

Developing digital teaching identities? The role of Initial Teacher Education (Practicum)

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Abstract

This PhD research examines how the voices of pre-service teachers can reshape policymaking conversations about digital technologies in education and the digital identities these teachers are expected to adopt. In an era when the quality of pre-service teachers is under intense scrutiny, Initial Teacher Education (ITE) faces mounting pressure to deliver classroom-ready teachers from day one. Rather than reducing pre-service teacher digital identity to a commodified product, this study foregrounds the authentic narratives of pre-service teachers, empowering them to maintain control over their evolving digital selves.

The research investigates the pivotal role of lived practicum experiences in shaping pre-service teachers' digital identities. By drawing on narrative theory and conducting semi-structured interviews, the study uses thematic analysis to listen to how pre-service teachers negotiate, adjust, and navigate their digital identities during practicum experiences. The resulting insights challenge fixed, risk-free interpretations of digital technologies and identities in education, arguing instead that both are intricately woven into everyday life and are in a constant state of evolution.

Furthermore, this work highlights the importance of incorporating pre-service teacher voices into ITE practices. Creating spaces for storytelling humanises digital identities and equips pre-service teachers with the agency to resist pre-determined digital coding.

Although situated within a specific ITE context, the findings provide a forward-thinking blueprint for ITE providers aiming to support, empower, and learn from the dynamic digital experiences of pre-service teachers.

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List of Abbreviations

AI	Artificial Intelligence
ASD	Autism Spectrum Disorder
AT	Associate Teacher
BBC	British Broadcasting Corporation
BEd	Bachelor of Education
BYOD	Bring Your Own Device
CIA	Culminating Integrative Assessment
ChatGPT	Chat Generative Pre-Trained Transformer (an AI model designed to understand and generate human-like text on the input it receives).
DOS	Disc Operating System
DVC	Design and Visual Communication
ECE	Early Childhood Education
EU	European Union
ICT	Information and Communication Technologies
IT	Information Technology
ITE	Initial Teacher Education
LAN	Local Area Network
MoE	Ministry of Education
NCEA	National Certificate of Educational Achievement
NZC	New Zealand Curriculum
NZQA	New Zealand Qualifications Authority
OECD	Organisation of Economic Cooperation and Development
PLD	Professional Learning and Development
RNZ	Radio New Zealand
TKI	MoE Curriculum resources online resource hub for teachers
UDL	Universal Design for Learning
UNESCO	United Nations Educational, Scientific and Cultural Organization

Attestation of Authorship

"I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person (except where explicitly defined in the acknowledgements), nor used artificial intelligence tools or generative artificial intelligence tools (unless it is clearly stated, and referenced, along with the purpose of use), nor material which to a substantial extent has been submitted for the award of any other degree or diploma of a university or other institution of higher learning."

Peter Robert Maslin

Glossary – Including Te Reo Māori Terms

Ahi Kaa	A term meaning “burning fire,” symbolizing continuous occupation and connection to the land. It represents the idea of maintaining and upholding one’s ancestral ties through active presence and guardianship (Bidois, 2018; Stewart, 2021; Taipapa et al., 2021; Williams, 1971).
Ako	A Māori concept that is often misrepresented in mainstream educational thinking as reciprocal learning and teaching. that means both to learn and to teach. Ako has a much richer and deeper understanding. It is seen as a Māori verb that encompasses both to teach and to learn with the specific meaning derived from the context of its use (Ministry of Education, 2011, Stewart 2021).
Hauora	A holistic Māori concept of well-being that encompasses four dimensions: • <i>Taha hinengaro</i> (mental/emotional well-being). • <i>Taha tinana</i> (physical well-being) • <i>Taha wairua</i> (spiritual well-being) • <i>Taha whānau</i> (social well-being). These dimensions are interdependent and collectively contribute to a person’s overall health. (Durie, 1998)
Kaiako	A Te Reo Māori term that is used within Aotearoa New Zealand educational contexts for a person who is a teacher. The term reflects the responsibilities of guiding and supporting learners in their educational journey (Ministry of Education, 2011).
Kete	A woven basket or container, often used metaphorically in education and knowledge-sharing. For example, the use of the word kete is often refers to the knowledge people bring and share with others (Williams, 1971).
Mana Ōrite	Meaning “equal mana” or “equal authority,” this concept relates to equity and fairness, particularly in relationships between different groups, such as Māori and non-Māori. It is often discussed in contexts of partnership, power-sharing, and respect. It is used as a metaphor for the relationship between Māori and the Crown in Tiriti o Waitangi (Berryman et al., 2018; Walker, 2004).
Mātariki	The Māori new year symbolised by the star cluster known as Pleiades. Traditionally marking the changing of seasons in the Māori calendar, today it has become a national holiday in Aotearoa New Zealand. It has become a celebration of Te Aō Maori (the Māori world), its stories, people and the gathering of community (Matamua, 2017; Te Puni Kōkiri, 2020).
Mātauranga Māori	The body of Māori knowledge, wisdom, and understanding passed down through generations. It includes traditional knowledge, customs, perspectives, and practices, integrating both spiritual and

empirical/scientific understandings of the world (Royal, 2009; Stewart 2021).

Tamariki	A Māori word for children. It is often used in educational and familial contexts, emphasizing the importance of nurturing and guiding the younger generation (Williams, 1971).
Te Whāriki	The early childhood education curriculum framework of Aotearoa New Zealand, based on Māori and bicultural principles. “Whāriki” means woven mat, symbolizing the interweaving of various strands of learning, development, and relationships that support children’s growth (Ministry of Education, 2018).
Tiriti o Waitangi	A Te Reo Māori term used to refer to the English and Māori versions of the Treaty of Waitangi. The Māori and English versions of Tiriti o Waitangi were, signed in 1840 between Māori chiefs and representatives of the British Crown. Tiriti o Waitangi is a foundational document for ongoing partnership between Māori and the Crown in Aotearoa New Zealand, establishing principles of partnership, protection, and participation for Māori and non-Māori in the governance of the country (Orange, 2011).
Tuakana-Teina	A reciprocal learning relationship in which an older or more experienced person (<i>tuakana</i>) mentors or supports a younger or less experienced person (<i>teina</i>). This concept is deeply embedded in Māori pedagogy and can be applied in educational, family, and workplace settings (Ministry of Education, 2011).
Wānanga	Te reo Māori term for culturally embedded and collaborative learning. Within Tertiary Education in Aotearoa New Zealand, the term is used for a distinct category of Tertiary providers that are underpinned by Māori values, Tikanga (customs), and mātauranga Māori. Wānanga provide qualifications for both Māori and non-Māori learners through a Te Ao Māori worldview (Ministry of Education, 2020).
Whakataukī	A Māori proverb or saying that conveys wisdom, cultural values, and teachings. Whakataukī are often used in speeches, education, and storytelling to pass down important messages and insights (Pere, 1991).

Glossary – Digital Platforms, Apps, Programs

BeeBots	Coding robots that are used in classroom to teach coding to younger learners.
Educa	Online learning platform that is used to share photos, videos and stories with families.
Epic	Digital library app used to support reading and literacy.
Facebook	A social media platform that allows people to share and connect.
Google Classroom	Learning management system that creates an online classroom and assessment portal.
Google Jamboard	Online collaborative whiteboard.
Helperbird	Online accessibility extension for web browsers that supports learners with reading support, dyslexia-friendly fonts, and speech to text.
Instagram	A social media platform that focuses on the sharing of videos and photos.
Kahoot!	Online interactive quiz-based platform.
Khan Academy	Online learning platform with videos and practice exercises across subjects. Creates personalised and differentiated instruction.
Mahara	E-portfolio and social learning platform.
Maths-Whizz	Adaptive online maths tutor that delivers personalised lessons and supports students to progress at their own pace.
Messenger	Messaging app connected to Meta social media platforms.
Microsoft Teams	Communication and collaboration hub.
Minecraft	Game based learning platform where students build, explore and create their own worlds.
Moodle	Open source learning management system and platform used in educational settings.
Padlet	Interactive digital bulletin board.
Prodigy	Math learning game that adapts to students' abilities.
Seesaw	Student driven portfolio app where learners can document video, photos, drawings for teachers to give feedback and share with parents.
Skype	Video calling platform.

Snapchat	Photo and video social media platform.
Storypark	A family communication and engagement app that is used by Early Childhood Centres to share learning experiences with parents.
Stravia	Fitness tracking app.
TikTok	Short form video social media platform.
Twitter/X	Microblogging social media platform.
WhatsApp	Messaging app that allows users to create closed groups.
YouTube	Video sharing social media platform.
Zoom	Video conferencing platform.

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Dedication

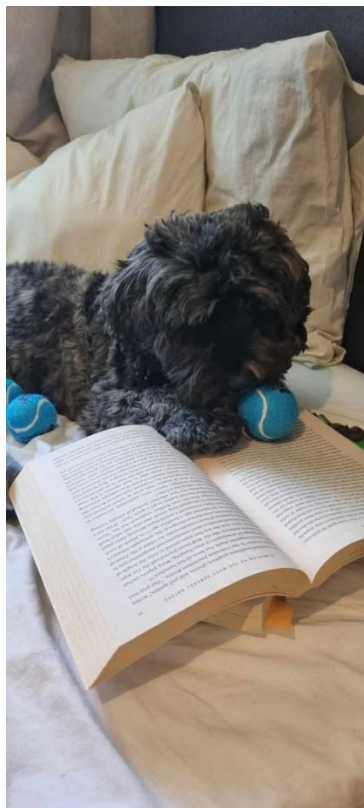
To my Lord and Savior Jesus Christ, thank you for supporting me in navigating my own digital identity within a postdigital world.

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Chapter One: Introduction

There is a growing expectation for education to equip learners with the digital identities needed to take part in a digital world—a world currently grappling with the realities of Artificial Intelligence (AI). This expectation should compel us to pause and ask: what is a digital identity? Digital identity can mean different things within different contexts, from a government department's digital file on a citizen to the footprint that each social media user leaves online (Beduschi, 2021; Buchanan, 2017; Buchanan et al., 2018). Within education digital identity is perceived as the confidence and skill to think, relate, connect, and adapt in a digital world (Bolstad & Gilbert, 2012; Loveless & Williamson, 2013a; Maslin & Smith, 2017)¹. This thesis examines the significance of the pre-service teacher's lived practicum experience in understanding digital identities. It explores how pre-service teacher lived experience of their digital identities emerges during practicum experiences and how this collective voice might contribute to Initial Teacher Education (ITE) better supporting pre-service teachers in navigating the change and challenges digital technologies present. This chapter examines the backstory to the choice of topic for this thesis, provides a rationale for the research and the principles that have guided its development, and then outlines the structure of the thesis itself.

Rationale

In 1998, Negroponte posed the question of what it is to be digital.² The rapid digitalisation of everyday life, processes and relationships presented the question of what digitalisation means for an understanding of what it means to be human.

Digitisation also raises the question of who is in control: the system or the user, technology or humanity. Researchers began to consider if digital identity was just

¹ This definition is further articulated and developed within the digital identity section of Chapter 3.

² Negroponte is considered to be a visionary digital thinker. His work on understanding the digital world has reframed how people consider the relationship between digital technologies and humanity.

another technological product being used to build a digital world or already intimately part of a world that was already digital and analogue at the same time (Loveless & Williams, 2013a, Jandric et al., 2018). Would being digital lead to the emancipation or assimilation of human identities (Gibbons, 2007)?

The rapid advancement of digital technologies is transforming our world. Negroponte's (1995, 1998) question concerning what it is to be digital is just as pertinent today as it was first raised. Society increasingly views the notion of a digital identity as an integral element of the skills, knowledge, and dispositions needed for 21st-century life. We live in an age of digital essentialism, where digital technologies are seen as a decision-making force dictating human outcomes, disregarding wider social, economic, and political conditions. The idea of digital technology as the fix-all solution trumps the need to question real-world impacts.

Today, the control of digital technologies and digital identities equals power. We live in a world where technology companies and governments take part, compete and collaborate in the race to control technologies (Williamson, 2019, 2022). This development represents the new great game for political, economic, cultural and social power. However, this game is not just played by nation-states but also by international organisations, global companies and even individual tech titans. The ability to control digital technologies, such as Artificial Intelligence, has the potential to make or take 1 trillion dollars from the share market in a single day (Davidson, 2025, January 27).

