Internet and would happily pay for faster Internet connection.

I'm a megabytes snob, like anything less than 100 megabytes? And like, what's the point? What is the point I may as well be on dial up? You know, so, and I was around the era of dial up, you know, the no one could be on the phone. You know, but it was revolutionary at the time. Yeah, yeah. But I think for me, it has a huge impact, especially on with how fast paced, I've revolved my life around just doing things quickly and efficiently, I think, like getting an efficient? What's the word? Like, efficient bandwidth is everything. (W0501)

Rangatahi in the study were commonly supported by their parents in terms of paying for hardware, Internet connection and monthly subscriptions.

> *I don't actually know. I would say I first got my first cell-phone. My parents brought it for me. Just because everyone, well sort of had them at school. (W0401)*

> *I Pay for it (W0301)*

Financial cost was an issue for some participants. For example, one of the rangatahi suggested the price for data was a barrier.

> *Um, probably like, the cost like for data (W0202)*

At other times, the financial cost was not perceived as a problem, but more so the value placed on the use of the Internet. One of the Pākeke from the study raised their frustration trying to get their mother to connect to the Internet. Their mother had financial means, but she did not see value in using technology.

> *I said to her because she won't. She's like, I'm not paying for that. I said "my moko needs Wi-Fi mum" She goes, "Oh, he can go to his Auntie's" He can sit at the window. so he sits at the window and jams, "I said man you tight". Mum its like, Mum! Dad, when Dad was alive, he was into trackside and that and she's like, "No, I'm not paying $100 a month" and I said "Mum just let him have trackside" nah she's real tight aye, got plenty money. You know, like, she's not. She's not a millionaire, but she's not broke either. And she just won't waste money on technology. (W0502)*

4.2.1.3 Access & COVID-19

This project started prior to the COVID-19 pandemic. However, during this period, the scale of digital inequality in New Zealand became evident (Ministry of Education, 2020,b; N4L, 2021), in terms of the number of households and students that were left without devices or connections. COVID-19 clearly impacted the way some whānau accessed technology, and therefore remarks related to the pandemic were explored as part of the *access theme.*

> *I think I think it [COVID-19] was good, because it opened a lot of people's eyes to how important technology can be in your day-to-day routine (W0501)*

One member explained the importance of being connected during this time, and how a local social service messaged them regarding Internet connection.

> *And it's funny because one of the things that Nga Kete Mātauranga was kohaing (giving) whānau to have, have you've got Internet. Have you got? Have you got? Have you got Internet like, "yeah" (W0502)*

Referring to the pandemic, the rangatahi participants mentioned an increase in technology use for social interaction, particularly during the times when they could not see their friends at school.

> *Probably used it more during COVID Since we couldn't like see people. (W0202)*

> *Sort of keeps people in touch, especially with like, with COVID and other variants that come around. Being locked down you can sort of like, after school you can Facetime a mate if they if they don't have it. Then there's other things like, how obviously not being bored, go and play games. (W0302)*

For one participant it was hard being away from whānau during COVID-19, so technology was important for maintaining connection to loved ones.

> *That was one of the things because I think it was about that connection. But you know, during COVID Yeah. ... And I do realize it was it was important, like he was crook and I couldn't go near him and he went the whole three of them was sick. Like the kids, he only suppose to have them for three days. He had them for three weeks. And I couldn't go near her because tiff had been waiting two years for her appointment, for her back, and we couldn't take the risk. So I had to go to the door, but I was able to look at him and looking at him was worse than being with him because I couldn't I couldn't touch him. I couldn't hug him. I couldn't look after him. But still, you know, and that they are reckon it's more depressing than having no contact at all. (W0502)*

After the onset of COVID-19 and lockdown requirements, one whānau changed their Internet connection to facilitate work-related activities.

> *Yes, I did as I had worked from home. And we actually had to change our Internet plan because of that, because we didn't have enough Internet having to work at home full time. So that costs us money and, yeah, probably kids at home more. So more TV and things like that, which isn't always great. (W0401)*

Another whānau member, studying at a polytechnic, had to shift all their learning and communication to an online environment.

> *Absolutely. well, everything became online. Everything became online, my meetings and stuff with my project supervisors, even connecting to other musicians or music. That was all done online. And, yeah, so I think I think it was good, because it opened a lot of people's eyes to how important technology can be in your day to day routine. But I think the negative side of it is that created more of a resistance against putting your phone down*

or getting off the computer and socializing. In person. So there's pros and cons I think. (W0501)

4.2.2 Theme: Motivation

The second main theme explores the reasons that encouraged whānau to utilise digital technologies. Motivation in this study refers to understanding the purpose for using digital technologies and how the Internet can facilitate connections, learning, and accessing opportunities. Under this theme, I explore what participants considered as a purposeful and engaging experience in the digital world (DIA, 2019), which in this study included: using applications to unwind and for entertainment, the convenience of making life tasks easier, the ability to socially connect, reconnection with Te Ao - Mātauranga, and factors that may affect individuals' motivation to use digital technologies. I also discuss whānau attitudes towards technology in relation to communication and social interaction. A core finding related to the *motivation theme* is how rangatahi and pākeke are often attempting to encourage elder members of their whānau to use digital devices.

4.2.2.1 Unwind and Entertainment

Every participant reported using either social media or an entertainment application to relax and keep themselves amused. Participants used games on their phone to unwind at the end of the day.

It's my little wind down period for me… yeah its just my little games. its my little wind down period for me. (W0501)

One participant commented that their mother was keen to use technology to play games, and how a positive side effect was that they can now contact her.

Yeah, yeah. Although she probably wouldn't use it if she didn't have to but now she likes it with her games and all that kind of stuff. But other than that, yeah, we asked her to have it on her all the time. So we need to get in touch with her for any reason we can (W0101)

Among all the whānau groups, social media such as Facebook and Instagram, were commonly utilised for entertainment and relaxation.

For me, it's just that the motivation is like, it's like TV. I don't do much on it. But look, scroll through Facebook because I want to zone out. (W0201)

I'm on my smartphone more because I nighttime relaxing on Facebook and Instagram and stuff. (W101)

Participants reported using technologies to listen to music on Spotify and as a way to relax and chill out.

Helps when helps with other things like when I just want to chill out, put on some music and turn my phone off helps like with what dad said. (W0302)

Although most participants showed enthusiasm in using technology for entertainment, at times there was not a lot of interest in autonomously learning how to use social media. As part of the sessions with whānau, I observed a whānau member teaching another how to set up an Instagram account. The individual being taught initially displayed enthusiasm to learn about the application on their mobile phone for relaxation purposes and entertainment. However, once the instruction began, the participant being taught quickly lost interest and simply wanted the process to be completed, passively watching without asking questions or displaying little engagement until the account was successfully set up on their phone.

4.2.2.2 Convenience

Convenience related to the way technology facilitated the achievement of daily tasks. Whānau highlighted how the Internet and digital technologies made their day-to-day routines easier.

> *Technology kind of makes the things that are necessary for my daily routine easier. (W0501)*

> *Probably ease, to simplify things. Yeah, keeping in touch with people. Yeah, probably the ease of that. Yeah... Pros would be that you can do anything anywhere. So you can send emails, you can communicate with people, you can do business from anywhere. (W0401)*

Internet banking was seen as an essential motivator to use digital technology.

> *To having to go to the bank, Yeah convenience so you don't have to go to the bank. (W0201)*

> *Well it's a lot easier than like, having to go and do stuff manually. You know, I remember when I was younger, going to the bank to like do withdrawals and stuff like that you had to fill out a wee slip you know so you fill that out and then you take it and you're like how much is in there you know, whereas on Internet banking I can just log into my account see the balance see what needs to be transferred to where and I can also set up automatic payments a lot easier. (W0501)*

Participants also reported that digital technology facilitated daily cooking and online shopping, both for themselves and with their Tamariki. They expressed that these tasks were much more convenient and manageable when performed with digital tools.

> *But then there's also other great thing. Like, there's activities, and there's recipes. And there's all those things that you can access online with kids and stuff like that. (W0401)*

So we left and I said how you're gonna get on when you do the kid when you have the kids my boy? He goes online shopping or go click and collect. (W0502)

A participant from whānau group 5 and another from whānau group 1, highlighted using Google to search for health symptoms. They recognised the importance of technologies to quickly access information about health-related concerns and symptoms for their whānau or themselves.

Illness, I will say medically, medical things that are really important to me, because I'm one of those grandmothers that and all of a sudden I think they're dying, you know. (W0502)

Yes. So like, I guess when she was younger? If she were she had something and we weren't sure I definitely would Google symptoms. (W0101)

Connected to *convenience* is also the use of technology to facilitate communication. Among the participants, three out of five whānau groups referred to digital technology as a convenient means of communication, especially in situations where they encountered trouble or faced challenges.

Well, you could I break down and you can ring your whānau up, to come and help you. (W0102)

Samsung, the ones that you can answer your phone on. Yeah. ring out on. Yeah, that's just for safety. You know, like, especially when you're scaffolds. You know, because I raise my mokos if anything happens I can answer. If its urgent. (W0502)

She, we tell her that she needs it on her all the time. So if we need to get in touch with her then it's a bit like if she had a fall or anything like that. (W0101)

4.2.2.3 Connecting with Te Ao Mātauranga

Participants recognised how whānau were able to use technology to explore Mātauranga Māori. Three of the five whānau groups mentioned that technology helped them connect with Te Ao Māori.

> *But then like the other night, I'll just keep skimming. And then the other night I just come across a thing called Taonga, which is stories of Māori, Māori old Māori stories of, you know, and I was like, oh, cool, yay. So things like that. (W0502)*

> *I like looking up Māori designs, you can just look it up on the Internet and it goes, and your got heaps of different variants of them… I like I enjoy drawing. So I use look up Māori designs and sort of incorporate that into what I draw. (W0302)*

> *Um, no, because I write a lot of Māori waiata and I go on YouTube to get the kupu and then I want to understand what the waiata is about and who wrote it. (W0102)*

Two participants reported using the Internet to translate English to Te Reo Māori.

> *I do I do use it a lot from English to Māori, when I'm having kōrero with my granddaughter because I'm, she's, you know, being fully immersed next year and I'm getting moko kauae next year. So I'm trying to speak Māori as much as I can, not that I need to do that or you need to be fluent is all crap kaka. But I'm still trying to make a good example for my granddaughter because she's fully immersing. So for me, it's just and she's like kupu Māori nanny and I'm like, and I'm on their like English to Māori. And it goes boom, oh, went , yeah, and she's goes ae nanny and I was like. (W0502)*

We're doing a lot of work with that using like translating English to Māori to use for speech. And PE we don't use computers at all. Math we don't use technology in same with science. (W0302)

4.2.2.4 Connection, Communication and Community

Digital devices provided an avenue for participants to engage with others and the broader community. Whānau also expressed their use of the Internet to stay informed about local events, maintain connections with others, and to arrange meetups.

Yes, you can find what's going on in your community, You like, you know, I'm involved with Ukulele so I know who to contact and who you know, where the next gigs are?....Every Wednesday we have a Kaumātua day which involves nga kete, and we had that page set up for us...In the morning, I get up, awake at seven and I'll get on my tablet, and say hi to all our Kaumātua kuia ukulele roopu....And maybe I'll send out a karakia to all. (W0102) (W0102)

So planning to meet up, which is what I found is the most reliable form of like, utilizing technology to catch up with people… Even I use messenger a lot to keep in touch with them. Most of it is like, if I was to actually go through, there's not much in terms of conversations, it's more of like, Hey, what are you up to? Should we catch up plan a time, you know, all that type of stuff. So planning to meet up, which is what I found is the most reliable form of like, utilizing technology to catch up with people. (W0501)

One participant explained how she Facetimed her moko every morning and felt blessed to have technology. Another whānau group identified how they used Facebook messenger to communicate and stay connected with whānau overseas.