Digital technologies continue to transform and add to the illusion that they are inherently progressive and empowering (Selwyn, 2023a; Selwyn, et al., 2023a; Trippestaad et al., 2017). They represent a Pandora's box or Trojan Horse of potential that needs to be questioned.

The speed of change instigated by digital technology, in terms of the data produced and quantum leaps in understanding, such as through the development of AI, is only increasing (Selwyn et al., 2025). This places increased pressure on policymakers to

respond in the moment or risk being left behind. This often means embracing technology without considering the human impact. The idea that digital technologies are the solution for future-proofing education significantly influences policy and public perception of education. Educational policymakers in Aotearoa New Zealand have positioned education as the incubator of digital change (Ministry of Education, 2017a). This has seen educational policy and curriculum in Aotearoa New Zealand prioritise learners developing a digital identity through developing specific skills, knowledge, and dispositions through the use of digital technologies. Proponents have presented this as progressive education reform that will future-proof education (Ball & Savin- Baden, 2022; Biesta, 2020a, 2020c; Jandrić & Hayes, 2020; Jandric & Knox, 2022; Selwyn, 2013a, 2013b, 2017, 2023a). However, it also raises the question of what is happening to the voice of the pre-service teacher. If we blindly embrace digital technologies and the identities policymakers, tech moguls and datacists prescribe as the solution for education, it means that policy-making decisions about supporting and developing pre-service teachers' digital identities within ITE will trust technological data over human experience (Lanier, 2011; Loveless & Williamson, 2013a; Sefton-Green & Pangrazio, 2022). A datacist is a person who manipulates data in a self-serving or narcissistic manner in order to service their interests or those of an ideology or ascendant narrative that they follow (Bartlett, 2018; Lanier, 2011). The voice of the pre-service teacher and the insight it can provide risks being coded out of the decision-making process.

There is a continuing conversation on how digital technologies in education can better support the digital identities of pre-service teachers in ITE in Aotearoa New Zealand (Hipkins, 2017, December 8; Kaye, 2017, June 28; Ministry of Education, 2017a, 2017b; Reinsfield, 2018; Royal Society Te Apārangi, 2021). However, this conversation lacks insight into how pre-service teachers in Aotearoa New Zealand navigate the formation of their digital identities. In response to the data-driven technological narratives in education, the voice of lived experience presents an insight from within

Aotearoa New Zealand Early Childhood Education (ECE), primary and secondary practicum contexts that grounds this debate in lived human experiences of digital technologies and interpretations of digital identities. These voices are significant as they question the ascendancy of narratives that seek to exclude human voices and narrow understanding of digital identities such that understanding should fit a particular and singular vision. Revealing the diverse and often overlooked perspectives of pre-service teachers is significant as it creates a question in the discourse of policy conversations that interrogates rather than assumes whom digital identities serve and empower: the emancipated individual or the system.

Background

My research story

My digital identities are integral to this research. This research stems from my lived experience, my continually evolving relationship with digital technologies, the expansion of my digital identities, and my subsequent desire to ensure pre-service teachers' voices are heard. It is essential to acknowledge that I have a story.

Awareness of my narrative has supported the development of a research design that allows the participants' narratives to emerge.

The integration of the first computers into schools facilitated my connection with digital technologies. I spent as much time on these computers as I could, leading my parents to hire an Amiga500 from the school so I could continue this study over the school holidays. My parents further facilitated my interest in digital technologies, getting our first home computer, an Amstrad ©, in the early 1990s. Growing up a youth leader in my church also supported my interest. The youth leader was an avid gamer and introduced me to the world of shareware, and the disk operating systems (DOS) games that existed. I became fascinated with games like SimCity ©, A-Train © and Age of Empires ©. As an adult who was diagnosed late in life with high-functioning Autism

Spectrum Disorder (ASD), using the computer allowed me to create digital worlds that I could shape and control, while also enabling me to connect to my passion for history.

Curious about digital technologies, especially gaming and its development, I widely read about new products and platforms. I was constantly seeking to update digital technologies. At my university hostel, I connected with a number of other avid gamers, and we installed a LAN network between our rooms so that we could play games like Command & Conquer Red Alert © and Total Annihilation ©. At this time, new gaming platforms like PlayStation © and Xbox © also emerged, and I was first in line to purchase these. I was incredibly excited about the virtual reality options that were offered and allowed you to play cricket, another passion of mine, in the space of your living room. Gaming continues to be a major part of my life as a form of relaxation and escape, especially open-world games like the FarCry Series ©, Breakpoint Series ©, Fallout Series ©. I am also passionate about playing campaign games like the Battlefield ©, Star Wars © and Halo Series ©. These gaming platforms allow a person to play alone or in worlds where they can communicate with others. Most of the time, I prefer to be a lone wolf who plays personal campaigns or sticks to themselves in multi-player open-world environments. Open-world games are a form of escape into a world that I prefer to relax in. I can either disconnect from the noise going on around me or can choose to connect with people from around the world who share the same interest. Open-world games also give me the ability to locate myself in worlds connected to my interests while nevertheless giving me an element of control over your identity and the path that I take. The social media and blogs around games also allow me to delve into a deeper understanding of the characters and worlds in which these games are located, allowing me not only to understand games better but also have a deeper and richer understanding of the characters, contexts and timelines in the world that my played character co-inhabits.

While digital technologies, in the form of gaming, allow me to hide in a world of my choosing, they have also helped me to communicate better with others. Social communication using platforms like Messenger proved to be very helpful in communicating with others across distance. For example, being able to check messages before I sent them, assisted with the social anxiety, I had with communicating with others due to my undiagnosed autism spectrum disorder (ASD) at this time. Today, I still communicate first with the messenger options on Facebook, WhatsApp and Snapchat as my primary form of communication with others.

From 2003 to 2011, I taught across multiple Aotearoa New Zealand school contexts and was at the forefront of integrating digital tools into teaching spaces, in order to showcase the future potential that digital tools like smart boards, websites and digital cameras would have on stimulating learners' access and abilities to learn when using these tools. This was particularly important as I believed that digital technologies could be used by learners to innovate learning, and in particular for those learners who have specific learning needs or are disengaged by orthodox pedagogical approaches from learning in the Social Sciences. I also brought my passion for gaming with me and used this to build connections with learners in once-a-week gaming sessions at lunchtime playing a multi-player team match, Halo. During this time, I facilitated Professional Learning and Development (PLD) within the across-school clusters that the Ministry of Education (MoE) initiated to develop the educational integration of digital technologies. I led in-school PLD in the pedagogical use of digital technologies. I was adept at developing online learning approaches in the Social Sciences using guided web and internet searches, using digital programmes to develop differentiated learning approaches and digital technologies to challenge how learners presented work in the form of comic books, short films, digital presentations and websites. As part of this process, I was given first access in my school to new technologies in the form of laptops, stylus tablets and smart boards. The executive leadership of my school

expected that I would use and develop these technologies and share this insight into how to build the capacity of other Social Science teachers across our cluster of 4 local secondary schools. My selection as a digital technologies' facilitator stemmed from my recent graduation, my prior use of digital programs in teaching practice, and my interest in digital technologies, especially gaming outside of teaching. I was effective at tinkering with digital technologies and seeing how they could be used for their pedagogical value in the classroom. I was constantly looking for ways to integrate technologies into my teaching practice such that they would benefit the learner's outcomes. This meant that I was innovative and willing to take risks to see if these changes in my teaching practice would work. As I was further down the road than many of my colleagues, the role of a digital technologies' facilitator seemed a natural fit for me. My job was to motivate others to use digital technologies, but I did not want them to copy me. I would lead them in learning how to use a technology like the smartboard by showing them examples of how I used it and then scaffolding them as they took their own first steps. This approach influenced the approach I would later take in ITE when creating a hands-on experience that allowed the pre-service teachers to play with digital technologies such that they were able to use them in ways that they had not previously imagined were possible.

In hindsight, we lacked a coordinated understanding of how to build other teachers' trust when using digital technologies. We often failed to take the teachers with us as we tried to do too much, too fast, and this approach simply overwhelmed them. Although some teachers embraced the change, others faltered or returned to the traditional teaching methods that they had previously used. One of the key lessons I learned during my time in the classroom was how learners used digital technologies, which opened the door to understanding how one could adapt teaching and learning better to connect the learners with curriculum and assessment outcomes. This meant the need to connect to the digital technologies that learners used, how they used these digital

technologies and to the popular culture that is associated with these digital technologies. I had begun to incorporate learners' interests and usage of digital technologies into my teaching.

In early 2012, I shifted into ITE, where part of my role was to lead the digital transformation that the ITE provider that I worked for wanted for its pre-service teachers. My role included developing approaches that would harness the potential of digital technologies and embrace the digital transformation a new, digitally immersed generation of pre-service teachers would bring to ITE. As an institute, we wanted research to engage the potential of digital technologies and facilitate the innovation that pre-service teachers would generate due to their practicum experiences with digital technologies. Instead of reinforcing that digital technology was transformational, my first pilot research project provided an unexpected response to what we termed a digital dilemma (Maslin & Smith, 2014). The experiences of the participants revealed in the research data clashed with the expectation that access to technology would open the door to creativity, new approaches, and innovation. This digital dilemma existed because participants showed that instead of embracing the potential of digital technologies, they were increasingly confused and discouraged about digital technologies and, consequently, losing their digital confidence. My understanding of this digital dilemma shifted my understanding of digital technologies and digital identity, reframing my personal relationship with digital technologies and understanding of the significance of lived experiences in the formation of digital identities.

My focus shifted from digital technologies to supporting the pre-service teachers who had the agency to use digital technologies if they chose to. I led the reshaping of our programme to include an emphasis on assessments that incorporated digital technologies used in the presentation of ideas, allowing pre-service teachers to choose what digital technologies they would use. We also shifted our learning platform from Moodle to Google Classroom, allowing students to practice using one of the main

programmes that they would encounter in practicum contexts throughout the year. To support this, we developed a series of master classes in which pre-service teachers were scaffolded through specific digital technologies and then encouraged to brainstorm how they could use these digital technologies in their practice. The aim was to encourage pre-service teachers to develop confidence during practicum by formulating an escape-room activity using Google Slides or creating a short, flipped learning video using Google Meet. This experience resulted in the development of a profound sense of doubt about the knowledge that our decision-making was based on, which, in turn, revealed the existence of blind spots regarding the contextual experience that hadn't previously been considered as a voice and that needed further exploration. This thesis emerges out of my journey, and how my philosophical understanding of digital technologies and identities has changed from a narrow technological understanding to one that is grounded in the messy relational reality that involves the use of digital technologies in the everyday.

Ahi kaa as a research metaphor

As a metaphor, the concept of ahi kaa has guided my understanding of the policy conversation concerning digital technologies and the development of digital identities in education. Ahi kaa in Te Reo Māori translates as the “home fire” or “inner fire”, ahi translating as ‘fire’ and kaa ‘to burn’ and when put together meaning “keep places warm through human presence” (Taipapa et al., 2021, p. 149). Ahi kaa represents both a physical and metaphorical fire that sustains Māori identity. Ahi kaa represents the Māori connection to their whenua and those with whom they share this whenua. For Māori, this concept meant that even if a hapu lost control of their whenua or its ownership was contested, the hapu would still be able to turn over the embers of the fire to reveal the smouldering log that signified their constant participation in conversations that took place around the fire and the whenua ownership of the land on which it stands (Taipapa et al., 2021). In modern times Taipapa et al. (2021, p. 150) suggest ahi kaa is connected to “the idea of uncovering a fire and reigniting the flame”.

Here, ahi kaa is also connected to the concept of whakapapa a concept that as the home fire is timeless and links people and conversations in the present to both those in the past and those that are to come (Bidois, 2018 Nov 26; Stewart, 2021; Taipapa et al., 2021). Stewart (2021, p.2) describes these conversations as “whakapapa korero” containing narratives on identity and knowledge for survival that are used to uphold the mana of the group.

Theorists such as Ellul, Heidegger, Feenberg, Biesta, Loveless, Jandric, Selwyn and Williamson sat around the home fire of my research and engaged in conversation. Ahi Kaa helped me see this conversation as a dialogue in which I brought my questions about my research, and the connections to their ideas, to them. The theorists became part of my thinking as I could question and interrogate their literature through the position and story that I already lived. In this way, the ideas of the theorists came to life in conversation and added a richness and depth to how I saw the world, rather than just understanding from a distance how they saw and theorised the world, relationships and phenomena that cause change. Similar to my conversation with the theorists, the same conversations took place with the participant narrative.

Ahi kaa has played a metaphorical and philosophical role in shaping the research design. Conceptually, ahi kaa represents a safe conversational space for pre-service teachers. A space in which the pre-service teacher's voices is acknowledged and can speak. Within a safe narrative space, pre-service teachers can question rather than comply with the data-driven technological digital identities they are expected to assume. Ahi kaa allows the participant to be an active rather than passive participant in the discourse as the pre-service teacher is acknowledged for their own unique story and what it can contribute to the discourse. The ahi kaa invites them to speak into theory and policy both as individuals and as a collective. This is important as, rather than marginalising their insight, it allows them to bring their ‘aha moments’ to a broader audience, which facilitates the sharing of wisdom, ideas and connection. In being able

to speak around the ahi kaa pre-service teachers learn to stand with agency in the digital world, that their voice is important, and they can shape how digital technology and identities are understood and used in educational spaces. The ahi kaa becomes a space in which conversations are connected and woven together, a space in which collective understanding is formed. This allows them to emerge as a weave of understanding in which the narratives that stand strongly by themselves stand stronger together.

This research aims to uncover the ember of pre-service teachers' voices and use what has been discovered to contest the current conversation concerning digital technologies and digital identities. Exploring these conversations that have been always hidden in plain sight and allowing them to be heard are the essence of this PhD research project.

Research Objectives

This thesis shows that pre-service teacher lived practicum experience is a significant aspect of the formation of their digital identity. In an era when digital technologies in education are assumed to be a mechanism for economic and social progress, this insight will provide the counterbalance that humanises policy-making conversations. Policy-making discussions are increasingly excluding pre-service teachers to privilege the political and public voices that prioritise digital technologies. The voice of the pre-service teacher belongs to the voice of the ahi kaa conversation concerning understanding digital technologies, digital identities, and ITE's role in supporting these phenomena. Pre-service teachers understanding and interpretation of their lived practicum experiences provide a fuller picture of the relationship between digital technologies and pre-service teachers during practicum and how these phenomena influence the understanding of digital identities. Broadening the conversation calls into question the blind embrace of digital technologies. This PhD research aims to support ITE in understanding the importance of the pre-service teacher's voice as a challenge

to digital essentialism (Gibbons, 2007). Digital essentialism is the idea that digital technologies are inherently progressive and essential in facilitating positive educational outcomes. The voice of the pre-service teacher highlights the need to see digital technologies as more than just a tool and the importance of questioning who is positioning them, why they are doing so and for what outcomes. The insight into lived experience provides multiple messy perspectives of how pre-service teachers adapt their digital identities in response to their experiences. This socio-technical rather than technological conversation does not offer the answer but instead illuminates ways in which the challenge and change that arise from the pre-service teacher's everyday interactions with digital technologies can be better navigated.

The following two research questions have guided the development of the discussion in this thesis, allowing for the exploration of the significance of practicum during ITE when shaping the digital identities of pre-service teachers. The first question is, "How can the lived digital experiences of pre-service teachers within ITE contribute to the emergence of their digital identity?" The second question is, "How can the inner dialogue of the pre-service teacher understanding of ITE contribute to understanding how digital identity formation can be supported within ITE?"

To explore these questions, I developed a research design to create a safe space for pre-service teacher participants to see how their practicum experiences of digital technologies shaped their digital identities. The research design aimed to gather the authentic narratives of the pre-service teachers, allowing insight to emerge from each narrative rather than using a predetermined theoretical approach. I asked participants to participate in semi-structured interviews after their practicum. The question prompts during the interviews encouraged them to speak of their experiences and interpretations of these experiences. For these interviews and in the presentation of the discussion the participants used pseudonyms to protect their identity. I then analysed the raw interview data that the participants provided and presented this data in the form

of individual narratives. The participants shared with their ITE provider how their lived practicum experience shaped their digital identities. Participants verified these transcriptions of oral interviews for authenticity and confirmed that their voices were represented as intended. The power of these narratives is twofold. First, they reveal that there are multiple perspectives exist. I present these individual narratives in the narrative section of this thesis. Secondly, the coherence of these narratives enables participants to speak with one voice across multiple contexts of lived experience. I coded each participant narrative for the emerging key themes to do this. After completing this coding, I overlapped the narrative themes to identify key threads of coherence concerning the practicum's significance and its contribution to participant understanding of digital identity. The discussion chapter discusses the five key threads that emerge from the participant narratives.

Research Scope

This thesis explores the practicum experiences of eleven ECE, primary and secondary undergraduate, graduate and postgraduate pre-service teachers across multiple campuses within one of Aotearoa New Zealand's main cities. This research project explores the pre-service teacher practicum experiences during Semester One 2023 and their interpretation of how these experiences were significant in forming their digital identities. The participants are a snapshot of the ages, ethnicities, and life experiences that represent the diversity of the teaching profession in Aotearoa, New Zealand. They represent the stories of people born to teach, people who have changed careers, people motivated to make a difference and people seeking to pay it forward.

Structure of the Thesis

The structure of this thesis begins with a theoretical and contextual interrogation of the key philosophical concepts that guide the thesis discussion of the context of ITE, digital identity and pre-service teacher practicum. Chapter two explores the theoretical and philosophical ideas that have guided the development of this research project. The first

part of this chapter explores three philosophical ideas that support an expanded understanding of digital technologies and identities. Three arguments challenge the idea that the system can produce pre-service teacher digital identities and the assumption that digital technologies provide common-sense solutions to educational problems that require no questioning. Firstly, I discuss Biesta's (2013a, 2017) unpacking of educational purpose and the significance of his three interconnected domains of educational purpose concerning the emancipation, not the subjugation, of the pre-service teacher's digital identity. Next, I explore Loveless and Williamson's (2013a) argument that digital technologies are more than digital tools and represent a relational mode of existence. This relational mode of existence reveals that understanding digital technologies and the digital identities they enable is intimately intertwined with their broader social context. Postdigital theory reveals a connection between our understanding of digital technologies, digital identities, and everyday experiences. This argument claims that digital transformation has already happened, and the concept of a digital identity is already deeply intertwined with the pre-service teacher's existing identity. The second part of this chapter discusses the philosophical positioning of digital identity as a concept. Firstly, we will examine how people understand digital identities. An in-depth examination of how digital identities are positioned within educational policy follows this. The impact of these positions of digital identities produced for or allowed to emerge from within the pre-service teachers is then critiqued.

Chapter three discusses how digital technologies' introduction, integration, and infusion have influenced Aotearoa New Zealand's educational and ITE context. This discussion shows how changes in digital technologies have influenced policy approaches and how the digital identities of pre-service teachers are fostered within ITE. First, this study traces the chronological emergence of digital technologies in Aotearoa New Zealand, during what is called the "digital age". I explore key concepts that have influenced

policy developments and changes in the understanding of digital technologies and identities and their influence on ITE. Next, the nature of ITE and practicum in Aotearoa New Zealand is discussed. The positioning of ITE in the preparation of teachers is explored with emphasis placed on the pressure ITE is under to produce out-of-the-box standardised outcomes. This analysis critiques the positioning of ITE to support pre-service teacher digital identities. Central to this critique is the debate concerning the relevance of ITE providers and how much, if any, independence and voice they should have in educational policy decision-making and outcomes. I then explore practicum, an ITE learning space central to this thesis. This thesis explores the importance of practicum as a context for identity tension and formation and its significance in shaping pre-service teacher digital identities. I review and critique the changing nature of practicum in Aotearoa New Zealand, providing insight into the context of tension and ambiguity that pre-service teachers often encounter.

Chapter Four explores the obstinate methodology that guided the development of the research design and how this design emphasises allowing participant voices to speak authentically and provide new insight to emerge without predetermined theoretical bias. I provide a rationale for this obstinate research methodology. This study uses a methodological approach that avoids pre-existing theory, enabling a ground-up theorisation of participant narratives. The first part of the methodology chapter explores the philosophical and theoretical foundations that guided the design of this obstinate approach. The chapter then outlines how open, inductive approaches support inside-out narratives to emerge authentically. I discuss the crucial aspect of narrative, emphasising the significance of participants' insider narratives of lived experience. This chapter concludes by showing how the participants' narratives form a coherent narrative of threads that combine to form a collective voice.

Chapter Five outlines the research design for this thesis. The chapter begins by articulating how the research design aimed to support participants' voices to break the

fourth wall of practicum context and speak into the broader conversation concerning digital identities in ITE. The chapter begins by discussing how the COVID-19 pandemic impacted the initial research design and how this resulted in changes to the research design. I then discuss the remodelled research design, including recruitment processes, semi-structured interviews, and how we conducted these interviews. The chapter concludes by explaining how I analysed the raw data to produce the participants' narratives and the subsequent narrative threads in the discussion.

Chapters Six to Nine introduce the individual participants' narratives and their lived practicum experiences. Each chapter is linked by a connecting theme in each participant's narrative about why they want to become teachers. Each participant's narrative outlines their experiences with digital technologies, their encounters with digital technologies during practicum, and their interpretations of how these digital technologies influenced the formation of their digital identity. Chapter Seven explores the narratives of Teej, Lucy, and Sally, whose belief in their born-to-teach identity connects them. Chapter Eight introduces the narratives of Toloake, Chester and Richard, who are all career changers. Chapter Nine features Abby and Camila whose decision to enter ITE stemmed from a desire to make a difference in learners' lives. Chapter Ten presents the narratives of Jane, Hannah and Ella, who desire to pass on the relational connection, support and care that their own teachers provided them with.

Chapter Ten discusses the insight that the collective narratives present as a coherent voice. I discuss the key threads that emerged from the narratives, connecting the participants' multiple experiences, understandings, and interpretations. This analysis discusses five key threads. These threads were chosen as they represent the voice of the participants that reinforce the significance of practicum in the formation of their digital identities. The threads provide insight that ITE could use to provide better support for pre-service teachers as they navigate the formation of their digital identities. The first thread that the discussion presents is that which reveals the participants'

awareness that practicum is a postdigital space in which hands-on relational connections are crucial in forming a digital identity in which they have agency rather than is coded for them. The discussion next turns to the impact of COVID-19, a socio-technical reality that reinforced participants' understanding of the fluidity and constantly changing nature of relationships involving digital technologies. The third thread highlighted the variability of practicum experience and how participants' understanding of variable relationships, understandings, and the resourcing of digital technologies can play a significant role in the formation of pre-service teacher digital identities. The belief that participants view digital identities as adaptable is the next discussion point. The participants revealed that their capacity to adapt by finding the space during ITE to tinker with understanding, relationships, and resources was crucial to the emergence of a responsive digital identity. This connects the participants' digital identities to the growth of wisdom from hands-on experiences and to the ability to draw from a growing body of practical insight. This chapter concludes by discussing the significance of participants' interactions and observations of learners' changing digital identities.

Chapter Eleven sums up the key findings of this PhD research and suggests how pre-service teacher storytelling can be supported to continue revealing rich insight about digital identities within ITE. The chapter engages with the key conclusions that the participant narrative asks ITE to consider in how it supports pre-service teachers in navigating the formation of their digital identity within practicum experiences. The conclusion reinforces this research's significance to the discourse and discusses its implications for ITE. This chapter also discusses the limitations of this research and how these open up future areas for research exploration.

Conclusion

This thesis reminds us that we must listen to human voices when supporting decision-making that humanises how digital identities are interpreted, understood, and defined. In an era where data-driven decision-making is being prioritised in education and

research funding, the narratives within this thesis remind us of the richness and depth that can be found in human experiences and potentially will be lost if research spaces are not created for them to have a voice (Buch et al., 2024; Williamson, 2017). This thesis offers insights from narratives emerging within educational contexts instead of imposing technological solutions. These narratives broaden the discourse and emphasise how an understanding of digital technologies and identities should be inclusive, rather than exclusive, of broader contextual and relational factors. This research contributes to the discourse by revealing the narratives of the lived experience of pre-service teachers within Aotearoa New Zealand, revealing in their own words a rich and detailed interpretation of how they are living a personalised digital learning journey. The narratives found in this thesis offer a snapshot of pre-service teacher evolving journeys and the formation of their digital identities, a perspective currently absent in research and policy discussions. As readers, we can hear, from an Aotearoa New Zealand perspective, what these pre-service teachers authentically think about their relationships with digital technologies and their digital identities.