My son, he's, thats worries me you know, my daughter she's nah she well if I don't hear from her, she lives in Bluff. I don't see her or my moko every single day I go into a state of depression so she's every morning, and my one year old moko gets on the phone gives me

a smile and I'm like "morning my grand" you know like those are the sorts of things that would break my heart like I feel blessed that we have this technology for that but it's it's yucky for some things ... But I just think if I didn't have FaceTime, I'll be quite a broken nanny. (W0502)

One thing I will say it like having especially having whānau over in Aus, like keeping in contact with them and that sort of encouraged me to get on Facebook and Messenger because I wouldn't usually go on to that but like, being able to message like my uncle's over in Australia, asking them how they're doing have the kids are and cousins yeah (W0302)

4.2.2.5 Factors affecting motivation

Whānau expressed reasons as to why they felt unmotivated to use technology. A few participants were frustrated with constant technology updates and the complexity of technology.

The only complaint I have is surely they can make it more basic. Look, if you wanted to find something like that, it's it's hard. I personally find it hard. (W0301)

If they keep changing everything around it'll stop me, software updates. I sit there and think, Well, the older we get…. Why did I stop? Because they changed. ... They change the way I dont know I can't quite understand it. (W0102)

Two younger participants spoke about social platforms being a place for toxic behaviour.

It's not more like the phone itself. It's like, the apps like I have snapchat it so I can keep in touch with mates and that but there's also a lot of toxicity on it and stuff and can be quite boring and get quite basic. Sort of just like gets repetitive every day just sending photos and it's just like, yeah, sometimes you just have a break for a bit (W0302)

Yeah. Yeah, it is a bit too much. And there's, like it was social media platforms. And I know, I could talk about this all day. But there's a lot of unfiltered stuff on there. Like, there's nothing that's dedicated to my type of person specifically, like, eg musician, worker. (W0501)

Whānau who had young tamariki reported feeling guilt about using technology for entertainment purposes. They felt like it took away time they could spend connecting kanohi ki te kanohi, so have come up with a strategy around the time they spend on devices.

My daughter, I need to give her time. Reading a book… as much as addicting it is you just need to know when to say it's got to go off and I need to spend some, we need to have some family time… Probably just switching it all off and spending time with my daughter... So now we've come up with this idea that and we're trying to do it, we're trying real hard. But now after 6:30pm, there's no more device time, and it's just time for us as a family. ...Just to stay off it really just to give it more face to face family time. (W0101)

One participant experienced frustration due to their partner's overuse of technology, which resulted in a lack of attentiveness towards them and their tamariki, despite their attempts to communicate their concerns.

So my partner, my main frustration with him is social media. Because he's constantly on his phone, I will talk to him and I have to repeat the same thing three times for him to actually hear me sometimes, which is really frustrating. And I noticed that with the children as well, that he doesn't hear them. So they try and talk to him and doesn't get anything from them, which frustrates me. So that's a part of technology that I don't like. (W0401)

It is noteworthy that the partner from the same whānau group acknowledged the amount of time they spent on applications.

Just the time you waste on it probably. I dont know, not as productive sometimes. Waste your time on Facebook and Instagram and stuff?...I waste a lot of time on it to be fair.. Facebook to waste time, just time killer, instagrams the same, yeah time killer... actually yeah, we're probably probably bad for it here. We're bloody on our phones too much. Yeah, you just go to sit down and chill out. ...Yes. she likes telling me to get off the phone. (W0402)

This participant's experience was not unique, as another participant also acknowledged that they dedicated a significant amount of time to non-essential applications.

I spend a lot of time on some of the apps on my phone that are not required. (W0501)

Four participants noticed the negative impact technology had on them with relation to face to face social engagement. This prompted one of the younger participants to recognise they wanted to change the way they use technology.

Well, I use a prime example at school. Yes, I would say because you see we could be in the hall on a rainy day and there's about 30-40 boys in my year old all just sitting on chairs and there's only about three or four people talking to each other the others are just like playing games like they're playing games with each other and communicating through Snapchat and that really, thats what I notice and then sometimes I know myself, it's like going to like my bedroom my bubble I just go and stay in there on my phone. When I should really be getting into the lounge, like I know I need to change. (W0302)

Four different participants said they were happy with their current use, and were not interested in learning about new ways of using technology.

I'm quite happy with what I'm using and what I'm accessing on my phone. I'm quite happy. (W0101)

I don't, I'm not into it, It doesn't worry me. I got the basics of what I want to do so I don't care. (W0301)

Older whānau seemed happy with their current skills, and relied on other whānau members for further support.

Because I got everyone around me that can give me the knowledge that I need. There's nothing further than what I need that I want. (W0502)

This is a rich richer story. So my son will come to me with things that if I'll give it one go, and then if it won't work, I'm like nope sorry. I'll do that… because I'm never interested. I'm like fix it and don't come back to me till its done, isn't that terrible. (W0201)

Similarly at some observations of whānau I noticed they just wanted to have the task done by the person they asked for support.

Not when it comes to the Internet stuff or anything Technology wise, I'm not really interested. (W0301)

One rangatahi recognised several motivating factors to use technology and highlighted the potential benefits it could bring to older whānau members. However, like others, this participant found that motivating older whānau members was challenging at times.

Yes, I could say it because I think phones are quite useful and technology, especially ever changing. I to find it hard to motivate them, though. (W0302)

Yeah, he's probably the same aye like he's probably not willing to just not willing to learn aye like how to use it properly. (W0402)

Mind you my sister lives next door and she works with MOE. So her technology is really important. So if Mum goes over, I can go Hi. And I said I was mum near put her on. She's not completely ignorant to it. She just won't. She won't. She won't conform. She just won't do it... And I said Mum, that's fine. But unfortunately, that is the way my mokos are going to be learning at school soon. *(W0502)*

In contrast, *w*hānau that supported others commented on how it made them feel. They liked helping as it felt good to pass on their knowledge.

I think it feels good, feels good to pass some of your knowledge onto somebody else. (W0101)

Other motivating factors were associated with perceived demands to conform with developments around them. Five whānau members used a similar expression to "the way of the world" creating a sense of pressure to stay technologically updated. This led participants to upgrade their devices and to actively engage with technologies. The perceived pressure served as a catalyst for learning new skills and embracing technological advancements.

No. I think nowadays, even though we need to learn to use as the way the world, we just need to learn to use technology, because technology is going to be rolling us. (W0101)

Influence, I guess just having the kids in where they're at. I'm aware that that's where the world's going so I kind of need to jump on board to a certain extent, but I try not to as well because it's hard. (W0201)

4.2.3 Theme: Skills

The third theme – *Skills* – is defined by having the know-how to use the Internet and digital technology in ways that are appropriate and beneficial (DIA, 2019). This theme explores the

software and hardware applications whānau know how to use, the types of skills that participants were taught, the places where whānau learnt to use technology, where they find support for using digital devices and how mahi helped whānau to upskill themselves. Underpinning the discussion under this theme is how participants supported others or needed support themselves to develop the know-how to use the Internet and digital technologies. *Skills* connects to the motivation theme, as whānau cultivated skills driven by their motivation to utilise technology for educational and work purposes. Because whānau had to use technology for their mahi or their education, they were motivated to upskill using technology.

4.2.3.1 Software and Hardware

Participants used different applications to communicate with others, including Viber, Discord, Facebook messenger, Snapchat and Facetime. All participants reported using software applications every day, mostly for social interaction and entertainment.

> *Like I said earlier Māori arts, music, entertainment, things like that. Photos, FaceTime, communication. (W0301)*

> *Facebook, Gmail, I've got Chromecast as well. Snapchat and FaceTime Instagram (W302)*

All participants used Facebook, email and Facetime to connect socially with whānau and friends. Snapchat was also a popular application to communicate with others.

> *Like? Yeah. Using my work computer, Emails, Facebook? so whats that, social media (W0101)*

> *Every hour or I don't know two or three hours of the day checking into Facebook or Instagram. (W0402)*

Pack my bag then go on snapchat for about 30 minutes before we get dropped off. Then go to school. (W0302)

In terms of hardware, some participants reported preferences for specific technology brands. Their preferences usually connected to their proficiency in operating a particular type of device, and a perception that these skills were not necessarily easily transferable and would affect their ability to use a different laptop using a distinct operating system.

One thing actually with laptops. So I've always gone on HP. But Apple is so different to HP. So I'm not very good. I'm very restricted on what I can do it on Apple laptop. Because I haven't used an Apple laptop. It's not as fully you know, as as what I'm used to. So that's a limitation for me.... My sister is an Apple laptop user. Oh, yeah. So we, yeah, I tried to play something on her laptop and I literally needed to ask her how to start it. Like to go into the search start. (W0401)

I hate Apple I'm a Samsung girl...yeah that's too complicated for me Apple. (W0502)

One whānau member recognised the complexity of learning to use hardware and the minimal support available to help.

Then the hardware is a lot harder to utilize as well because there's not a lot of information on the hardware that is maybe not required, but necessary to do certain things. So, I think there's this big stigma of us moving into the technological age like we should know but like there's not a lot of people out there that are telling us how to do it. (W0501)

4.2.3.2 Skills taught

During each session, a moment with a structured teaching activity was observed. Within each whānau group, there was one member who provided technology support. This member taught a

basic digital skill to another whānau member. Teaching skills observed included: how to post on Facebook, how to buy something online, and how to set up a social media account. The pākeke and kaumātua in the study relied on younger whānau members to teach them basic digital skills. One participant explained the steps she goes through to teach her mother how to use a communication application called Viber.

> *Just navigating probably, different apps, if they're not used to it like Viber. I'd have to show them how to use Viber (Communication app). Even just to turn it on, put on a password, put a password on it. to keep it secure.... How to answer, what it looks like, what her ringtone is what her text tone is. (W0101)*

Whānau also learned skills around basic hardware functions.

> *The skills I learned was to turn the computer on. (W0101)*

> *I think one of the ones was like that she first showed me because like obviously with no knowledge of like the hardware itself if the phones running slow you kind of like oh this phones had it. Its shagged you know so but she the one of the first things she said is its happened like that because you've got all this stuff open so you know you click this button that brings up everything that's open in the background and you can just you know, swipe it out to turn it off and I was like, man that's cool. (W0501)*

During interviews, whānau frequently provided support to others, such as assisting with tasks like syncing data to a new phone, managing storage, recommending, and downloading new music on Spotify, as well as addressing basic computer functionality questions. Within each whānau group, it was reported that either one person provided or needed support with a technology-related issue on a weekly basis.

You know, so it's like every time she gets a new phone. So, I learnt teaching how to sync that. That new phone and everything she does up to her cloud, her Dropbox or anything like that. Then there's things like the file sharing and stuff like that. (W0501)

And yeah, probably just system stuff. Because with my work, I use systems. Where's he? He's a farmer and a shearer, and he doesn't use it as much so I can follow my nose more than what he could.... Yes. Quite a lot of stuff on laptops. In spreadsheets. Even the other day, he had a page that he wanted to get too quickly. So, I showed him how to add it as a bookmark. at the top of you know, where the bookmarks are?... Yeah, I set it up on his phone. (W0401)

Whānau explained how they found it hard to teach new skills to others. For example, they described it could be frustrating when the person receiving support loses interest. During the observations, a whānau member's interest tended to decrease when they were not actively involved in performing the task. However, their attention was regained when the person teaching the skill completed the task. One whānau member describes her experience of trying to teach her sister challenging.