Within the global focus on standardised approaches to digital technologies and the formation of digital identities in education, these narratives give a snapshot of pre-service teacher perspective in Aotearoa New Zealand. We see how pre-service teacher lived experience of digital technologies in practicum contexts across ECE, Primary, and Secondary contexts contribute to forming their digital identities. Not only does this research project reinforce the importance of understanding digital technologies and digital identities in Aotearoa, New Zealand, but it also reveals the significance of practicum as a fluid space crucial to the formation of pre-service teacher digital identities. We also hear from pre-service teacher voices on how they understand and interpret their lived experience of digital technologies during practicum and how this experience contributes to the formation of unique, personal, and constantly evolving digital identities.

Chapter Two: Charting the Contextual Landscape

Introduction

This chapter explores the educational prioritisation of digital technologies in Aotearoa, New Zealand, from the early 2000s, their integration after 2010 and their infusion post-2017 (Starkey & Yates, 2022). The chapter creates a landscape in Aotearoa New Zealand in which digital technologies and identities emerge. The critique of the elements that emerge within this landscape will be the focus of Chapter Three.

The prioritisation of digital technologies has focused on preparing teachers and learners for what Arantes and Buchanan (2023, p. 494) describe as the “indefinitely impending” digital transformation of educational processes and systems. This spurred the digital transformation of education policy, changing how ITE and practicum contribute to pre-service teacher digital identities. Broader educational policy’s prioritisation of digital technologies strongly influences how ITE and practicum understand digital identities. This chapter first examines the policy shifts that have shaped the understanding of digital identities within education, explicitly referring to the Aotearoa New Zealand context. Second, it investigates how digital technologies have influenced ITE and practicum as spaces where pre-service teachers expect to develop their digital identities.

Introduction of ICT in the 2000s

Since the early 2000s, education policymakers have prioritised digital technology to “bring New Zealand’s education system into the digital age” (Bolstad & Gilbert, 2008, p. 2). The emerging economic significance of digital technologies created political pressure on education systems to ensure that learners take advantage of the economic potential that digital technologies offer (Freeman-Moir & Scott, 2007; Starkey & Yates, 2022). Digital technologies and identities were linked to the buzzwords of educational transformation, lifelong and future-focused learning, 21st-century skills and the

knowledge economy (Starkey & Yates, 2022; Fox-Turnbull, 2019). Since 2000, Starkey and Yates (2022) suggest that the emergence of digital technologies has progressed through three phases in Aotearoa New Zealand educational contexts. These stages are: the introduction of digital technologies as information and communication technologies (ICT) (2000-2010); the integration of digital technologies into learning outcomes (2010-2017); and the infusion of digital technologies in Aotearoa New Zealand educational contexts as part of the background hum of everyday educational life, practice and identities (2017 onwards).

Teachers and learners being able to use ICT was seen as an essential component of the new knowledge, skills and dispositions learners needed to have to participate in the knowledge economy (Bolstad, 2006; Bolstad et al., 2006; Bolstad et al., 2012; Bolstad & Gilbert, 2008; Gilbert, 2005; Newton, 2017; Starkey, 2016). The knowledge age represented the shift in global economic power from the industrial age to the post-industrial age. The knowledge economy superseded the industrial economy with industrial capacity replaced by commodified knowledge as the critical economic feature of a nation's ability to compete in the global economy. The knowledge economy refers to the idea that future workers no longer need to be prepared for the industrial workforce but instead need to be prepared as creators, curators, analysts and interpreters of commodifiable knowledge. Advocates for the knowledge age and its economic priorities argue that early childhood providers, primary and secondary schools, curriculum and teaching need to change to support learners to embrace this challenge (Bolstad, 2006; Bolstad et al., 2006; Bolstad et al., 2012; Bolstad & Gilbert, 2008; Cowie et al., 2005; Gilbert, 2005).

The MoE has responded to international trends with governments endorsing the need for ICT literacy by prioritising the integration of ICT in ECE centres, primary and secondary schools, believing digital tools would transform education (Cowie et al., 2005; Freeman-Moir & Scott, 2007). In the 2000s Primary and Secondary schools this

initiative was driven by the Digital Horizons: Laptops for Teachers scheme, and the Digital Horizons: Learning through ICT policy (Ministry of Education, 2002). The integration of ICT was driven by the MoE's *Foundations for Discovery*, a policy framework for ECE that aimed to promote ICT as a tool for learning, teaching and administration to prepare learners for the knowledge economy (Dalli et al., 2009). These policy approaches were built on the reform of the technology curriculum in the 1990s, introducing two key ideas for learners to engage with. The first idea was that learners needed to develop the technological literacy to continually be able to educate themselves to benefit from educational change. The second idea was that learners would benefit from learning about technological solutions to lead future decision making (Dalli et al., 2009; Royal Society Te Apārangi, 2021).

Digital technology policy in the early 2000s outlined the Government's commitment to making ICT an area of knowledge relevant to all students (Cowie et al., 2005; Dalli et al., 2009; Ministry of Education 2006a, 2006b; Royal Society Te Apārangi, 2021).

Central to this policy were outcomes related to developing skills and knowledge that would enable learners "to become full participants in the global community" (Ministry of Education, 2002, p. 3). This involved providing teachers with laptops at low or no cost, integrating ICTs throughout educational practice and administration, and upskilling the ICT capability of teachers (Cowie et al., 2005). The expectation was that the provision of laptops would foster teacher confidence and that this would flow through into their teaching and, ultimately, learning outcomes (Cowie, 2005).

Teachers were expected to support learners, identified as 'digital natives', 'iGeneration', or the 'net generation' in a self-initiated digital transformation (Bennett, 2012; Bennett & Maton, 2010; Bolstad et al., 2012; Dalli et al., 2009, Duncan-Howell, 2012; Gu et al., 2013; Guo et al., 2008; Lourie, 2020; Prensky, 2001; Somyürek & Karabulut Coşkun, 2013; Tapscott, 1998). These digital identifiers emerged to explain the first generation of learners who came into education with digital identities as they prepared for the

digital future. Foundational to these identifiers is the connecting idea that learners have grown up in the digital age and, as such, have a different relationship with digital technologies. Policymakers viewed learners' relationships with digital technologies as natural. In addition, learner access to and use of digital technologies would transform education.

Providing the right digital technologies would enable teachers—even those who consider themselves digital immigrants, visitors, or dinosaurs—to support technology use, thus allowing learners to readily embrace and advance the progress of digital technology in education (Corrin et al., 2010). The MoE focused on supporting schools to develop ICT policies, integrating ICT tools such as laptops, computers and smartboards into administrations, organisations, teaching and learning spaces, and upskilling teachers to use specific digital tools. In the early 2000s, people commonly believed that advances in digital technologies would lead to educational transformation, as digital technologies have the “power to change, review, and improve education” (Rensfeldt & Player-Koru, 2020, p. 3).

Uniform labels such as the ‘digital native’ also proved to be problematic and undermined rather than facilitated the development of both the teacher and the digital identity of learners (Bennett, 2012; Brown & Czerniewicz, 2010; Czerniewicz & Brown, 2012; Hedberg, 2011; Jelfs & Richardson, 2013; Kennedy et al., 2010; Maslin & Smith, 2017; Smith & Greene, 2013; Somyürek & Karabulut Coşkun, 2013). Research shows that learners who use and engage with digital technologies do not all have the digital knowledge, skills and dispositions needed to actively use digital technology (Diz-Otereo et al., 2023; Rhodes & Calder, 2022). While learners are adept at using digital technologies passively in their personal lives, research reveals they were not confident to be active creators of digital solutions (Beetham, 2014 May 22; Killen, 2015; Rhodes & Calder, 2022). Passive engagement with digital technologies positions learners as consumers of technologies, meaning they are adept at navigating, sharing and

communicating via digital platforms. However, they do not have the agency to be active users of digital technologies when in the classroom. Being an active user means that they have the skills, knowledge and dispositions to be digital creators that innovate new digital opportunities that can be commodified and contribute to the digital economy. Politicians leveraged this idea from 2010 to justify the New Zealand Curriculum's (NZC) digitisation, aiming to make learners prosumers instead of mere consumers of digital technologies (Hipkins, 2017, December 8).

The idea of being a digital solution-maker in the early 2000s connects to the discourse that learners can design digital solutions to the challenges emerging from engagement with the knowledge economy. This discourse would prove to be enormously influential in the development of the digital technology focus within the NZC (Hipkins, 2017, December 8; 2018, June 21). Research also showed that teachers did not have the confidence to bridge this gap, often mimicking digital practice or using digital technologies to modify traditional pedagogical approaches rather than transforming educational experiences (Maslin & Smith, 2017; Reinsfield, 2018; 2020a, 2020b). Gibbons (2006) highlighted the tension that this digital expectation created for ECE teachers. Often, teachers lacked the prerequisite digital skills to integrate digital technology into their pedagogy and practice. This created tension between digital policy and the professional agency of educators centred in elements such as play-based learning (Oldridge, 2010). Initial ECE research into digital change revealed the policy focus on instrumental skills and definitions lacked sustained uptake as it did not integrate educational philosophy, communities of practice, and sustained institutional support (Dalli et al., 2009). By 2010, it was becoming increasingly clear that policy expectations did not connect with educational philosophy. This disconnect created a roadblock to integrating ICT, rather than a path forward. For many learners, a digital divide rather than a digital connection emerged. Digital gaps like the lack of access to digital technologies at home caused this digital divide; the differences in digital

technologies that exist in educational contexts; the difference between personal and professional use, and the personal lack of digital skills. The digital divide meant learners were not naturally able to use digital technologies in the way that they were expected, as supposed members of the digital generation (Bolstad et al., 2012; Kellow, 2018; Rhodes & Calder, 2022; Newton, 2017; Starkey et al., 2017; Starkey & Yates, 2022). Concern that the knowledge wave would not be caught turned the discourse from provide ICT to getting learners to think about the foundational digital fluency they needed so they are equipped “for life and work in the 21st Century” (Bolstad et al., 2012, p. 11).

2010 to 2017: The Push to Integrate Digital Technology

Around 2010, the image of the self-aware digital native using ICT to drive digital transformation began to fade (Bennett, 2012; Bennet & Maton, 2010; JISC, 2014; Smith 2012). An emphasis on developing the digital fluency of learners to use digital technologies emerged in the second decade. The language of policy shifted. The focus was no longer just the provision of digital tools but also the development of the digital identities of learners with the knowledge, skills and dispositions to make use of digital technologies (Kellow, 2018; Fox-Turnball, 2019; Rhodes & Calder, 2022).

Digital fluency refers to digital knowledge, skills and dispositions that enable one to navigate digital spaces to make appropriate digital judgments and decisions for the purpose of creating digital solutions that are contextually appropriate, something which is now seen as a core part of a teacher’s professional identity (CORE education, n.d.; Ministry of Education, 2017b). Lourie (2020) supports this idea, positing that the policy change signalled a shift away from just learning to use digital technologies to the practice of actively teaching learners about digital technologies across their educational experience. One of the reasons for this shift was that there was a move away from a focus on the generic use of digital technologies to teachers themselves assuming the role of having sufficient digital fluency and capacity to support learners. The discourse

began to focus on identifying what “teachers need to know and be able to do to be teachers in the digital age” (Starkey & Yates, 2022, p. 477).

The integration of digital technology in educational spaces was facilitated by the increasing stability of the Internet and the availability of mobile devices (Bolstad, 2017; Jopling, 2023b; Lourie, 2020; Selwyn 2016a, 2016b; Starkey & Yates, 2022).

Educational contexts developed Bring Your Own Device (BYOD) approaches, ECE centres increasingly used digital devices like tablets, and new pedagogies designed to harness digital technologies, like Universal Design for Learning (UDL), emerged (Santimaria et al., 2020; Selwyn, 2017). However, integrating digital fluency within educational contexts did not necessarily translate to learners grasping the potential seen in digital technology by policymakers.