I tried to show my sister over there. But she loses it some people are just harder to teach than other people… will learn in their own time when they are ready. it's not just about you talking its about wanting to do it. (W0102)

Whānau members that had supported others with their technology use also observed that it was sometimes difficult to help others. The people they helped at times lacked patience with either learning about the technology or the person who was supporting them.

Yeah, definitely. If I show my mom, or my family, and I can know when I'm showing my mom, and it's too much because she'll do a face. So I know that it's too much. And then yeah, no, we won't go there. (W0101)

4.2.3.3 Places to learn and develop skills

Schooling and formal institutions for education enabled whānau to learn how to use different applications. It was apparent throughout the interviews that education had a positive impact on digital inclusion, specifically in skill development. The younger participants who were still at school, and participants who were studying through an educational institute reported daily use of technology.

> *We do a lot of research in English because we're always writing up our essays and personal responses. Māori, we're doing a lot of work with that using like translating English to Māori to use for speech. (W0302)*

> *That's why it's basically any assignments I have, or any proposal drafts that I have to put up Google Docs is the most reliable, it's auto saves every bloody of 10 seconds, I think it is, which means I don't have to constantly backup my work like Microsoft Word. And then there's things like Discord as well, which make it easy for me to connect with other people that I'm in class with. And Teams, for catching up with project supervisors, and teachers who tutor the course. (W0501)*

Whānau that were enrolled in formal courses received technology support from their schools or polytechnics. Common learning tasks that required specific skills in using applications included: researching, translating, writing essays, audio, screen sharing and communication.

> *A lot of it is either at polytech, or kind of they give you a basic rundown of what is what the apps required for. So they'll just be like, hey, you know, we require an app kind of from then on….Discord is, so that they have like screen and audio sharing as well. So if I'm doing from working in a group project, if there's stuff that I find that's relevant to what we're doing our project about, then it becomes a lot easier to jump on things like discord. And just be like,*

Hey, look at this, instead of me having to try and dedicate a certain amount of time to this person. (W0501)

Whānau that were at school or had tamariki in school had to use applications to view class schedules, permission slips or general updates about their tamariki. Whānau could ask the school for support to use these applications, however one Mum would rely on her daughter for support.

Yeah, I've got edge, which can show you like your timetable and yeah, it shows you and it shows like your reports they send home. I can see that. (W0202)

4.2.3.4 Mahi

The study also found that whānau developed skills through mahi, such basic business administration, taking photos, using a laptop/computer, using YouTube to learn about skills for their job and using technology to promote their music.

Spotify, YouTube, I watch a few YouTube vids aye, hunting videos, how to shear sheep so shearing videos. (W0402)

You know, I never use things like Snapchat or Instagram or anything like that. But they are useful in the sense of like, because I'm a musician, utilizing social media platforms to promote music and events and gigs that I'm performing and anything like that as about the only convenience. (W0501)

Mahi was also the original reason whānau developed skills on the computer.

Awarua Whānau Services. Yeah that's where I learned to use a computer… through mahi, didn't know anything about it. Cell phone. I was given my first cell phone and I never use it for the first year because I couldn't understand it...my mahi, it is through my mahi (W0102)

Whānau who owned their own business or were self-employed acquired skills in utilising applications, particularly when it came to financial management.

> *yeah email, banking, yeah zero and stuff for GST and all that which is bloody handy. (W0402)*

> *Yeah, Internet banking. Definitely. All my business gets done on the Internet but mainly mine was for signing contracts, signing quotes and stuff like that and for pictures for when I do virtual tours. If I do virtual tours of people's homes or businesses or before and afters like when needed a really good camera as well, and a tablet is just too hoha to carry around….. But then when, you know, you need I need the internet for work you know, the mahi. (W0502)*

The most common way whānau learnt about certain applications was by asking about a task and learning through word of mouth. Usually, they were told about the application and then shown how to use, but for some participants they just heard about an app and then figured out how to use it themselves.

> *because they've been using those apps, and I just sort of really got onto it like an app called be real. It's like a photo. It's like, it takes a photo from my phone camera in the back camera. I had no complete idea how to use it. But then one of my mates sort of showed me how to use it and that was sort of helpful. That was quite recent. (W0302).*

Those whānau members who usually supported others with technology, and who supported other members during observations, reported that they often worked out issues with technology by themselves, by independently exploring a problem.

Yes, self-learning and most of the most apps and stuff now I have, like, "learn to use me" kind of thing. Before you actually get into it…because I'm a tutu person anyway, so I'll just play with stuff until I can get it myself. (W0101)

If I was stuck, I'd probably, YouTube, like look at reviews of different phones. (W0302)

And then just follow your nose, follow the instructions that sort of was pretty self-explanatory. And then if I've had issues of more or less Googled it…There's lots of answers in Google. you know like to work an application I think you could easily Google it and find it instead of professional. (W0401)

4.2.4 Theme: Trust

The theme - *Trust* - refers to protecting oneself from crime, privacy or security breaches, knowing what to do if things go amiss, and overall being able to manage personal information (DIA, 2019). Under this theme, there were remarks about participants' lack of consideration for their own online safety, and in contrast some of strategies used for keeping online safety, how whānau perceive and educate themselves about maintaining online safety, and factors concerning the safety of their tamariki when using devices. Key statements in this theme relate to how others supported participants when thinking about online safety.

4.2.4.1 Lack of consideration about safety

When some whānau were asked how they keep themselves and their whānau safe when using the Internet, they were surprised around their lack of knowledge as to why they trusted devices. Some of the whānau had not thought about the risks involved with using technology.

*I don't, I'm not gonna lie, and I should…. like scammers? I fall for them myself. Yeah. I don't know sh*t. (W0201)*

I don't even think about that to be honest… haven't really thought about it yet, but yeah, I suppose you got to be aware of that sort of stuff now aye. Yeah, yeah. (W0402)

When it came to finding information on the Internet, older participants did not really know if that information was true but trusted it anyway. Finding information on Google is an example of trusting without questioning.

and how do you know that it's true? (Interviewer).. Well, I don't. (W0401)

Mainly, I saw of thing on Facebook, this dude said, this teacher guy said that schools really are what getting to be a waste of time, because you can ask Google anything you want and its gonna answer it for you. (W0301)

4.2.4.2 Strategies for Online Safety

Learning about online safety involves whānau understanding how to keep themselves safe when using digital devices. Participants reported different ways of keeping safe. For example, when sourcing information one participant refer to the use of multiple sources.

I find more than one. So if this this say something, then I look for it in other places to see if it matches kind of like, you know, the most wins. (W0201)

Another participant refers to strategies to buying things online or putting in credit card details, when whānau usually brought from well-known branded sites or from ones that they know are reliable and have used before.

I usually just go on, like known like, Nike, you known websites. (W0202)

I guess I'm pretty, pretty limited as to what I put my stuff into, like, I wouldn't just go onto a random website. And why? Because I do a lot of online shopping as you know, so I use all

those sites that I know are safe. Like, I don't know, how do you actually tell what's safe? And what's not? (W0101)

Some whānau in the study looked for government approval before purchasing online.

But it's been checked and it's been government like it says it was checked in government of New Zealand government approved and that type of thing. So that's what it says. (W0302)

There were mixed ideas when it came to sharing credit card details online. Some whānau did not like to share credit card details while other whānau did not really think about it. In an observation one of the whānau members was shown how to purchase something online. They were not hesitant to give their card details to the other whānau member. What was interesting about this encounter was that the whānau member who received support was waiting for help to buy from the website.

I guess I do now. But I'm new to that. (W0201)

I've got all my, what do you call it, stuff on my phone like I bought because I use G pay a lot. (W0502)

In alignment with the notion that mahi facilitated skill development, and motivation, one of the participants, who worked at a bank, felt more at ease when it came to sharing their credit card details.

Um, I do share it online. And like, I buy things online and I suppose working in a bank I know that if anything bad happened, the bank would step in (W0401)

4.2.4.3 Learning about online safety

The rangatahi and Pākeke enrolled in school or polytechnic were taught about sourcing information and research skills. They learnt how to identify websites they can trust and what sources are trustworthy. Rangatahi in the study mentioned Wikipedia being a suspicious site, and the reasons why the site would be suspicious. This links to passages reported under the 'Skills' theme, where schools provided safe information, and supported the development of searching skills.

> *Yeah, I don't know. We get like told from schools, what websites to trust and not like, don't look on Wikipedia and stuff like that (W0202)*

> *We done this thing at school in year eight that helped us sort of like realize, like, I think it was called the crap test to figure out if something's true is like, the sources current. If like, the place where you're getting the news from or like the data from is like, has a reputation is actually true. I forget the two steps but its like helped me out in that way instead of because I'll just use Wikipedia, but after finding out people can easily change it anyone can access it and change it sort of just stay away from it… Google's in big one but I try and stay away from Wikipedia because how you can change things on Wikipedia and that (W0302)*

Whānau that taught or supported other members of their whānau, were usually aware of online safety. One whānau member that supported her mother to use technology taught her mum how to be careful and what a scam looks like when using technology.

> *Different apps? What to use? how to be careful with it.... Well, I think my sisters are pretty much similar to me with when it comes to technology. We were all pretty much, I'd like to say savvy, and we just showed my mum how to use it. What not to put, and what to put, and so that goes back to the safety thing. If I ever received something like a scam email, or anything, I'll always screenshot it and I'll take that home to Mum and I'll be like, if you ever see something like this pop up, don't touch it. Delete it. (W0101)*

Other participants relied on their support person to help them with online safety practices. One whānau member recounted a time when they relied on others to tell them if a job listing was a scam.

> *Because somebody else will come in and tell me this is a scam…for instance theres jobs on the tablet and what you see is people in this room, -packing food and they- saying they want some workers What does it say? $35 an hour. You're working from such and such time and then somebody else is said where are you? and somebody else would come back and said this is a scam so I don't know whether to believe it or not. They're looking at people to work from home and no one can give proper answers. Yeah. And then somebody's saying this is a scam. (W0102)*

4.2.4.4 Tamariki Safety

Tamariki safety refers to thoughts and actions regarding the online safety of their tamariki. There were mixed responses in relation to this. Some whānau that had young tamariki had thought about safety risks and had protection in place to mitigate harm.

> *So I brought the the what do you call it bub? the Windows security like I've got a real high security on my phone and computer, which covers me anything the kids watch and well they don't get access because all my pin coded anyway so the kids can't get into my credit cards or us*e it*... Safety with the kids. It's just just keep an eye like you can be you can take YouTube off, but my moko can put it back on. It's just the content. The content now is just out the gate. (W0502)*

> *So neither of my kids have any social media platforms that they visit at all. And it's mainly, as you seen earlier, my daughter wanted my phone to watch Gabbys doll house, you know, so as long as I am aware of what they're watching, I'm comfortable with what it represents. (W0501)*

Some whānau groups with younger tamariki were not concerned about safety just yet, however they were aware that they will have to start thinking about it when the time comes.

I'm probably fortunate because I, my girls are young enough they don't use technology and we're probably at an age where we can know what's harmful and what's not. (W0401)

It's only me and my partner, my little girl doesn't have to use it yet. So I guess when she does get old enough that she has to would have to put some stuff in place for safety for her. (W0101)

But also, some whānau with rangatahi in their home admittedly had not considered online safety.

How do you ensure that you and your whānau are safe using digital technology? (Interviewer)

I wouldn't have a clue. I don't know what wouldn't have a dam clue. (W0301)

4.2.5 Theme: Support

The theme Support encompasses various thoughts, emotions, and actions that whānau experience in relation to receiving or providing assistance with digital device usage. It explores who whānau rely on for support when they encounter challenges with their devices, the emotional responses of supporting others with their digital use and the reasons why participants place their trust in specific individuals when seeking help. A core reason for whānau to seek support in the first place, seems to be a lack of patience or time to independently figure things out.

But I wouldn't never figured that out if that my daughter she told me. (W0201)

Tara four (laughs) she'll get frustrated though, buddy is on to it though, He's 9. He's on to, actually I go Bub. Yeah, He's unbelievable. Like, you can't lock anything. You can't undownload anything he'll find it again… I'd use him and my baby Yeah, my kids. (W0502)*

4.2.5.1 Relying on support networks

Pākeke had a variety of technological skills which changed the way they accessed support for themselves. The pākeke with tamariki under 5 usually were more confident with their digital use and worked things out themselves. These whānau members also often did not have anyone else to support them.

So you don't currently use like any support around digital use (Interviewer)

Nope (W0101)

Whereas pākeke with rangatahi in their whare, relied on them for help with technologies.

My son would be the one, he would know more than I would so I would ask him. (W0301)

Rely on the kids. (W0201)

One rangatahi influenced their parents by showing them different applications like music applications and how to take photos.

Heaps? Like I listened to the boy listening to the music before I had it, and I was like How did you do that? and like just with the cameras and things like that. How'd you do? influence me lots!(W0301)

Rangatahi described how he influenced his Dad to watch YouTube videos to incorporate specific drills into their rugby training sessions.

No, it's just sort of I think phones are sort of good and bad and it sort of helped out Dad with you being YouTube and also been the trainer for the Southland RAM team, he sort of of looked up videos and different techniques and how to train and keep, Yeah, and I use have taught him how to use YouTube as well. (W0302)

Whānau with younger tamariki under 5 commented on watching a lot more chidlren's shows to keep them entertained and explained how it was a great way to access activities and recipes for their tamariki.

But then there's also other great thing. Like, there's activities, and there's recipes. And there's all those things that you can access online with the kids and stuff like that. (W0401)

Disney yeah we Chromecast quite a bit. we have paw patrol on the go. (W0402)

There were also those who relied on the extended community. For example, a kuia had support from the Māori women's welfare league and felt she could get support there.

If she's not too busy, Not too busy (referring to asking for help from whānau) and I belong to Māori woman's welfare league, so there's wahine in there that I can talk to as well. (W0102)

Proximity to people was considered important and so whānau would rely on these members because they are close and felt comfortable enough to ask them.

Because she's closest to me. I want to say also, because I'm comfortable enough for her to just take over. yea and not without having to be polite and listening to someone talk to me about something I really don't care about. I just want it to work. (W0201)

Whānau also discussed the individuals they provided support to, and closeness seemed important here, as those were primarily being other pākeke and kaumātua.

Oh Dad, Yeah, for sure. Yeah. Dad's hes only just got a phone and he only knows how to answer it and we can barely do that. (W0402)

Dad. My Mum, my Nana and sometimes my other Nana (W0302)

Similarly, rangatahi in the study also relied on their networks and would ask their older siblings for help with their digital devices when required.

*Probably Oh, yeah probably *Hone*

oh Yeah. Whose that? (Interviewer)

My older brother... I don't know. he just normally knows. (W0202)

I'll probably go to my sister Jayde or to Uncle Google. To figure out help me figure it out. (W0302)

However, the participants involved in education also referred to friends from school, when they needed information about certain applications.

Um, probably, like a friend or. (w0202)

Yeah a little bit I sort of like, knew what I was doing that sort of not like with different apps and that, there was sort of, from friends at school helping me out using different types of things and stuff like that... (W0302)

Some whānau members relied on their tamariki to support them with technology use in a way that made them not learn how to do the task, but to get the task done. This was observed when

the person receiving help let the person showing them take over the whole task. Some whānau equated that to having little patience and feeling overwhelmed when they needed to get things done using a digital device.

> *Many times, so I would need help, if forgot my password. Oh, okay. Here's an example. My TV says a smart TV. Yeah. I had to get my daughter to because what I didn't know can't remember I'd seen this thing on tik tok, if you're not doing what I want you to do, I'm mad at you and then I'm over you really quick, So someone else has to fix it for me because I get overwhelmed. (W0201)*

Tasks like setting up a television, a computer, connecting to Wi-Fi and Facebook navigation were other examples of how participants support whānau members.

> *Yeah... umm Just even putting a photo on to Facebook basic things like from that onwards I have to ask my son to give me and doing that type of thing. Opening a bank account, I've asked my daughter about that. Everything I have done on a phone, I've had to ask for help. no matter what. (W0301)*

One participant reported helping their friend's parents setting up Chromecast. They were asked to help because she had more patience and their daughter refused to help them.

> *Don't know if they're, I just find I have more patience and I see like, even the friend's parents that I help. My friend, doesn't have much patience. So that's why I'm helping them, I don't know why… Yeah, Chromecast the Chromecast that plays videos from your phone to your TV. So yeah, didn't know how to use it, daughter wouldn't help them, so then I came around and I took the time and got it all set up. (W0401)*

Generally, each participant that sought support, received this from a younger individual, driven by the belief that the young are more knowledgeable about technology. During each observation, a younger member of the whānau helped an older member in completing a task. Through the

interviews, it became evident that the perception was that the younger generation had a deeper understanding of technology.

> *Probably because they feel like I'm the best person to ask and my family because I'm probably the youngest and I'm more a hands on I guess, I don't know. (W0101)*

> *Because she was the only one, and she goes to school. She's this generation. (W0201)*

4.2.5.2 Who can be trusted when asking for support

Participants had specific concerns related to who they might ask for advice and who they would trust when seeking help, including thoughts on accessing professional services. When asked about accessing professional services for support, participants were not interested, or they did not know who to go to for help.

> *Nope.. and who do you call because I don't know who they are. (W0201)*

> *No, just because I don't like spending money. There's lots of answers in Google. you know like to work an application I think you could easily google it and find it instead of professional. (W0401)*

Potential reasons for not using professional services were attributed to not knowing where to go, not knowing what to ask, potential perceived language barriers and not wanting to feel inadequate when asking another adult.

> *I don't think it's out of anything. Like, I shouldn't say pride. Like I shouldn't say it's out of pride or anything like that. I think it's sort of more of like, not knowing what to ask and who to ask about what... I think this isn't to sound racist or anything. But every time I go in there, there's always a couple of Indian dudes in there. And it's already there's already a small language*

barrier there, which I'm like, yeah, it would be okay. But then when they start talking about the technical stuff that I don't understand. I'm, I just get put in a position where I'm like, just smile and agree. (W0501)

Participants tended to go to whānau members over professional services because they trusted whānau and because they needed regular, on the spot, help with technology. They also felt more comfortable when seeking assistance from their tamariki.

Because they are whānau, Yeah, yeah, that's easy.... I'd say about four or five times a week, I'd say. It's not like big things, but like, just general like general little, little stuff. (W0301)

Because she's family. So, I trust her. She's whānau, so I trust her. (W0401)

Because she's closest to me. I want to say also, because I'm comfortable enough for her to just take over. (W0201)

This was reiterated by other participants who commented that sometimes asking for help can be embarrassing.

My mum is very proud. And she doesn't ask for help. She just complains until I fix the problem. (W0501)

Well, I don't like it. I don't mind asking my own children. But asking Tina (manager) sucks because you feel stupid. So like other people, other adults. (W0201)

4.3. Conclusion

This chapter presented the findings of this research project. These were organised under five main themes: (1) Access, (2) Motivation, (3) Skills, (4) Trust, and (5) Support. Each theme

explored the use of digital technologies within Māori households and how the research participants supported members of their whānau using digital technology.

Chapter 5. Discussion

Anei au, tō pou whirinaki

I'm here, I'll support you

5.1 Introduction

This section discusses the key findings of this research and their relevance within the broader context of digital inclusion and Te Ao Māori. The chapter examines the research results in relation to existing literature and theoretical frameworks, to offer insights into the complex dynamics of digital inclusion and to contribute to the understanding of what constitutes equitable access and use of digital technologies in relation to Mātauranga Māori. The chapter discusses findings from five Māori whānau groups, their use of digital devices and how they support other whānau members to use digital devices.

The first part of the chapter summarises key findings related to participants' use of digital devices in relation to access, motivation, skills and trust. The second part, directly addresses the three research questions in the study:

1. What are the enablers and barriers to digital inclusion for whānau?
2. To what extent do social relationships influence digital inclusion for Māori?
3. In what ways do tamariki/rangatahi support pākeke and Kaumātua with digital inclusion?

5.2 Key findings

5.2.1. E whā ngā huānga o te whakaurunga matihiko (The four elements of digital inclusion): Access, Motivation, Skills & Trust

Digital inclusion is a complex and multi-layered phenomenon. The Digital Inclusion Blueprint Te Mahere mō te Whakaurunga Matihiko (Department of Internal Affairs, 2019) offers a framework

for promoting digital inclusion and equity, noting four core elements that influence digital inclusion: access, motivation, skills and trust. Each of these elements may reflect a number of challenges, or act as drivers, for different groups of people. A lack of 'access' to devices and the Internet may increasingly disadvantage groups of people. Participants in this research reported having access to a range of digital devices. It was evident that all participants relied on cellphones as their main device, benefiting from their mobility, convenience and affordability (Mossberger et al., 2012). However, they also mentioned that certain tasks like email or study were typically performed on computers, while entertainment activities or idle moments were often associated with cellphones. This distinction in 'purpose of use' could be attributed to the comparatively slower speed, limited storage capacity and less advanced applications of cellphones (Mossberger et al., 2012). Their preference for mobile phones as the dominant device for accessing the Internet aligns well with existing research which suggests that cellphones are often perceived as more convenient and easily accessible devices for leisure activities (DataReportal, 2023).

'Motivation' is also a key factor for digital inclusion. It relates to people's understanding of how the Internet and digital technologies might help them connect and learn, and also offer access to new opportunities (Department of Internal Affairs, 2019). Such understanding is key for having a meaningful reason to engage with the digital world. A primary motivation that drives individuals to use technology is the need to solve a concrete problem (Encuentra et al., 2013). This suggests that digital inclusion can be improved by understanding the motivating factors and challenges associated with the use of digital technology and its ability to increase social inclusion. In this study, the theme of motivation sheds light on the various ways that individuals engage with digital technology. One key finding was the ability to reconnect with and learn about Mātauranga Māori. Another motivating factor was that social media platforms were mainly used for communication and entertainment purposes, allowing participants to unwind and keep themselves amused. Similar to Encunta et al. (2013) study, the motivation to use technology for playing games often seemed to have other unintended positive effects, such as improving communication between whānau.