Some educators resisted using digital technologies for philosophical reasons; in other spaces, access to digital technologies lagged due to a socio-economic reality that meant educational contexts could not provide the digital infrastructure and capacity required (Kellow, 2018; Pendergast & Pendergast, 2022; Rowston et al., 2019; Starkey & Yates, 2022). Also, while most learners had access, this did not mean that all learners had access, especially outside of school which further facilitated the emergence of a digital divide between have and have-nots (Kellow, 2018; Pendergast & Pendergast, 2022; Rowston et al., 2019; Starkey & Yates, 2022). The digital exclusion highlighted by this lack of access would be later be amplified by the COVID-19 pandemic in Aotearoa New Zealand and the MoE having to provide 80 000 learners in 45,000 households with internet connectivity and 36,000 learners received digital devices (Department of Internal Affairs, 2021; Gibson, 2020 April 8; Ministry of Education, 2020). Because of COVID-19 all education within Aotearoa New Zealand shifted to online teaching and learning between April 15 2021 to May 13 2021.

Auckland schools were further interrupted from the August 12 to October 7 in the same year when this area was placed under further restrictions. While this rollout of

digital devices during these lockdowns was heralded as a short-term success, it represents a band-aid approach to digital inequality that does nothing to fix the underlying socio-economic factors that drive digital inequality (Selwyn & Jandric, 2020; Wenmoth, 2021; Williamson et al., 2020b).

From 2010 the OECD and other international organisations interested in education increasingly sought to influence the positioning of digital technologies in education (Cobb & Couch, 2018; OECD, 2015a, 2015b; Selwyn, 2019a, 2019b; Williamson, 2019; 2022). Williamson (2022, p. 154) describes these interests, which include international organisations and technology corporations, as “shadow education industries” that seek to influence educational policy and outcomes. The OECD (2010a, 2010b) recommended that governments make efforts to identify digital skills and competencies that could be included within the curriculum. A key feature was the emergence around the globe of national curriculum projects (Ilomaki et al., 2012). From an ECE perspective, Haggerty et al., (2020) critique government policy for minimising the focus on care in order to prioritise children entering school as future economic units for the workforce. Terms such as digital fluency, literacy and competency became new educational buzzwords for the specific digital knowledge, skills, competencies and dispositions learners needed (Lourie, 2020; OECD, 2015a, 2015b, 2018a; 2018b Newton, 2017; Starkey, 2016). Pressure was placed on teachers’ needing to develop the digital fluency to sustain the desired digital outcomes in education (Newton, 2017; OECD, 2015a; OECD, 2024a, 2024b)

The educational discourse in Aotearoa New Zealand began to focus on how digital technology could be formalised within *Te Whāriki* and the NZC to prepare ‘future focused’ learners for the digital age (Bolstad, 2006; Bolstad et al., 2012; Farquhar & Gibbons, 2019; Haggerty et al., 2020; Haggerty & Alcock, 2016; Lourie, 2020; Newton, 2017). In 2016 the decision was made to make digital technology a compulsory part of the curriculum from Years 1 to 10 (Royal Society Te Apārangi, 2021). The addition of

digital technology to the NZC was both strategic and significant. Not only did the MoE show it was being responsive to the opportunity that digital change presented, but its addition to the NZC represented an attempt to control the outcomes to be achieved.

In 2016, the MoE announced that a digital sub-learning area would be added to the NZC (Starkey, 2016). The digital curriculum is built on a series of reports done between 2012-2016 that attempted to organise the reshaping of education for a digital age while focusing on curriculum change, learning environments and the provision of equity (Bolstad et al., 2012; Fletcher et al., 2020; Ministry of Education, 2014; Starkey & Yates, 2022; Fox-Turnbull, 2019;). This curriculum sub-learning area was introduced in 2017 and was rolled out between 2017 and 2020. This sub-learning area introduces digital fluency and capacity that learners need to develop during Years 1 to 10 of their schooling. The ECE curriculum update in 2017 also reflected this positioning of digital technologies by explicitly including them for the first time. This positioning constructed digital technology as a formal component of ECE pedagogy (Santimaria et al., 2020).

Future-focused educational reform was an attempt to refine the understanding of digital technologies and the digital identity that learners needed around the digital knowledge, skills and dispositions needed to prioritise Aotearoa New Zealand's advantage within the knowledge economy. Bolstad (2006) argues that adding a subject to the curriculum gives that subject a formal status, creates consensus on what is essential to teach, and creates a framework for teachers to approach teaching this subject in their curriculum area. There was also an emerging desire to use the data that digital technology could generate. Newton (2017) suggests the digital age is an age of information richness in which teachers need to know how to access and use digital technology to gather data and then adjust their teaching in response (OECD, 2015a; 2017b; Newton, 2017).

Williamson et al. (2019a, p.351) argue that society has become increasingly defined by data. He calls this reality 'datatification' which is "the rendering of social and natural worlds in machine readable digitised format". Data-driven approaches are important to

question and represent a challenge that ITE needs to resist, with the voice of lived pre-service teacher experience having the potential to provide an obstinate counter narrative that contests the 'common sense' data-driven approaches attempt to convey.

Educational resistance to the unquestioned embrace of digital technology became more focused during this timeframe (Selwyn, 2013a, 2013b 2016a, 2016b; 2017, 2019b, Williamson et al., 2019a). The technocentric rationale that sought to future-proof education by datatifying educational decision-making came under increasing critique (Selwyn, 2019a. Williamson et al., 2019a). The suggestion that digital technologies were an unremarkable feature of educational life and a neutral tool for progress raised the question of why this is the case. Rather than simply accepting this as common sense, questions were asked about the motivations behind the digital technologies embraced within education and the scientific digital data used to support and reinforce the essentialism of a technological solution (Gibbons, 2007; Selwyn, 2013a, 2013b, 2016a, 2016b, 2017; 2019b; Williamson et al., 2019a). Scholars such as Selwyn (2016a, 2017) and Williamson (2019) increasingly question the value position of digital technology, arguing that educational theory was being increasingly shaped by an understanding of digital technology that reflected neo-liberal economic interests. The rate of change that digital technology was creating was profound, rapid, frequent and ongoing (Selwyn et al., 2017a, 2017b, 2017c; Torrisi-Steele & Wang, 2021). The opening of a technological pandora's box in the eagerness to embrace progress saw critique of a shadow side begin to emerge, showing that increased access to digital technology within school contexts had resulted in increased online bullying, cheating and sexting (Selwyn et al., 2017c). Concerns also emerged about the prevalence of digital addiction and learner's ability to respond critically to misinformation (Christini, 2023; Lee et al., 2023; Mutch, 2023; Webster, 2023). Critiques also emerged about the threat posed by datafication to teacher agency (Farquhar & Gibbons, 2019; Haggerty et al., 2020; Haggerty & Alcock, 2016; Williamson, 2019). The emergence of Edtech

platforms that solve educational problems and mine data from teachers and learners raised concern about the extent to which companies like Google influence the direction of educational policies concerning digital technologies (Williamson et al., 2019a).

2017 to 2024, from Integration to Infusion

This section examines how digital technologies have become infused within *Te Whāriki* and the NZC since 2017, the influence that this has had on ITE, and the perception of the pre-service teacher's professional identity (Cam & Kiyici, 2017; Hipkins, 2017, December 8; Kaye, 2017, June 28; Ministry of Education, 2017a, 2017b, 2017c, Reinsfield, 2018; Royal Society Te Apārangi, 2021). Starkey and Yates (2022, p. 477) define this infusion of digital technologies as the use of digital technologies across all functions of the school enabled by “ubiquitous access to devices, the Internet, educational technologies online learning environments, artificial intelligence, digital data and communication tools”. The educational embrace of digital technologies has been increasingly characterised by complexity and contest (Parsons et al., 2020; Reinsfield & Williams, 2018; Rensfeldt & Player-Koru, 2020; Roumbanis Vibery et al., 2023, Torrisi Steel & Wang, 2021). Digital technologies transformed into a key component of predicting the future of education, especially in providing out-of-the-box solutions for educational challenges (Facer & Selwyn, 2020; Starkey & Yates, 2022; Wellner & Levin, 2023). Within ECE, primary and secondary contexts, digital platforms like Mahara, Storypark, Educa and Google Classroom became increasingly normalised. The shadow side of this use of digital platforms was that it contributed to the ongoing datatification of educational policy. This raised concerns, beginning with ECE educators and researchers, of increased surveillance of teachers, narrowing of learning outcomes, and overt standardisation (Farquhar & Gibbons, 2019; Nuttall et al., 2023; White et al., 2021).

The push to include digital technologies in the NZC materialised in 2017 with the implementation of a new digital sub-learning area and the refining of *Te Whāriki* also in

2017. The shift to a digitally infused educational system in Aotearoa New Zealand significantly influences the role and identity of teaching professionals (Starkey & Yates, 2022). Digital technologies are no longer assumed to be added to the system but a naturally assumed part of the everyday education practice as part of the pedagogical, assessment, and organisational, educational decision-making processes (Haggerty et al., 2020; Haggarty & Alcock, 2016). For example, within ECE, digital play became increasingly normalised as part of children's everyday lives (Khoo et al., 2025). The addition of the digital sub-learning area signalled the intention to accentuate digital technology as an area of priority learning within the NZC (Reinsfield, 2018). Reinsfield (2018, p. 62) argues that "increasingly, the academic success of students as citizens is associated with their digital fluency".

The positioning of digital technology in both *Te Whāriki* and the NZC followed a focused review of the place that digital technology should have in the curriculum; the reviewers recommended that digital technology be strengthened within the digital technology curriculum area (Farquhar & Gibbons, 2019; Royal Society Te Apārangi, 2021).

Emphasis was put in place to create foundational learning for all learners, emphasising the upskilling of teachers to implement the digital sub-learning area of the NZC (Kaye, 2017 June 28; Fox-Turnbull, 2019). This emphasis reveals that professionalism in teaching has expanded to include being tech-savvy. The digital sub-learning area of the NZC was presented as both an innovative solution to an outdated education system and a positive catalyst to secure Aotearoa New Zealand's economic future advantage (Blundell et al., 2020). The digital sub-learning area aimed to ensure learners left school with the digital capability and fluency to "participate, create and thrive in this fast-moving digital world" (Ministry of Education, 2017a, p. 4). This emphasis on externally determined standards of digital fluency has led to questions about its positioning. Farquhar and Gibbons (2019) argue that such a focus within ECE policy

diminishes what policy can learn from local contexts and has placed an emphasis on borrowing policy direction from organisations like the OCED.

Digital technology has now been gazetted within the NZC as a critical area that all learners must understand (Armistead, 2014; Kellow, 2019; Ministry of Education, 2017a, 2017b, 2017c; Reinsfield, 2020). To do this, the MoE prioritised the incubation of specific digital knowledge areas, skills and dispositions that support school learners in being able to fulfil the aforementioned aspiration (Hipkins, 2017, December 8; 2018, June 21; Lourie, 2020; Ministry of Education, 2017a, 2017b, 2017c; Reinsfield, 2019, 2020). The prioritisation of these digital knowledge areas, skills, and dispositions stemmed from their perceived value in supporting learners' understanding of how digital technologies function (computational thinking) and how they can be designed by learners as innovative and creative digital solutions (Ministry of Education, 2017b). The aim of the curriculum during this period was the creation of a solution-focused projection of digital identity that positioned learners as designers and creators of digital solutions rather than just users of digital technologies. The digitisation of the NZC and *Te Whāriki* has placed increased pressure on ITE to respond and show that it has the digital fluency and capacity to prepare pre-service teachers to understand the purpose for and achieve the outcomes of the digital sub-learning area (Sefton-Green & Pangrazio, 2022). This prioritisation of digital technology for ITE was reinforced by the then Minister of Education, the late Hon Nikki Kaye (Ministry of Education, 2017a), who in the forward to the draft consultation on the digital sub-learning area says that the digital curriculum would only be effective if “we equip skilled teachers to deliver it” (p. 3).