Having the know-how or 'skills' to use the Internet and digital technologies in ways that are beneficial, is also important for digital inclusion (Department of Internal Affairs, 2019). Digital

competence encompasses skills like information management, collaboration, communication, and sharing (Ferrari, 2013). The findings of this study emphasize the importance of the digital skills needed to actively engage with communication applications. One key finding was the use of multiple applications for communication purposes and having the skills to navigate them. Platforms such as Viber, Discord, Facebook Messenger, Snapchat, and Facetime were commonly used for social interaction and entertainment, highlighting technology's role in facilitating interpersonal connections. This list of applications demonstrates the range of platforms participants use to engage with their networks and suggests their use of transferable skills across different interfaces. Additionally, the ability to exchange messages and share content requires knowledge and proficiency in commenting, responding, and crafting effective messages (Hargittai, 2007; Hobbs, 2010).

The concept of 'trust', as related to digital inclusion, refers to online safety, digital understanding, confidence and resilience when using digital devices. A lack of trust can appear as a major barrier for digital inclusion. In e–commerce, "trust has been posited as the most important element" of successful exchanges (Kracher et al., 2005, p. 131). Key findings in the study revealed that some whānau had not considered the risks associated with using technology. When asked about how they keep themselves and their whānau safe while using the Internet, they expressed surprise at their lack of knowledge and awareness regarding the reasons behind their trust in devices. In today's data-driven Internet environment, information integrity and credibility are crucial and knowing the accuracy and origin of provided information is essential (Kracher et al., 2005). However, participants in the study also showed trust in Internet information, even when uncertain about its accuracy. Similarly, to Pan et al. (2007) study, where it was reported that college students trusted Google's positioning more than their own rational judgments, the findings in this study suggest that some participants also tended to trust the information available on the Internet without questioning, relying heavily on sources like Google. This was a conflicted finding as rangatahi in this study were much more aware of online safety compared to pākeke and Kaumātua. Rangatahi expressed scepticism towards certain websites, for example in relation to using Wikipedia for sourcing information, even if some scholars like Selwyn & Gorad (2016) have found Wikipedia to be a reliable source. Participants' responses to trust suggest that this is

a dynamic element, affected by many factors that can be difficult to measure and monitor. There is a need for increased awareness and education about online safety within the whānau.

Having outlined key findings of the study related to the four key elements of digital inclusion, I now turn to the three research questions in the study. To that end, in the next section, I answer the first research question: What are the enablers and barriers to successful digital inclusion for whānau?

5.3. Research Question 1: What are the enablers and barriers to digital inclusion for whānau?

There are a number of enablers and barriers to digital inclusion for whānau in this study. Findings reveal that key factors that enable and support digital inclusion are: opportunities for connecting to others and the community, familiarity with devices/technologies, school education, mahi, and availability of good Internet connectivity.

5.3.1 Enablers:

A key finding in the study relates to participants' perceptions that digital devices offered chances to connect and interact with others and be part of a larger community. Whānau mentioned using the Internet to stay updated on local events and to connect with friends and whānau. This is evident, when participants spoke about regular Facetime calls with mokopuna and using Facebook Messenger to keep in touch with overseas whānau. These examples highlight how technology can play a crucial role in maintaining relationships, overcoming social and distance limitations, strengthening social networks, and creating a stronger sense of connection to the world (Winstead et al., 2013).

Connection was also seen as related to convenience and appeared as a motivating factor in participants' use of technology. Whānau highlighted how the Internet and digital technologies facilitated the achievement of daily tasks, making their routines easier to manage and recognised

these as a convenient means of communication, particularly in challenging situations where immediate assistance or connection to others was needed. Connection to culture was also another important finding. Participants mentioned how technology played a significant role in exploring Mātauranga Māori. Through digitization, new virtual spaces can be created as online gathering places for cultural heritage (Beel et al., 2020). Digital platforms can also provide unique opportunities for cultural activities and participation, by digitising physical documents, audio recordings, and photographs that are deteriorating and giving them a new life online (Beel & Wallace, 2020). Participants mentioned how digital devices and the Internet helped them connect with Te Ao Māori and Mātauranga, allowing the pass down of cultural knowledge across generations to extend beyond whakapapa. The motivation to explore Mātauranga Māori contributes to participants being connected to their own community and cultural values.

Participants' familiarity with certain devices or technologies was another significant enabler. One of the major factors for selecting a smartphone is the Operating System (OS) (Pandey & Nakra, 2014). The study found that participants displayed preferences for specific technology brands when it came to hardware. These preferences were influenced by their familiarity and proficiency with a type of device and the belief that the skills acquired using one brand of technology did not easily transfer to others. Research indicates that consumers consider both hardware features and the smartphone's OS when making a purchase decision (Cromar, 2010; Ling et al., 2007). This highlights the importance of familiarity and expertise with specific hardware, which can influence individuals' choices and their ability to navigate different technological environments. Participants acknowledged the complexity of learning to use hardware and the limited support available to assist them in this process. Older participants, specifically pākeke and kaumātua, relied on other whānau members to teach them basic digital skills, like turning on the device if it was of a brand they were not familiar with.

Another key enabler for digital inclusion seems to be participation in school education. The influence of schooling and formal educational institutions on skill development and digital inclusion was evident in the study. An individual's ability to learn to use technology is very much shaped by their social context, and is typically triggered by an inherent interest in learning how to master technology and/or a need to use technology to achieve certain goals, which could be

set by the school or work context (Ferro et al., 2011; Selwyn 2016). Education and schooling were perceived to have a positive impact on participants' ability to use different applications and enhance their overall skill set. In a review of international digital inclusion initiatives, Digital New Zealanders (2017) found that people's engagement in the education or social sector could positively impact inclusion, especially those living in under-resourced communities. In the present study, participants enrolled in formal courses received technology support from their schools or polytechnics, promoting skill acquisition which positively contributed to using digital devices. Participants who were enrolled in school or polytechnic had learnt how to source information, how to identify trustworthy websites and reliable sources, and other research skills. This finding suggests that skills development and the support provided by educational institutions can promote online safety practices and information literacy, therefore contributing to successful digital inclusion.

Additionally, whānau with school-going children or individuals attending polytechnics had to use technology applications to access information about class schedules, permission slips, and updates related to their tamariki or mokopuna, indicating the increasing integration of technology in educational settings and its impact on the digital skill development for whānau. It is essential to avoid overlooking the crucial role of schools and parents in developing digital skills (Eynon & Geniets, 2016) and offering flexible face-to-face programs in established community spaces.

Findings from this research also show Mahi as an enabler in terms of learning skills, having the motivation and access to use digital devices. Leahy & Wilson (2014) stated that "Every Business Is a Digital Business," implying that every employee requires digital skills, making the workplace a common place to acquire these skills. Participants expressed how work tasks provided opportunities to learn new digital skills, through their access to technology like computers and cellphones. Participants who worked in the banking sector also expressed greater ease in sharing their credit card details online. This suggests that occupational knowledge and experience may influence individuals' trust in performing certain online transactions, being influential towards developing digital skills and contributing to digital inclusion.

Having a good Internet connection was also perceived as a significant enabler for supporting

successful digital inclusion. Some scholars argue that digital exclusion is primarily influenced by factors such as demographics, experience, and psychological attitudes (Larose et al., 2012), however, the majority of participants in the present study reported having good Internet access and high-speed Internet, which contributed to a better experience. Nonetheless, the urban-rural divide persists (Thonipara et al., 2023), and was noted in the findings of this research, where rural participants experienced Internet access differently, indicating potential variations in connectivity between urban and rural regions. The cost of the Internet was perceived as expensive but not necessarily as a barrier to usage. This could indicate that benefits and value from technology, outweighed the costs for most whānau, which is consistent with other research findings (Mitzner et al., 2010; Encuentra et al., 2013). Further research is needed to explore the specific challenges faced by individuals in rural communities and devise strategies to bridge these gaps.

Having discussed key enablers that seem to support successful digital inclusion, we now turn to some of the barriers for the participants in the study.

5.2.3 Barriers

There are several factors associated with barriers towards digital inclusion for whānau in this study. These include, for example, technology updates, toxic behavior, less kanohi ki te kanohi interactions, pressure to conform, lack of external support and a lack of access to the right devices.

Scholars have pointed out to an absence of direct accounts or narratives from people of colour regarding their contributions to the development and utilisation of technology, highlighting the need for user-friendly interfaces and support systems in technology, especially as it relates to technology adoption or accessibility in a specific context involving different cultures (Sinclair, 2004; Cave & Dihal, 2020). In alignment with such findings, a key barrier for whānau in the study was that technology updates seemed to deter them from wanting to use digital devices. Some participants expressed frustrations with constant technology updates and the perceived

complexity of technology. This finding suggests the need for designing more user-friendly interfaces and making changes to technology gradual and overtime.

Toxic online behaviour was also perceived as a barrier for some whānau when using digital devices. Research studies have revealed that cyberbullying and online harassment are considerable problems for users of social media platforms, especially young people (Kowalski et al., 2014; Ghada, 2020). Such instances can have negative outcomes such as depression and decreased academic performance (Beran & Li, 2005). Rangtahi in the study mentioned that social media platforms can be a breeding ground for toxic behaviour which made them not want to use technology. The study and the findings above highlight the adverse effects of technology-related experiences on users, identifying the negative side of online connections and interactions, with effects on digital inclusion.

Another barrier to technology use was how it made participants feel like they did not spend enough time connecting kanohi ki te kanohi with their whānau. Research indicates that caregivers of young children often face internal conflicts when it comes to their utilisation of mobile technology (Choroszewicz & Kay, 2020) a sentiment echoed by the participants in this study, especially when they had young tamariki in their whare. There has also been further research highlighting detrimental effects of over-use of smartphones on the parent-child relationship (Liu & Kuo, 2007). This suggests adopting a balanced approach to technology, particularly for whānau with young tamariki. In the context of Te Ao Māori, the concept of "Mana tika" holds significance as “mana” meaning ‘power’ and “tika” meaning ‘right' (Te aka, 2023) could help promote the restoration of balance and harmony in social connections, especially in situations where social relations have been disrupted (King, 2003). By placing the power (mana) back into the right (tika) place, whānau can experience higher-quality conversations among family members which will have numerous other benefits (Radesky et al., 2016).

These feelings of wanting to spend more time connecting with whānau were sometimes in tension with the pressure to use technology, which also seemed to have a negative effect on participants. An example of this is despite increasing social pressure to use new digital technologies, older people’s adoption remains below other age groups (Neves & Mead, 2021).

Participants perceived a sense of pressure to conform with technological developments, with some using expressions like "the way of the world." The external expectations and perceived demands to stay technologically updated, has the potential to negatively impact individuals' motivation and confidence when engaging with digital technology. It is evident that older adults possess a clear understanding of the advantages associated with digital technology, particularly in relation to social connectivity (Neves et al., 2019), however, learning to use new technology and acquiring digital literacy in later life has its own challenges (Barnard et al., 2013). The current study found a similar emerging theme where participants expressed having negative feelings due to external expectations and demands related to technology usage, potentially affecting their motivation and confidence.

Not having access to the right devices for certain tasks was also identified as a potential barrier for participants' use of digital technologies. To learn and use digital devices effectively, it is important to have access to the right devices (Gonzales, 2016; Van Dijk, 2005). It has been noted in other research, that smartphones and tablets are used relatively often for leisure purposes (gaming and social networking) and personal safety, and desktop and laptop computers are more task or work-based (Zillien & Hargittai, 2009). Nowadays, online learning is common in schools and crucial for remote learning and completing homework (Johnson, 2015). Participants reflected on their access to the right equipment for certain tasks and commented on how they do some tasks on certain devices. It is worth noting that after COVID-19 (Ciotti et al., 2020), having limited access to devices and the Internet kept many students at a disadvantage, particularly those who were unable to fully participate in learning or communicate socially with others (Erlam et al., 2021; Flack et al., 2020). One whānau group switched their Internet connection to better support their work during the COVID-19 pandemic. This preference for remote work may continue (Markey, 2020), which showcases affordances such as the adaptability and flexibility of technology, particularly during times when remote work or distance learning became crucial.

A lack of external support was another barrier to using digital devices effectively as whānau members felt more comfortable relying on their tamariki for support, further emphasising their preference for seeking help within the familial network to avoid potential embarrassment. Public libraries see themselves as effective in supporting communities' digital needs (Hartnett et al.,

2020), however, when accessing professional services for digital support, it became apparent that participants in this study had limited interest or knowledge regarding where to seek help. Various barriers seem to hinder their utilisation of professional services, including a lack of awareness of appropriate channels, uncertainty about the right questions to ask, perceived language barriers, and a reluctance to feel inadequate when reaching out to another adult for assistance. In Te Ao Māori, the concept of "Mana" holds significance, as mentioned above, but in terms of representing an individual's power and autonomy (Moorfield, 2003-2023). It is viewed as a gift from the atua (gods) (Mol, 1981). The way mana is culturally understood might be a reason why some whānau are hesitant to seek help, as they might see it as a challenge to their mana. Timely support from their own whānau members seemed to be a more desirable option when seeking support. This was also driven by a sense of trust and the immediate need for on-the-spot help.

Digital skills acquisition does not happen by itself or just by access to digital devices (Helsper, 2008) so for those unable or unwilling to learn how to use digital technology on their own, instruction by others may be necessary. ICT training alone cannot ensure digital inclusion with digital instructors being aware of the emotional support family and friends provide before and during digital training (Hänninen et al., 2021). In addition, it is evident that questions or small issues will arise regularly when using ICT – for instance, finding and downloading suitable apps, updating devices, and solving minor technical problems (Taipale et al., 2021). Participants in this study had ample support from immediate whānau, which leads into the next section and second research question in this study, where I explore the influence of social relationships on digital inclusion for Māori.

5.4. Research Question 2: To what extent do social relationships influence digital inclusion for Māori?

Social relationships seem to play a key role on digital inclusion among the Māori in the present study. Among the key findings were the necessity of maintaining social connections during the COVID-19 pandemic, the support network dynamics of the various age groups, the significance

of informal learning among social groups, and the reliability of whānau for assistance.

During the COVID-19 pandemic (Ciotti et al., 2020), technology use among rangatahi increased significantly for social interaction, especially during lockdowns when people were unable to physically meet their friends at school. Technology played a pivotal role in maintaining connections with loved ones and keeping whānau connected during these challenging times. During the pandemic, the social and emotional benefits of technology in fostering social bonds and mitigating the effects of physical distancing became more apparent for the participants.

To maintain effective use of devices, it is important to consider maintenance expenses (Gonzales et al., 2016). The present study revealed the important role of parental support in facilitating technology access for rangatahi, for example by providing assistance with the costs associated with hardware, Internet connections, and monthly subscriptions. This demonstrated parental recognition of the value of technology in their tamariki's lives, including social value.

Another significant finding was associated with the positive effects of other Internet users within the same household, benefiting all the participants. For example, when multiple household members use the Internet, they are better positioned to share devices and subscriptions (Helsper & Van Deursen, 2017). Thus, when pākeke support their tamariki with access to digital subscriptions and devices, they are also contributing to their tamariki's digital inclusion but also to the inclusion of others in the same household.

It was observed that some individuals, particularly older whānau members, were content with their current technological skills, and mostly relied on other whānau members for support. A key finding was that timely support from their own whānau members was a more desirable option. When seeking support, participants were driven by a sense of trust and the immediate need for on-the-spot help which aligns with another recent study (InternetNZ, 2021). Whānau felt like they had no time and patience to learn new skills and felt easily frustrated when trying to figure out how to do something on their own, therefore relying on their support networks. Participants expressed a desire for immediate solutions and assistance, which led them to seek help from others rather than investing the time and effort to learn on their own. Proximity, familiarity and closeness were key factors in selecting support, as whānau relied on whom they felt comfortable

asking for help.

Rangatahi in the study commented how challenging it was to motivate older whānau members to engage with technology which aligns with other research findings (Zhang et al., 2021). *Motivational access* according to Van Dyk (2005), refers to the appreciation of technology and the intention to purchase and use digital devices. Pākeke in the study expressed frustration with whānau members who were resistant to using technology, despite having the financial means to do so. This could be related to factors like computer anxiety or concerns about digital technology malfunctioning. It suggests the need for promoting digital literacy and fostering a culture of technology adoption, as individuals who do not see the value in technology may miss out on important opportunities that can be facilitated by the use of the Internet (DIA, 2019). It is worth noting that kaumātua in the study had their first contact with a digital device due to mahi, at the same time as someone close to the whānau was encouraging and helpful in their adoption process of the digital technologies. This finding suggests that having clear motivational reasons to use technology and having close whānau support might help the adoption of technology amongst Māori.

Another key finding was that participants who took on the role of supporting others with technology-related issues demonstrated a tendency towards self-directed problem-solving. Some older adults are completely self-reliant: they learn by doing and by looking for solutions online (Aslam et al., 2021). Some of the participants in the study seemed to independently explore and resolve technological challenges, showcasing their self-sufficiency and resourcefulness in navigating digital environments. These findings align well with a study by Godin et al. (2015), who highlighted the crucial role of attitude in acquiring digital skills. They suggest that being able to support whānau with digital skills requires more than knowledge, but having other positive characteristics towards self-sufficiency which gives them confidence to support others with their digital needs. Seeing 'others like me' can motivate people to develop their digital literacy skills, so it is important to support independent learning as a contributor to digital inclusion.

The role of informal learning environments was also noted in the findings of the present study.

Informal engagements with technology highlight the importance of social networks and community-based learning in developing digital skills (Meyers et al., 2013). Participants primarily learn about specific applications through informal encounters, like seeking help from others or learning from word-of-mouth, especially among rangatahi. Rangatahi in the study sought help from their older siblings or friends from school when they needed assistance with digital devices or applications. Participants involved in education often turned to their peers for information about specific applications. Friendships formed in school provided a reliable source of support and knowledge-sharing when it came to technology-related queries. There were many ways that the social network of participants seemed to play an important role in fostering participants' engagement with digital technologies.

Another key finding was the positive influence young tamariki had on pākeke. Digital literacy primarily focuses on developing functional digital skills and ensuring online safety, especially concerning the potential risks associated with social media usage (Jones & Hafner, 2021). Whānau with young tamariki expressed varying levels of concern about online safety for their tamariki, with some of them taking steps to mitigate potential risks. Only recently have studies recognised children's perspectives and their influence on parents (Livingstone & Blum-Ross, 2020), however, some whānau groups from the study with Tamariki under two were not yet actively concerned about safety but acknowledged the need to start considering it as their tamariki grow older.

In comparison, pākeke with rangatahi in their households admitted to not having previously considered online safety for them, potentially due to thinking their tamariki were further ahead in digital competence (Livingstone & Blum-Ross, 2020). Research interests tend to concentrate on younger children, with less focus given to pre-teens (Savic, 2022), yet, it is at this pre-teen age that children start getting their own portable devices (Pangrazio & Cardozo-Gaibisso, 2020). This highlights the importance of raising awareness and providing education around online risks to ensure the well-being of rangatahi within the whānau and then by default gaining digital literacy skills at the same time.

Having discussed some of the key issues surrounding the influence of social relationships on digital inclusion for Māori, I now turn to the final research question in this study, which specifically explores how tamariki and rangatahi support pākeke and kaumātua with digital inclusion.

5.5 Research Question 3: In what ways do tamariki/rangatahi support pākeke and kaumātua towards digital inclusion?

An important element in the study was to explore factors that contributed to the ways tamariki/rangatahi support elders with digital inclusion in a whānau. Among the key findings were the crucial relationship rangatahi have with kaumātua, the frequency of software/hardware support, the significance of mā te ariki, mā te tauira and the belief around younger whānau possessing more knowledge and the challenges rangatahi face when supporting kaumātua with digital device use.

Rangatahi play a crucial role in supporting kaumātua with digital inclusion. Rangatahi provide assistance to kaumātua by offering support in various aspects of digital software and hardware setup. This hands-on approach was particularly significant for those kaumātua who lived in close proximity to the rangatahi, where an intergenerational support system shows the strength of whānau relationships and their potential contribution towards digital inclusion.

Younger whānau members who assumed the role of teaching or supporting others within their whānau demonstrated greater awareness of online safety. They were conscious of the need to be cautious and recognised the signs of scams when using technology. This highlights the importance of intergenerational knowledge transfer and support in fostering online safety practices within the whānau context. Some participants relied on their support person to guide them in online safety practices such as searching, recognising scams and purchasing online (DIA, 2019). This finding shows the significance of trusted relationships and the role of social networks in navigating online risks.

It is important to acknowledge that this support happened frequently among the whānau households with rangatahi. Young people play a pivotal role in helping older adults with digital

technology (Cáceres & Chaparro, 2019). A key finding was that rangatahi provided frequent support to whānau members with various technology-related tasks, requiring specific technological skills. Those with the lowest digital skills seem to have the most difficulty in obtaining high-quality formal support and are therefore often dependent on informal support (Courtois & Verdegem, 2014; Helsper & van Deursen, 2017). Some kaumātua lacked the skills to use their digital devices effectively, aligning with other research (Hargittai, 2002; Helsper, 2008), even with having access to the right devices, so this support occurred on a weekly basis within whānau groups. The term "warm experts" can be used to describe family and friends who help others with digital devices (Bakardjieva, 2005), however some scholars argue that they might not be well-equipped to effectively teach digital skills, focusing more on fixing problems rather than improving skill levels (Geets et al., 2023) which was evident in the study. This highlights the need for support for these “warm experts”, so that they can be aware of their potential impact in teaching digital skills, as they are the ones frequently supporting older whānau with technology.

As mentioned above, some whānau members relied on their rangatahi for support with technology use, preferring to have the task done for them rather than learning how to do it themselves. It has been researched that children can sometimes be perceived as more successful at practically using technology (Nelissen & Van den Bulck, 2018; Mascheroni et al., 2018) which leads to children being seen as a good option when seeking assistance. In Māori culture, two important values exist; whānaungatanga (family connections) and ako (learning and teaching). Ako recognises the reciprocal nature of teaching and learning, valuing both sides of the contribution (Keown et al., 2005). These values are like a two-way street, allowing for the fluid exchange of roles between the ‘learner’ and the ‘teacher’. Another way to explain this is the concept of mā te ariki, mā te tauira, *As we are chiefs, we are students* (Rangihoua, 2019). Having this understanding allows us all to share knowledge and skills, as we can see in this study, where the rangatahi take on the supporting role, teaching, supporting and guiding our pākeke and kaumātua.

This reliance on younger generations might be driven by the perception that they possessed greater technological knowledge. Perceived digital expertise between parent and child can

depend on factors such as the child's age, parental attitudes towards technology, and accessibility of digital devices, among others (Green et al., 2011). At the core of each approach is a varying degree of trust in the child's ability to engage in safe online practices. According to literature, age does not dictate how people seek information (Cyr et al., 2021), however in the present study most participants believed the younger generation knew more about technology and that is why they were asked to support. It is worth noting that older members seeking support from younger people reinforce the belief that younger generations have a deeper understanding of technology, when actually, this observation might not necessarily be true (Davies & Eynon, 2013; Hargittai, 2018).