For ITE, this decision created tension in that it emphasised the need for pre-service teachers to have a digital identity that reflected the MoE's curriculum aspirations. This scenario was playing out while ITE itself was undergoing a significant process of refinement. Sector consultation between 2017-2019 highlighted sector and public

concern with teacher graduate quality and led to ITE creating new requirements in partnership with the community to ensure ITE graduates would be 'classroom ready' (Ell et al., 2019; Education Review Office, 2017 Dec 8; Hipkins et al., 2018; Teaching Council of Aotearoa New Zealand, 2017; October; Whatman & McDonald, 2017).

These reforms emphasised the need for teacher quality and aimed at providing clarity and coherence for ITE to prepare pre-service teachers such learners would acquire the knowledge, skills and dispositions needed to enter society and the workforce (Ell et al., 2019).

Coleman (2022, p. 124) argues that ITE policymakers in Aotearoa New Zealand are relying upon a performance of readiness, governed by teaching standings and has the potential to discount the ideological parameters of professionalism, resulting in a narrowing of practice and marginalising of practitioners. While data science assures the public that educational standards are professional, it also opens the door for technical solutionism, as ITE is reframed as a problem that needs fixing (Coleman, 2022, Selwyn, 2016a). Bartlett (2018) suggests that ITE providers are losing the ability to say the things that need to be said, to make mistakes, and to learn from them. This is reflected in the work of Heck and Ambrosetti (2018), who have observed that in the ITE space, the voice of those who teach is increasingly absent from the discussion on the skills, dispositions, and knowledge areas that are required to understand and practised by the classroom-ready teacher. Many academics who now work within ITE's increasingly academic competence-based frameworks potentially choose to say nothing rather than say something, as it is professionally safer to disengage from the educational discourse (Bartlett, 2018).

Being able to question digital technologies is important, especially with the academic success of learners now connected to their digital fluency, educational thought and action guided by digitally derived data and educational spaces increasingly digitised (Starkey, 2020; Reinsfield, 2018). ITE has become an identity tension pressure point

for pre-service teachers as they navigate their relationship with digital technologies and how the lived experience of practicum shapes their and others' perceptions of pre-service teacher digital identity (Hallas, 2017; Starkey, 2020). Starkey (2020) suggests that research concerning the preparation of teachers for the digital age is a fundamental yet under-researched component of ITE. More research is needed to explore how the pre-service teacher themselves is adapting to the change in ITE and practicum space where their digital identity is formed.

Current Trends and Challenges

Thwaites (2021) describes the current transformation of education as an intense period of technological change in which “past, present and future simply becomes the future” (p. 376). The speed of digital change often means that education is in a constant state of response and catching up. The traditional rhythms and spaces of educational life have been discombobulated by digital technologies that instantly change the educational paradigm (Thwaites, 2021). The recent emergence of generative AI in the form of platforms like ChatGPT and the challenge that this presents to traditional modes of knowledge, assessment and the role of the teacher is an excellent example of how the digital identities of pre-service teachers are in a constant state of evolution in response (Williamson & Enyon, 2020).

Artificial Intelligence is one example of a technology that is changing education.

Artificial Intelligence has been promoted as both a positive and negative game changer within education, part of the next digital wave which will transform educational processes, practices and institutions (Williamson et al., 2020a; Williamson et al., 2023). Proponents of digital reform are pushing for educational reforms that will robot-proof learners for future employment and help them harness the potential that AI presents (Selwyn, 2019a; Williamson, 2019). Williamson et al. (2019, p. 88) posit that rather than embrace this reality, those involved in educational decision-making need to “trouble

oversimplified accounts that education needs to adapt AI and automation in order to future-proof students for future jobs”.

Digital exams also provide an example of challenges that the digital transformation of education has created. The use of digital technologies for NCEA examinations, which were heralded as the future of assessment, have now been challenged for their integrity due to the emergence of AI in the form of ChatGPT and other platforms (Franks & Maher, 2023, May 2; Gerritsen, 2024, September 23; Johnston, 2023, January 23; Susnjak & McIntosh, 2024). Coping with the rate of change that “arrived overnight” and has been described as not “just a technological development, it’s a technological revolution” has produced criticism of education policymakers. This criticism relates to policy makers’ willingness to grasp commodified solutions without considering the impact that this practice has on teacher identity (Franks, 2023, May 8, para 36-37; Williamson et al., 2019a). Arantes and Buchanan (2023) point to the commodification of education platforms, in that these platforms not only create a paywall that controls knowledge but platforms that generate data that can be used to support commercial rather than educational objectives. The trend towards commodification and datafication of educational processes has emerged as an increasing concern within education (Rhodes & Calder, 2022; Facer & Selwyn, 2020; Arantes & Buchanan, 2023).

Educational policy makers increasingly not only rely on digital technologies but on the data that these technologies generate to make educational decisions (Jandric et al., 2018; Lupton & Williamson, 2017; Selwyn, 2019; Starkey & Yates, 2022; Williamson, 2017, 2019, 2021a, 2021b, 2022). This represents a trend in which the data threatens the decision-making authority of educators as their actions are increasingly guided by data driven best practice algorithms that measure their professionalism in line with standardised data and competencies (Andrejevic & Selwyn, 2023; Selwyn, 2019a, 2023a, 2023b; Williamson et al., 2019b).

The COVID-19 pandemic, 2020-2022, was one of the most significant disruptions to education in Aotearoa New Zealand's recent history. For ECE, primary and secondary contexts, as well as ITE, digital tools became essential in sustaining both practice and relational connection (Santimaria et al., 2020; Selwyn et al., 2025; Thynne et al., 2022). During the initial nationwide Level 3 lockdown in Aotearoa New Zealand, all ECE centres, primary and secondary schools closed (with the exception of children of essential workers), causing an overnight transition to online learning. The initial government policy approach of funding digital devices, access to Wi-Fi and educational platforms allowed for learning to shift from the classroom to online at home (Mitchell et al., 2020; Poskit, 2022; Wenmoth, 2021). For critics, the rollout of digital solutions resulted in increased dependence on Edtech (Selwyn et al., 2025).

While digital technology was a pragmatic policy solution to the pandemic, it also raised renewed emphasis on the tensions, inequalities and gaps that have characterised the integration of digital technology into educational spaces (Education Review Office, June 2023; Wenmoth, 2021). These inequalities include lower ECE and school attendance, lower numeracy and literacy curriculum connection, especially for priority learner groups (Māori, Pasifika, Low Decile Schools³), and continuing NCEA assessment inequity (Mitchell, 2021; Mitchell et al., 2020; Poskit, 2022; Wenmoth, 2021).

³ The term low decile refers to the decile funding system in Aotearoa New Zealand which rated schools from 1 to 10 on the funding and support that they needed. Schools ranked 1 to 3 were regarded as low decile schools. Generally, these schools come from lower socioeconomic communities less able to resource themselves to face educational challenges. (New Zealand Post Primary Teachers' Association, 2013).

ITE and Practicum

Initial Teacher Education & the preparation of quality teachers... just an out-da-box solution⁴?

Initial teacher education refers to the pre-service teacher's tertiary education that prepares the teacher to become profession-ready and develop their professional identity as an ECE, primary or secondary teacher (Ell, 2011; Kosnik & Beck, 2011; Larsen, 2017; Loughran, 2016; Pullin, 2017; Starkey & Yates, 2022; White et al., 2021). Initial teacher education uses theoretical and practical contexts to ensure new teachers are "equipped with essential knowledge and skills they need to be effective teachers" (Education Review Office, 2024, p. 5). This preparation aims to ensure that all pre-service teachers enter the profession with the ability (with guidance) to meet the required Standards of the Aotearoa New Zealand teaching profession (Education Review Office, 2024; Teaching Council of Aotearoa New Zealand, 2019).

Initial teacher education is deregulated within Aotearoa New Zealand. This shift in the 1990s was in response to critique of how teachers were being prepared for the dynamic Aotearoa New Zealand educational context (Ell & Grundoff, 2013). The decision to merge separate Teachers' Training Colleges under the umbrella of the Universities followed a global trend in which Universities were seen to provide a more research-focused approach to ITE (Starkey & Yates, 2022). Initial teacher education can now be pursued at universities (which have incorporated the Teachers Training Colleges), the Indigenous training providers (wānanga), private training institutions, and the Ako Mātātupu TeachFirst program (Ako Mātātupu – Teach First, nd; Ell, 2011; Starkey & Yates, 2022). While there is a proliferation of providers over 90% of pre-service teachers outside of ECE still commence ITE within one of the six main

⁴ The term 'out-da-box' comes from a pre-service teacher who studied at the ITE provider they worked. They were passionate about creating a model of education in schools for students who were neurodiverse that was 'out-da-box'. Their use of this term resonated with me as a critique of any approach in education that seeks to standardise education.

Aotearoa New Zealand Universities into which the Teacher's Training Colleges were merged (Ell & Grundoff, 2013)

The University-based approach has come under increasing criticism for elevating the gap between theory and practice while also limiting the amount of real classroom experience that the pre-service teacher undertakes (Brooks, 2021a; 2021b; Education Review Office, 2024; White et al., 2021). In Aotearoa New Zealand, ITE has come under increasing pressure with respect to its capacity to facilitate the development of teacher quality, which has led to a renewed public interest and promotion of apprenticeship models of teacher preparation that place the pre-service teacher within the educational context rather than University (Education Review Office, 2024; Johnston, 2023; July, 28; Johnston & Martin, 2023).

Teachers are seen as the most important influence on quality teaching and on the possibility of learner success (Brooks, 2021a, 2021b; Education Review Office, 2024; Hipkins, 2018; June 21; Freeman-Moir & Scott, 2007; McGee et al., 2010). Not only does this make ITE essential, but it places pressure on ITE to get pre-service teacher preparation right. The concern over teacher quality is linked, by Zhang (2019), to the influence of globalisation and neo-liberalism in all aspects of society, including education. This market-driven approach focuses on data, measurement, consistency, efficiency, quality, and competition. Data outcomes reinforce the previously noted trust policymakers and politicians are placing in data over human experience when defining teacher quality (Isaacs, 2021; McConvey et al., 2023; Wang, 2019). This has led to an emphasis on codifying standards and the competencies that produce teacher quality (Brooks, 2021a. 2021b). This policy-driven approach attempts to control the messiness inherent in constant educational change by creating a simple understanding of teacher quality that is focused on specific qualifications (to be inputs) and socialised classroom action (as outputs) (Biesta, 2013a, 2017, 2021a, 2023a; Darling-Hammond, 2006a; 2006b, Wang et al., 2011).

Teacher education scholars argue teacher education should be regarded, and arguably also valued, as complex rather than straightforward (Clarke & Sheridan, 2017; Darling-Hammond, 2006a, 2006b). First, ITE must educate new teachers in internationally recognised processes of professional practice and pedagogy (McGee et al., 2007; Roumbanis Viberg et al., 2023). Second, ITE within Aotearoa New Zealand must also support the pre-service teacher in understanding and integrating specific factors that are foundational to educational practice in Aotearoa, New Zealand (Ell, 2021; Ell et al., 2019; Starkey & Yates, 2022). These factors include Te Tiriti o Waitangi, culturally responsive and sustaining practices, the NZC and New Zealand Qualifications Authority (NZQA) assessment frameworks (Ell, 2021; Ell et al., 2019; Ministry of Education, 2007; Starkey, 2020). One criticism of these factors is that understanding digital technologies and how specific digital technologies should be incorporated has been excluded as a focus of ITE. The omission of digital technologies as a specific foundational factor is notable, given that understanding and integrating digital technologies are considered essential for achieving future-oriented learning outcomes (Ministry of Education, 2017a; Reinsfield, 2018, 2020a, 2020b; Starkey, 2020). This exclusion also reflects the perspective that digital technologies are complex and constantly evolving, and that a static understanding cannot provide a continuous foundational comprehension (Loveless & Williamson, 2013a).

ITE: Defining teaching quality as doing rather than as being

The ITE context in Aotearoa New Zealand reflects the uncertainty that exists globally about the shape and future of teacher education (Heck & Ambrosetti, 2018; Lunn Brownlee et al., 2019; Churchwood & Willis, 2019). The reform of ITE represents a political mindset focused on getting the right policies in place to boost teacher quality, improve education, and improve national economic competitiveness in the global economy (Brooks, 2021a; 2021b; Ell & Grundoff, 2013; Clarke, 2014). Educational success is a crucial measure of national future economic success and social cohesion (Benade et al., 2018; Brooks, 2021a, 2021b; Clarke, 2014, 2019; Ell & Grundoff, 2013).