The last key finding was that rangatahi in the current study acknowledged that teaching new skills and motivating older members to use technology was challenging and frustrating, especially if the individual receiving support lost interest. Motivating older populations can be challenging, possibly due to negative feelings toward new technologies or internalised ageism (Arthanat et al., 2019). This shows the importance of supporting 'warm experts' with training. Younger whānau may play a crucial role in providing support with digital skills so it is vital to equip them with adequate training to effectively teach digital skills to their whānau.

5.3 Conclusion

The discussion in this chapter sheds light on various aspects related to access, trust, motivation, skills, and support with technology within the Māori community. The discussion highlighted some of the key enablers and barriers that play a crucial role in facilitating digital inclusion for whānau. It explored the impact of social relationships and how reciprocity within these relationships allows for the transfer of digital knowledge and skills, promoting a sense of collective learning and support. Moreover, the role played by tamariki/rangatahi in supporting pākeke and kaumātua shows the influence of intergenerational relationships as an aspect of digital inclusion, particularly resonating with mā te ariki, mā te tauria concept, as a significant influencer of digital inclusion among Māori. Younger generations often serve as digital mentors and can help bridge the digital divide for their elders. In essence, it is evident that values and social bonds are

instrumental in fostering successful digital inclusion within the Māori community. The chapter emphasizes the importance of nurturing these connections to bridge the digital divide, and in so doing, to contribute to promoting digital equity for all whānau members.

Chapter 6. Conclusion

"Ko te amorangi ki mua, ko te hāpai ō ki muri."

The leader in front and the supporter behind.

6.1 Overview

This chapter synthesises this study detailing how Māori support whānau with digital inclusion. In this chapter, I return to the three main aims of the study, which were:

- To identify the enablers and barriers that influence digital inclusion for Māori whānau, providing insights into the factors that facilitate or hinder their access to, and effective use of, digital technologies.
- To understand the impact of social relationships on digital inclusion among Māori households, examining the extent to which they contribute to digital inclusion.
- To explore the intergenerational dynamics and support mechanisms within Māori communities, focusing on how tamariki/rangatahi, pākeke, and kaumātua collaborate and assist each other in achieving digital inclusion.

The chapter provides an overview of the research process, discusses key limitations of the study, as well as recommendations and opportunities for future research.

6.2 Kaupapa Māori

The primary focus of this investigation was to explore the experiences of five Māori whānau groups using digital devices. Therefore, the methodology of this research drew strongly from Kaupapa Māori epistemology, using qualitative methods to contribute to Māori enhancement

and tino rangatiratanga. By embracing a strength-based approach in indigenous digital inclusion, this research hopes to contribute to moving beyond common deficit narratives (Campbell-Meier et al., 2020). This research also acknowledges Smith's (1999) emphasis on the importance of selecting the most suitable research methods for the community. It is believed that by recognising and validating Indigenous ways of knowing, researchers can better uncover the biases in western thinking that have influenced technological development practices. Therefore, Kaupapa Māori research principles informed and underpinned the research methodology process, from topic formation and participant interview and observational procedures. The participants in the study all identified as Māori and all had access to digital devices. Although none of the participants were fluent in Te Reo Māori, they recognised how technology enhanced their daily interactions with their whānau and the benefit of having access to Mātauranga Māori. In what follows, I synthesize research findings under the three main aims of the study.

6.3 Research aims

6.3.1 To identify enablers and barriers that influence digital inclusion for Māori whānau, providing insights into the factors that facilitate or hinder their access to, and effective use of, digital technologies.

In summary, this research highlights several key enablers and factors that contribute to digital inclusion for Māori. Participants in the study emphasized the role of digital devices in connecting with others and community activities, facilitating relationships with friends and whānau, both locally and abroad. This connection served to strengthen social networks and enhance a sense of belonging to a broader community positively impacting social inclusion (Reisdorf & Rhinesmith, 2020). The convenience offered by technology was another motivator for its use, especially in managing daily tasks and providing efficient means of communication, particularly in challenging or urgent situations. Digital technology also aided in connecting with Te Ao Māori and Mātauranga Māori, allowing for the transmission of cultural knowledge across generations (Beel & Wallace, 2020). Familiarity with specific devices and brands influenced participants' choices,

emphasizing the importance of comfort and expertise with hardware and software design.

Education, particularly formal schooling, played a pivotal role in skill development and digital inclusion. Participants who engaged with educational institutions benefited from technology support, skill acquisition, and information literacy, contributing to online safety practices. Furthermore, mahi was identified as an enabler for learning digital skills, with workplace exposure facilitating the acquisition of digital competencies and contributing to digital inclusion.

A reliable internet connection was found to be a significant enabler, with high-speed access contributing to a better digital experience (Soto-Acosta, 2020). While some participants in rural areas experienced different levels of connectivity, overall, the benefits of technology seemed to outweigh the costs, indicating that the value of digital accessibility is beneficial by whānau. This research suggests that a combination of factors, including social, cultural, educational, and technological elements, influences digital inclusion for whānau and having a clear motivational understanding of the reasons to use technology as well as having close whānau support was important for digital inclusion among Māori in the study.

Several key findings related to the barriers and challenges faced by whānau in their use of digital devices. These findings are consistent with broader research literature highlighting the need for user-friendly interfaces and support systems in technology (Cromar, 2010; Ling et al., 2007). The study identified barriers such as constant technology updates as well as the impact of toxic online behavior on hauora. It also highlighted the internal conflicts arising from technology use, especially when it interferes with face-to-face interactions within the whānau.

The pressure to conform with technological developments and the negative effects of external expectations on participants' motivation and confidence were evident. Access to the right devices for specific tasks emerged as a barrier, emphasizing the importance of having the appropriate equipment for different digital activities.

Furthermore, the preference for seeking help within the familial network rather than accessing external support became evident. The reluctance to seek professional services was influenced by various barriers, including a lack of awareness and language concerns. Participants relied on timely support from their own whānau members, driven by trust and the immediate need for

assistance. Overall, the findings highlight the complex interplay of factors that impact digital inclusion for whānau in the Māori context.

6.3.2 To understand the impact of social relationships on digital inclusion among Māori households, examining the extent to which they contribute to digital inclusion.

Social relationships were a key factor to allow all whānau members to actively participate in the digital world. The study highlighted the importance of parental support in facilitating technology access for rangatahi, with parents recognising the value of technology in their tamariki's lives.

Furthermore, the study revealed the significance of support from within the same household, where multiple household members using the Internet could share devices and subscriptions. This not only benefits the immediate user but contributes to the digital inclusion of others within the household (Helsper & Van Deursen, 2017).

There were preferences among some individuals, particularly older whānau members, for timely support from their own whānau members. Proximity, familiarity, and trust were key factors influencing their choice of support. Additionally, participants who took on the role of supporting others with technology-related issues exhibited self-directed problem-solving skills, indicating their self-sufficiency and resourcefulness. Informal learning environments played a crucial role in developing digital skills, with social networks as valuable sources of support.

At all generation levels, social relationships impacted and influenced whānau digital use and inclusion to some extent. The study highlighted the positive influence young tamariki had on pākeke in terms of digital literacy and online safety. However, the need to raise awareness and provide education around online risks, especially as tamariki grow older is evident.

6.3.3 To explore the intergenerational dynamics and support mechanisms within Māori communities, focusing on how tamariki/rangatahi, pākeke, and kaumātua collaborate and assist each other in achieving digital inclusion.

This research uncovered insights about how rangatahi contribute to digital inclusion for pākeke and kaumātua. Rangatahi play a crucial role in helping kaumātua and pākeke with all sorts of technology related tasks, especially in households where they live in close proximity. This support was frequent, highlighting the key role of social networks to help whānau members navigate the online world. The older generation were happy with their current use of technology and relied heavily on others to complete tasks out of their skill level. They often turned to younger whānau members for informal support.

Participants believed that the younger generation has a better grasp of technology, and often turned to them for assistance, which is in contrast with research literature reporting significant variation in young people's technological competence (Davies & Eynon, 2013; Hargittai, 2018; Van Deursen & Helsper, 2015). It's important to note that there are other factors besides age that come into play when we seek out information or help.

Lastly, the study uncovered that rangatahi can face some challenges and frustrations when trying to teach new skills to our older whānau members, especially when trying to motivate them to use technology. This drives the need for communities and educators to support our rangatahi with proper training and resources, as they play a crucial role in helping our elders become more digitally included. In summary, this study discusses the significance of empowering and educating rangatahi to enable them to efficiently facilitate digital inclusion within their communities.

6.4 Research Limitations and Implications

The study faced several limitations. Firstly, there might be sampling bias as the chosen participants do not fully represent the entire Māori population and only represent a small population in the Southern region of New Zealand. Secondly, the small sample size across all generations restricts the diversity of perspectives and experiences captured (Chandrasekharan et al., 2019). Thirdly, self-selection bias might arise as participants who volunteered were more technologically proficient as they already owned their own devices, leading to an overrepresentation of certain individuals. Lastly, focusing solely on interviews and observations

might have limited the contextual understanding obtained, overlooking other insights achievable through other research methods like surveys or quantitative data analysis. In terms of analysis, there was no Kaupapa Māori theory related to digital inclusion to help analysis. If I was to do this study again, I would relate digital inclusion to the hauora, using Te Whare Tapa Whā as my holistic well-being model and assess how digital inclusion affects whānau hauora.

6.4. Recommendations and Future Research Opportunities

To gain a deeper understanding of digital inclusion for Māori whānau, several approaches can be explored. Conducting longitudinal studies could reveal changes in digital practices and support over time, identifying evolving needs. Comparative studies with other cultural groups could offer valuable insights into Māori communities' unique challenges or similarities. Using mixed methods, like interviews and surveys, could provide a richer dataset for a comprehensive exploration as well as involving Māori whānau as active participants through the research design and conduction could provide better, authentic outcomes. A deeper exploration of the intergenerational perspectives could help create better interventions for age groups. By addressing these opportunities might help promote digital equity and empowerment within the Māori community.

To enhance digital inclusion among Māori, several recommendations can be made. Firstly, conducting research to assess the digital literacy of Māori across different age groups and regions would help identify existing gaps and areas for improvement. This research should include comprehensive assessments of digital competencies, such as navigating online platforms, critical evaluation of digital skills, and data privacy awareness. Secondly, investigating how factors like gender, socioeconomic status, and geographic location influence the experiences of Māori with digital inclusion would provide valuable insights into the complexities involved. Understanding how these factors interact and shape access to technology, support networks, and opportunities for digital skill development could inform the design of targeted and inclusive interventions. Additionally, involving Māori across all generations in the co-design and development of culturally responsive support programs and resources would ensure that interventions address

their specific needs, values, and aspirations, leading to more effective outcomes. Alongside this, it would be important to create opportunities to support tamariki and rangatahi to teach and support pākeke, kaumātua and other whānau members with their digital literacy skills. This could focus on strategies to teach others how to do perform tasks for themselves. Lastly, evaluating the effectiveness and impact of existing support services, both formal and informal, in facilitating digital inclusion among Māori would provide valuable information to improve these approaches and identify areas for further support.