This is seen both in the documentation of international organisations with an interest in education like the OECD, EU and UNESCO and in reactions by politicians, media and the public in response to low national averages in international comparative data sets such as PISA (Brooks, 2021a, 2021b; Clarke, 2019; Cobb & Couch, 2018; Mitchell, 2012; OECD, 2010a, 2015a).

The question of teacher quality is at the heart of this debate (Day, 2013). Initial teacher education is facing increased pressure from voices outside the educational discourse that criticise the quality of both ITE and pre-service teachers entering the profession (Bourke et al., 2022; Ell, 2021; Gerritson, 2021, June 1; Hall, 2021; Hayes, 2021; Pullin, 2017; Wiggins, 2023, July 24). How is teacher quality defined, and what should the role of ITE be in supporting this to emerge as part of a pre-service teacher's professional identity? Is teacher quality in the form of a classroom-ready teacher produced within ITE experiences that minimise the subjectivity of the pre-service teacher or seeks to bring forth the pre-service teacher subjectivity by maximising hands-on practical experiences that allow them to generate new understanding? The answer to this question relates directly to what knowledge areas, skills, and dispositions as part of the professional identity a pre-service teacher is required to develop. At the heart of this contest is a debate over what counts as relevant knowledge. Is knowledge simply imposed from above (Mitchell, 2012; Vähäsantanen, 2015)? If this was the case, then the role of ITE is to code the pre-service teacher with this knowledge. However, suppose ITE engages with the practical knowledge the pre-service teachers learn within practicum. In that case, the role of ITE becomes not just coding the agency of the pre-service teacher but also supporting the decision-making agency of the pre-service teacher to emerge. This practical hands-on knowledge derived from lived experience gives voice to understanding of digital technologies and identity that scientific approaches often miss. It is knowledge that is fluid, contextual, non-linear and uncontrollable. Knowledge is found in broader variables such as context

and relationships (Brooks, 2021a, 2021b). This includes the knowledge revealed within the practicum experience by the pre-service teacher and the relationships they form (Parr et al., 2018)

However, the term 'readiness' has faced criticism for being ambiguous and difficult to define (Coleman, 2022). Biesta (2020a, 2020c) is also critical of the need for readiness, limiting our understanding of what it means to be a teaching professional.

Understanding readiness often focuses on specific tools and competencies to be performed and excludes the messy complexity of broader social, political, cultural and economic factors within each educational context (Brooks, 2021a, 2021b; Biesta, 2020a, 2020c; Coleman, 2022). The exclusion of the pre-service teachers' voices has also drawn criticism concerning the creation of reform-orientated policy objectives that alienate teachers with an "onslaught of policy reforms in which they have little stake or say" (Clarke, 2019, p. 7).

Initial Teacher Education in Aotearoa, New Zealand, is under political pressure to be cutting-edge, research-informed and to develop the future-focused best practice that is seen as the foundation of classroom-ready teaching (Teaching Council of Aotearoa New Zealand, 2019; 2022 June 30). With the neo-liberal focus on personal responsibility and efficient measurable quality outcomes, Churchwood and Willis (2019, p. 255) argue that "market-driven approaches have elevated business concepts, such as performance measures, quality assurance and standardisation to a colonising enterprise". This is evident in Aotearoa New Zealand with the 2017 introduction of new standards for the teaching profession, *Our Code, Our Standards* (Teaching Council of Aotearoa New Zealand, 2017). *Our Code, Our Standards* was followed by the *ITE Programme Approval, Monitoring, and Review Requirements* (Teaching Council of Aotearoa New Zealand, 2019). This document supported ITE providers in Aotearoa New Zealand, in redeveloping their programmes to reflect the critical competencies

within Our Code, Our Standards and undergo re-accreditation (Coleman, 2022; Ell, 2021).

Preparing a pre-service teacher in ITE is complex and sophisticated (Bourke et al., 2022; Clarke & Sheridan, 2017; Darling-Hammond, 2006a, 2006b; Ell, 2021). Pre-service teachers must understand and interpret not only the theoretical ideas that underpin education but also the diverse public and political expectations of what quality education looks like (Brandenburg & Gervasoni, 2016; Franchi, 2016; Gerritson, 2021 June 1; Hall, 2021; Hayes, 2021; Loughran, 2016; Pullin, 2017; Wiggins, 2023, July 24).

Most recently, this perception has been highlighted by Minister of Education Erica Stanford who, post-election, stated, “[i]nitial teacher education was not preparing new teachers well, and the government had a big work programme to address that” (Gerritson, 2024, Feb 9, para 19). As part of this focus, the newly elected National-led coalition Government is determined to rewrite national education and learning priorities, and work with the Teaching Council to ensure ITE quality (Gerritson, 2024, Feb 9). Barker and Wood (2019) identified four key areas of public pressure that education policymakers face and are responding to. these areas of pressure are the de-professionalisation of the teaching profession, the quality of public education, equity and access, and the education system and learner preparedness for the 21st Century. This political and public pressure is evident in reports such as the Aotearoa New Zealand and the Teachers Council of New Zealand (2017). Future Focused Proposals Consultation, Education Review Office (2017) Newly Graduated Teachers: Preparation and Confidence to Teach evaluative report and the New Zealand Initiatives (Johnston, 2023a; Wiggins, 2023 April 2026) reports entitled ‘Save our schools: Solutions for New Zealand’s Education Crisis’ and ‘Who teaches the teachers?’ are representative of a substantive culture of critique concerning the quality of ITE pre-service teacher preparation in Aotearoa New Zealand.

The pressure to reform ITE's role, both internationally and in Aotearoa New Zealand, in line with a vision that is economically focused on the global standards of pre-service teacher competence is of importance in to a study of digital identity (Biesta 2013a, 2019a, 2019b; Biesta et al., 2015; Cobb & Couch, 2018; Ell et al., 2019; Pullen, 2017; Teaching Council of Aotearoa New Zealand, 2019). It is important to consider the role public perception and concern about the quality of pre-service teachers plays on ITE choosing to implement a framework that can code pre-service teachers' digital agency, using the NZC's pre-defined understanding of digital technology (Biesta, 2013a, 2017, 2021a, 2021b; Lanier, 2011; Nykvist & Mukherjee, 2016; Trippestaad et al., 2017).

The 'crisis narrative' concerning teacher quality has seen digital technologies positioned as a solution to these quality problems in that they create measurable and standardised outcomes controlled by the technology rather than the teacher (Churchwood & Willis, 2019; Clarke, 2019). This push for reform emphasizes technology as a solution and a pathway toward ITE being reimagined as a mechanism of instrumental certainty. The reform of ITE in Aotearoa New Zealand, and the pressure placed on it to perform by producing measurable teacher quality, is a political response. Government responsiveness to change is guided by both digital technologies, and the national and international debate around pre-service teacher quality (Ell, 2021; Trippestaad et al., 2017).

Recent ITE reforms in Aotearoa New Zealand are an example of policy-driven attempts to remove the variability inherent in the identity of pre-service teachers and replace this with a prescribed 'quality' identity that can be measured, standardised and controlled (Amott & Ang, 2020; Ell, 2021; Allen, et al., 2021). Biesta (2020c) argues that this political aspiration reflects a mechanised production process in which education systems are being designed to support specific inputs, throughputs and outputs in support of a closed deterministic system in which educators are programmed to work in a particular way. Following Biesta (2020c), the pre-service teacher no longer appears

as a subject but is seen by the system as an object or product of intervention to be used to shape learners' outcomes in a specific way.

In Aotearoa New Zealand, ITE pre-service teachers cannot graduate unless they have been assessed as classroom-ready before they leave ITE. This assessment takes the form of a Culminating Integrative Assessment (CIA) (Eil, 2021). The CIA is assessed in relation to the Key Teaching Tasks that each ITE provider develops in relationship with key stakeholders and understanding of Our Code, Our Standards. The CIA is designed to show the pre-service teacher's readiness to use the knowledge areas, skills, and dispositions that they should be able to use on their first day of classroom practice (Eil, 2023). Assessed teacher quality emphasises performativity, by which the pre-service teacher can be standardised and measured against other pre-service teacher progress and international ITE data (Coleman, 2022; Eil, 2021, 2023). In the literature, the focus on performance highlights concerns about mimicry in which pre-service teachers are learning to transmit the illusion of performance capability when required but then return to more traditional pedagogical approaches and practice (Reinsfield, 2020a, 2020b). Central to this standardised approach is the emphasis that the New Zealand Government places on standardised data to make efficient decisions to ensure value for money and that, according to current Minister of Education Erica Stanford, "we're getting the outcomes we want" (Gerritson, 2024, February 9, para 10).

Initial teacher education is increasingly being reshaped into a mechanism that shapes the identity of the pre-service teacher such that this identity corresponds to specific and predetermined outcomes (Savin-Baden, 2023). The emphasis on predetermined standards of teacher quality has raised the question as to whether ITE is being 'digitally ordered' in response to reform-based interventions (Biesta, 2013a; Biesta et al., 2015; Trippestaad, 2015; Trippestaad et al., 2017). Green, et al. (2018, p. 45) suggest that "teacher education is being positioned as a medium for achieving ends [that are] determined elsewhere...". This suggests a digital coup from above, in which ITE is not

overthrown but reshaped and mechanised to service the outcomes of a specific digital agenda, and losing its independent voice in the process. Digitally ordered reform is a coup that Savin-Baden (2023) suggests ITE needs to become concerned with, especially after the leap into digital learning brought about by the COVID-19 pandemic and recent advances in AI, automation and the advent of digital platforms that have expanded learning analytics and the ability to data dump the educational discourse. This embrace of platformed educational approaches coupled with recent advances in AI and the platformisation of higher education have led to a context where Savin-Baden (2023, p. 21) argues “there are some potentially disturbing implications about the power of the few to determine the values incorporated into these new technologies”.

Practicum: The Nexus of Pre-Service Teacher Digital Identity Formation

This section examines practicum and the role that the lived experience of practicum plays in forming the pre-service teacher’s digital identity. Practicum is a hybrid practice space in which the pre-service teacher is mentored to observe and participate in “real classroom situations and gradually take charge of teaching with close support and feedback” (Education Review Office, 2024, p. 5). Research shows that pre-service teachers’ abilities to enter the professional context and maximise learning outcomes for learners confidently are linked to their time in the classroom (Darling Hammond, 2006a; 2006b; Education Review Office, 2024; Hopkins & Round, 2018).

Practicum and practical experiences have become increasingly significant with ITE approaches to preparing classroom-ready teachers and, as such, are key to building strong ITE programs (Education Review Office, 2024; Henry, 2016; Hopkins & Round, 2018; Teaching Council of Aotearoa New Zealand, 2019). Practicum is defined in the Aotearoa New Zealand context as referring to the school-based experience that a pre-service teacher undertakes when being mentored by experienced teachers (Trevethan, 2017). The concept and practice of the practicum are significant for my research as the literature shows that practicum is a space in which the pre-service teacher develops

their identity such that they are able to practise how this influences their professional philosophy, decision-making and actions (Brooks, 2021a, 2012b; Darling-Hammond, 2006; Hopkins & Round, 2018; McGee et al., 2010; Roumbanis Viberg et al., 2023; Whatman & McDonald, 2017). In Aotearoa New Zealand, practicum is seen as a critical component of preparing pre-service teachers' professional identity (Wood, 2015; Woolston & Dayman, 2022).

Practicum provides the specific context for this research because the hands-on experience that practicum provides is considered the critical space for the development of a pre-service teacher's digital identity (Grant-Smith & Gillet-Swan, 2017; Jones & Ryan, 2014; Killen, 2015; Sewell et al., 2017; Tülüce & Çeçen, 2016). Henry (2016, p. 292) argues that practicum is the element of ITE, and that pre-service teachers "constantly find themselves in situations where they have to create and recreate, frame and reframe their developing teacher identities". Practicum is the ITE context most associated with digital identity tension for the pre-service teacher. This tension is the pre-service teachers understanding of what they, others and policy consider to be essential knowledge areas, skills and dispositions of digital identity (Beijaard & Meijer, 2017).