I would recommend the following;

- Enhance data collection for improved assessment of digital inclusion progress.
- Develop youth-led initiatives to promote digital inclusion
- Empower youth with digital expertise and teaching skills to foster digital inclusion effectively in their communities.
- Establish workshops or programs to educate whānau on safe digital technology usage, particularly focusing on the impact on younger whānau members (under 5 years old).
- Implement enhanced support programs within educational and professional institutions.
- Increase marketing efforts to promote professional services catering to diverse digital needs.
- Foster community groups to exchange ideas on technology usage and its benefits in daily life across all age ranges.
- Disseminate information about digital workshops through various channels beyond online platforms to reach a target audience.

6.7 Final comments

In this thesis, I have shared insights gathered from five Māori whānau groups and their interactions with digital devices and their experiences of digital inclusion. It has been quite a three-year journey, becoming a parent and working full-time has required a lot of energy and brought new challenges. We have witnessed the rapid shifts in technology usage due to the

influence of COVID-19 and while digital technology is still evolving, the pace of change is remarkable. It is essential that we do not leave anyone behind. I hope this research can contribute to future initiatives aimed at sustaining a digitally connected world, especially for Māori whānau. It has been a privilege to be part of this research project and my final mihi goes to the participants and their whānau who gave up their time to positively contribute to a more equitable future for everyone.

Ko koe ki tēnā, ko ahau ki tēnei kīwai o te kete. You take that handle of the kete and I'll take this one.

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Appendices

Appendix A: Information sheet

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

Project Title: How Māori support whānau to promote digital inclusion

INFORMATION SHEET FOR INTERVEIWS AND OBSERVATIONS

Tena koe. He mihi nui kia ko emo to awhi ki ahau m otaku rangahau, nga mihi.
Ko Tainui toku Waka
Ko Taranaki toku Maunga
Ko ngati Maniapoto toku Iwi
Ko Hana toku Inoga

My name is *Hana Bryant*. I am a currently studying towards my Masters of Education with Massey University's Institute of Education. As part of my study, I am undertaking a small research project within 267.882 education thesis part 2 (45 credits). My research focuses on how Māori support whānau to promote digital inclusion. The purpose of this letter is to invite you to be part of the research project.

HE AHA TE ARONGA O TE WHAKAAKORANGA \ WHAT IS THE PURPOSE OF THE STUDY?

New Zealand research shows Māori are less likely to use digital technology compared to non-Māori International research has identified that social relationships within families influence digital inclusion. This project aims to explore how social relationships within Māori whānau groups promote digital inclusion by finding out how social relationships influence digital inclusion for Māori. The research will also explore the enablers and barriers that support digital inclusion for whānau and in what ways rangatahi, pakeke and kaumatua support each other towards digital inclusion.

KA MĀRAURAU AHAU MŌ TĒNEI WHAKAAKORANGA? \ DO I QUALIFY FOR THIS STUDY?

I am seeking approval to interview you as one of the participants who meet the following selection criteria. You identify as Māori. You or another family member or someone you live with owns a tablet, smart tv, cellphone, computer or a laptop and use technology on a regular basis. Your family member will also be part of this study. You are 13 years or older.

The interviews will be short, simple and semi structured and no discomfort to participants is anticipated.

He aha taku whakaurunga ki te whakaakoranga? \ What will my participation in the study involve?

Your participation in this study is valuable and the research is guided by your involvement.

You will need to participate in a one-on-one interview that will take 45 minutes. Please allow extra time around this interview for more informal matters. You are welcome to bring other whānau and/or support person(s) along if you wish.

After all interviews have been completed, an observation between you and another whānau member will be completed. The observation is an opportunity to see how you and someone else interact with digital technology. What is observed will be decided between us after the interview. This will be held after the interview or at another time that suits you both. The observation will take between 30 minutes to an hour.

Once all the information has been collected, I will give the recorded interview back to you to reread and sign.

If you have any concerns about the process of gathering the interview data, you can contact the course coordinator and course lecturers to discuss these. Contact details are provided at the end of this information sheet.

He aha pea ngā awhina me ngā tūraru o tēnei whakaakoranga? \ What are the possible benefits and risks of this study?

The direct benefits to you with your involvement in this research may include an opportunity to reflect on how digital technologies have improved your life. You will be able to spend time with whānau during this process and gather ideas how you can support other whānau members with digital technology.

Risks associated with study participation are very unlikely but if you feel uncomfortable, you can withdraw from the study.

Ma wai te whakaakoranga e utu? \ Who pays for the study?

A koha will be provided to you for your valued contribution. There will be no costs for you to participate.

He aha te mahi i muri te whakaakoranga? \ What happens after the study ?

The interview data will be used for answering my research question, as described above. If any transcription is needed, I will do this myself, so that the data remains confidential. Data will be safely stored at my home while the project is being completed and will be destroyed once the project is complete. No names or other identifying details will be used in the project report. The project report will be marked by course staff and moderated by a member of the Institute of Education and returned to students on the understanding that the work will not be disseminated further without a full application for Ethics approval and your further consent to use the data for the purposes of publication. Following the study, a summary will be given to you in both written and presentation format. The thesis will also be sent to you and your whānau and published online.

HE AHA AKU MŌTIKA? \ WHAT ARE MY RIGHTS?

You are under no obligation to accept this invitation. If you decide to participate, you have the right to:

- refuse to answer any questions;
- withdraw from the study up until data is analysed;
- ask any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used.

KA TONO KI A WAI MŌ ETAHI ATU MŌHIOTANGA? \ WHO DO I CONTACT FOR MORE INFORMATION OR IF I HAVE CONCERNS?

If you have any questions, concerns about the study at any stage, you can contact:

Hana Bryant
Telephone Number: [redacted]
Email: [redacted]

Or

Lucila Carvalho
Email: C.carvalho@massey.ac.nz

Or

Bevan Erueti
Email: B.Erueti@massey.ac.nz

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern B, Application SOB 22/15. If you have any concerns about the conduct of this research, please contact Dr Gerald Harrison, Chair, Massey University Human Ethics Committee: Southern B, telephone 06 356 9099 x 83570, email humanethicsouthb@massey.ac.nz.

Appendix B: Consent form

MASSEY UNIVERSITY
TE KUNENGA KI PŪREHUROA
UNIVERSITY OF NEW ZEALAND

How Māori support whānau to promote digital inclusion

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read, or have had read to me in my first language, and I understand the Information Sheet attached. I have had the details of the study explained to me, any questions I had have been answered to my satisfaction, and I understand that I may ask further questions at any time. I have been given sufficient time to consider whether to participate in this study and I understand participation is voluntary and that I may withdraw from the study at any time.

1. I agree/do not agree to the interview being sound recorded.
2. I wish/do not wish to have my recordings returned to me.
3. I agree to participate in this study under the conditions set out in the Information Sheet.

Declaration by Participant:

I _____ hereby consent to take part in this study.

Signature: _____ Date: _____

Appendix C: Transcript release form

How Māori support whānau to promote digital inclusion

AUTHORITY FOR THE RELEASE OF TRANSCRIPTS

I confirm that I have had the opportunity to read and amend the transcript of the interview(s) conducted with me.

I agree that the edited transcript and extracts from this may be used in reports and publications arising from the research.

Signature: ..... **Date:** .....

Full Name - printed .....

Appendix D: Interview Questions

Semi-structured Interview - Digital Inclusion

1) Can you describe what a typical day would look like for you using digital technology?

Probing questions: *What applications do you use? Why?; what online resources have you used?; How did you find these devices?; How did you learn to use them?*

2a) What devices do you use the most? Why?

Probing questions: what motivates you to use digital technology? For what purpose? Is there something you couldn't live without? Why? How many hours do you spend using digital technology?

2b) Where did you learn to use technology?

Probing questions: If you developed any skills, what were these? How did you develop these skills? Do you keep up to date with new technology? Do/how do you receive support for this?

3c) What motivates you to use digital technology?

Probing questions: How engaged/motivated the participants are (e.g interest shown, questions asked, excitement, fun, want to do more challenging tasks, wanting to know more, satisfaction of solving a problem or learning something new)

4d) How do ensure you and your whānau are safe using digital technology?

Probing questions: Where do you get your information from? How do you know it is true? Do you check it on other sites etc.? *Do you feel*

comfortable sharing your information online? Do you share credit card details? What applications do you use? Did you get advice around how to keep information secure? If so, who by? Have you considered identify theft? Digital footprint?

3a) What do you find useful about using technology?

Probing questions: What processes are easier to do? Do you show others what you find useful from digital technology?

3b) What are some things that aren't useful to you about using technology?

Probing risks: Have you thought about or what are your thoughts on: Speed of internet access, accessible information (is it useful information?), knowing how to use hardware, knowing how to use software, time consuming to learn, costs of connection, costs of devices, decreases in person social interaction.

4a) Has there been a time when you needed help with using technology? Can you tell me about it?

Probing questions: *keep within the 4 digital inclusion principles of skills, access, motivation and trust e.g. Why did you trust this person to help you?; Did they show you any skills that you found useful? what were they? ; Did they talk about security to keep you safe online?; How did you feel about that?; tell me more about...:Have you thought about accessing professional services for support? If so, what for and where would you go?; What motivated you to receive help?; What situation would you contact a close family member for in terms of support?*

4b) Is there a specific person or place that you go to for continued help with digital technology?

Probing questions: Who are they? What do you need help with? Why do you go to them for help? What is your relationship?

5) How do they help you to use digital technology?

Probing questions: *What could help you to use it more?; what do you have access to that helps you use technology that you know of?;*

6) What stops you from using digital technology?

7) Do you have someone that needs your help with digital technology?

Probing questions: Who are they? What do they need help with? Why do they come to you for help? What sort of relationship do you have?

8) If you were to support anyone using technology, how do you think you could help? Or when you have supported someone using technology how did you help?

Probing questions: *keep within the 4 digital inclusion principles of skills, access, motivation and trust e.g. How would it feel to help? how would you know they needed help? How could you motivate them to see why it could be useful? How would you ensure they were able to trust technology? How could you support them if they had issues with access to internet or devices? If you had to teach them something, how would you know they would be able to do it without you around?*

8) Do you have someone that needs your help with digital technology?

Probing questions: Who are they? What do they need help with? Why do they come to you for help? What sort of relationship do you have?

9) How does your whānau influence your digital technology use? Why is that?

10) Is there anything else you would like to add?

Appendix E: Observation Protocol

Observation Protocol

The observation of a digital interaction between whānau members is open and descriptive. This assumes that whānau are network supported (meaning they look to close friends and family for support (Asmar, Audenhove & Mariën, 2020) and aims to explore how, and what happens during these interactions focusing on the level of social interaction that occurs when utilising digital technologies. I am also looking to see signs of whānau being receptive to the support and seeing how something is done.

Checklist to things I will be looking for:

- Types of digital devices used for the experience
- Facial expressions
- Types of language used (note direct quotes)
- Time on certain tasks
- Types of support with examples
- Interactions between themselves
- Types of sites visited and purpose
- Interest in the activity
- Types of questions asked
- The solutions to solve problems
- Any security measures or virus protectors
- Any access issues/problems
- How engaged/motivated the participants are (e.g interest shown, questions asked, excitement, fun, want to do more challenging tasks, wanting to know more, satisfaction of solving a problem or learning something new)
- Any trust issues with websites or devices (paying by card online, sharing personal details etc)
- Skill set of the participants (Tasks they can perform)
- Questions asked between whānau

Descriptive Notes	Reflexive notes
Time, direct quotes, things that were said and done, activities that are happening, social interactions	Interpretations and reactions, non-verbal behaviors
Setting diagram:	