Practicum is acknowledged within the literature to be a unique state of tension that is a "complex, challenging and high-stakes environment for pre-service teachers" (McDonald, 2018, p. 99). Practicum provides the pre-service teacher with the opportunity to observe and participate in real-world teaching and learning contexts, and bridge theory and practice, and become classroom-ready (Fletcher et al., 2020; Grant-Smith et al., 2018; Larsen, 2017; Parr, et al., 2018; Tülüce & Çeçen, 2016). Not only do the pre-service teachers have to navigate their changing perceptions of professionalism, but they also need to reconcile this with the perceptions that others have of professionalism, therefore leading them to need to confront a range of prescribed competencies and key teaching tasks that can differ from theirs (Fitzgerald

& Bradbury, 2023). Within Aotearoa, New Zealand, each ITE provider has to provide a list of the Classroom Ready Knowledge areas, skills and dispositions that a beginner teacher can perform on day one in the classroom. The professionalism of the pre-service teacher is measured by their ability to perform specific defined and prescribed 'classroom ready' competencies. Their ability to use their own agency to enact responsive practice is marginalised (Heck & Ambrosetti, 2018; Loughran & Mentor, 2019).

Yuan et al. (2019, p. 973) suggest that the ability of the pre-service teacher to practise the application of theory and interact relationally enables them as professionals when it comes to (re)interpreting "who they are at the moment and [to] imagine who they want to be in the future". Both Whatman and MacDonald (2017) and Parr et al. (2018) argue that this has created a theory-practice divide in ITE in which the pre-service teacher sees coursework and practicum as not being as integrated as they might be. This is often because theory offers a fixed understanding, while practicum represents a space where digital technologies constantly change (Fitzgerald & Bradbury, 2022).

As noted, practicum in Aotearoa New Zealand is vital to a pre-service teacher's growth (Fletcher et al., 2020). A shared understanding of the purpose of practicum and the creation of space for the pre-service teacher to take hands-on risks are seen as key to the pre-service teacher's growth. Gilbert (2013) describes an effective practicum as a partnership of 'networked expertise' in which the preservice teacher, the Associate Teacher (AT) and the ITE provider understand their roles and the purpose of the practicum and work in relationship to achieve these.

In contrast to the performance of standardised tasks, Parr et al. (2018) and Whatman and McDonald (2017) advocate for the pre-service teacher's active participation. In Aotearoa New Zealand, practicum has shifted away from a model in which the pre-service teacher was placed under a teaching AT and supported by an observing ITE educator to one where they are seen to be in partnership (Starkey & Yates, 2022;

Trevethan, 2017; Woolston & Dayman, 2022). This active approach aims to support the pre-service teachers in developing their professionalism (Starkey & Yates, 2022). The emphasis remains on learning specific teaching skills, but more weight has been added to the pre-service teacher's need to develop reflective practice. This means working with the AT as a mentor to identify challenges and develop effective approaches to navigate these challenges. The emphasis here is on partnership, collaboration and conversation, in which the purpose of the practicum is "fully understood, negotiated and enacted by all participants" (Whatman & McDonald, 2017, p.8). This relationship is problematic as the concept of mentoring is hard to define and can be determined from multiple perspectives (Woolston & Dayton, 2022). Yet, much of the language associated with the role of the AT is still associated with them supervising and assessing the pre-service teacher (Woolston & Dayton, 2022). This can lead to the AT judging the pre-service teacher in line with their own practice rather than allowing them to try a different approach. The outcome of this is the pre-service teacher learns to perform what is required to pass rather than take the risks needed for the growth of their identity.

Conclusion

This chapter has highlighted the increasing prioritisation of digital technologies within Aotearoa New Zealand educational policymaking and how this has influenced changing understandings of the educational purpose of digital technologies, and the digital identities pre-service teachers need to develop.

With digital technologies and identities becoming increasingly integral to what it means to be a classroom ready teacher, the challenge of preparing pre-service teachers with digital fluency has become part of the debate concerning quality teaching. What this chapter highlights is that any engagement with digital technologies and shaping of digital policy and curriculum, if it is to be successful, needs to be questioned. This

questioning stance can be supported by the counter narrative insight that the voice of pre-service teacher lived experience can provide.

Chapter three critiques the policy and research from this chapter through a study of key writers on technology and education. The chapter argues that human perspectives and understandings of digital transformation in education have consistently been missed or marginalised in favour of data-driven responses that reinforce pre-determined economic and political objectives and present 'common sense' solutions. These common-sense solutions are shown to be characterised by disconnect and misunderstanding, which often has undermined the transformative potential of digital technologies and created tension within ITE. These approaches also have been shown not to take into account the ever-changing digital realities that educators and learners face within Aotearoa New Zealand contexts.

Chapter Three: Political and Theoretical Positioning

Introduction

This chapter examines the theoretical foundations of my research project.

These theoretical foundations have guided an understanding of digital identities that highlights the importance of pre-service teacher narratives of lived experience and the insight that these narratives can provide the ahi kaa discourse within ITE about how digital technologies and identities are understood and supported. In an era where digital technologies are at the forefront of our focus on educational futures, teaching professionals' digital identities has become a significant phenomenon of interest. In technocentric and solutionist views of digital technologies' role in education, digital technologies drive change and shape the knowledge, skills and dispositions that form digital identities. While digital technologies are considered neutral and beneficial from a technocentric perspective, they also give rise to the spectre of technological determinism, in which digital technologies refine the understanding of digital identities in line with the system's interests rather than according to human needs (Ellul, 1964; Heidegger, 2013). This locks in a technological system that predetermines the nature of the knowledge, skills, and dispositions that pre-service teachers require in line with technological interests (Lanier, 2011). If digital identities are locked into the systems, the pre-service teacher's digital identity is designed for them and controlled by an increasingly digitised system. The pre-service teacher is positioned to play a passive role and replicate specific and fixed competencies that are predetermined, standardised, and can be measured.

This chapter contests the ascendancy of this understanding by arguing that digital technologies are shaped as much by the digital identities of pre-service teachers. This

perspective does not see digital technologies as neutral. Digital technologies and digital identity are positioned within the world. This presents an understanding of digital technologies and digital identity in which the wider identity of the pre-service teacher, grounded in the pre-service teacher's world, shaping understanding of digital identity just as digital identity shapes our understanding of digital technologies. Digital identities and digital technologies are seen as fluid, constantly changing realities. These worlded foundations view digital technologies and identity as concepts that cannot be separated from the world in which they emerge. The term worlded here draws on Biesta's (2021b) view that phenomena, including digital technologies and identities, cannot be understood without taking into account how humans give sense to the world they experience. This worlded perspective is reflected in the work of Savin-Baden and Howell Major (2023, p. 38), who argue that "individuals construct reality with each other, that knowledge is relational and that it may be uncovered by examining interactions and meaning-making between and among individuals". This worlded perspective informs the critical and postdigital re-conceptualization of digital identity, ITE, and the practicum in Aotearoa New Zealand that guides this research project

A critical and postdigital approach highlights the importance of incorporating the lived experiences of pre-service teacher wisdom in understanding the interplay between ITE, practicum, and digital identity development. Rather than imposing a singular narrative on pre-service teacher digital identities, critical and postdigital perspectives prioritise the individual's diverse technological experiences.

As noted above, digital technologies are not merely a neutral instrument for human advancement (Gibbons, 2007; Selwyn, 2021). By exposing the inherent political, economic, and ideological biases present in each human relationship with digital technologies, critical and postdigital perspectives challenge the prevailing digital essentialism that predominates in education (Biesta 2013a, 2017, 2021a, 2021b; Gibbons, 2007).

Digital essentialism is a mechanistic view that reduces pre-service teachers and their digital identities to mere objects rather than recognising pre-service teachers as subjects in their own right (Biesta 2020c; Gibbons, 2007; Selwyn, 2021). Biesta uses the term mechanistic to describe traditional research lenses focusing on scientific mechanisms that emphasise the production of technical data. Scientific mechanisms emphasise research outcomes that support technical data-determined outcomes and the development of a mechanical worldview in which everything works like clockwork. Such a perspective facilitates a mechanised understanding of digital identities that positions them as the specific predetermined knowledge, skills and competencies against which a pre-service teacher's professionalism is measured. Gibbons' (2007) discussion concerning cybernetic identities suggests that the pre-service teacher risks becoming a cybernetic mechanism in which they are viewed as a technological product rather than a human being. If ITE is positioned to produce pre-service teachers with a cybernetic identity, the subjective agency of the pre-service teacher becomes coded over. This transformation of the pre-service teacher positions them as being plugged into the system (Gibbons, 2007). This chapter will initially discuss critical theoretical perspectives that endorse a more expansive understanding of digital identities. Biesta's (2013a, 2017, 2021b) understanding of educational purpose creates the space for ITE to prioritise incorporating pre-service teacher lived experiences of digital identity formation during practicum. This chapter then explores Loveless and Williamson's (2013a) socio-technical conceptualisation of digital identities and how this presents a relational and fluid understanding of digital technology. Finally, this section will address how postdigital theory reveals digital technologies as an already pervasive presence in everyday life. This everyday digital reality fosters a critical and holistic understanding of digital identities that emphasises the reciprocal relationship between humans and technologies rather than the assimilation of technological processes.

Theoretical Guides

Biesta

Biesta's (2010, 2013a, 2017, 2020a, 2020b, 2020c, 2021a, 2021b, 2023a, 2023b, 2024a, 2024b) unpacking of educational purposes is a significant foundation for this research. Biesta's (2013a, 2017, 2021b, 2024a) three domains of educational purpose provide insight into ITE and pre-service teacher identities. Following Biesta, emancipation occurs when ITE teaching and learning experiences, including practicum, are positioned to support the emergence of a pre-service teacher's decision-making agency. Biesta questions the role that ITE should play in shaping the pre-service teacher's identity and experiences like practicum that contribute to its formation.

Biesta (2013a, 2017, 2021a, 2021b, 2023b) critiques the positioning of education as a mechanism for control (knowing what to say) rather than as an experience of emancipation (knowing they have the agency to say no). Emancipation entails risk, allowing for varied educational outcomes that reflect multiple possibilities rather than a specific input-output. Top-down policies seek to mitigate risk, establishing predetermined educational inputs and outputs (Biesta, 2021b). These top-down risk-free educational policy approaches prioritise data over human experience, framing educational purposes as a scientific formula (Biesta, 2024a; Williamson, 2019, 2022). While data-driven outcomes are measurable, they reflect a controlling, input-focused educational approach (Lupton & Williamson, 2017). The illusion of stability diminishes ITE and pre-service teacher autonomy (Biesta, 2020, 2023a, 2024a). Biesta (2024a, p. 435) asserts that top-down policies reveal how educational purpose is being "quickly taken over by other logics, agendas and priorities". Knipe and Fitzgerald (2017, p. 135) argue that there is a neo-liberal economic agenda that seeks to narrow educational purposes so as to form a "mechanism for selection and preparation for the local and global labour market".

Biesta (2013a, 2017, 2020a, 2020c 2021a, 2021b, 2023a, 2023b) posits that the purpose of education comprises three domains that are dynamically interconnected rather than being independent of one another.

The first domain of education's purpose is qualification, encompassing the essential knowledge, skills, and dispositions that "equip learners for living" (Biesta, 2023b, p. 44). Biesta critiques the notion that qualification is the sole aim of education and that prioritising equipping learners reflects a broader vision and value judgments that go beyond qualification (Biesta, 2023b).

The second domain pertains to socialisation. Biesta (2021b) explains that this purpose of education is to provide learners with an orientation in the world. This orientation enables learners to apply their qualifications within various social contexts, values, and norms (Biesta, 2024a). Socialisation can be interpreted within global cultural practices and specific contexts, such as educating pre-service teachers about digital technologies in education (Biesta, 2024a). The domains of qualification and socialisation represent manageable and low-risk educational purposes, as both are believed to be predetermined by policy, often perceiving learners as passive recipients. Rather than viewing pre-service teachers as individuals, they are viewed as "objects that need to become qualified and socialised" (Biesta, 2024a, p. 437). Biesta (2013a) argues that true education, rather than indoctrination, is an event that cannot be foreseen or assured. Education, therefore, always involves risk – outputs may not reflect inputs and include rather than exclude the subject who is being educated.

Biesta (2013a, 2017, 2020a, 2020c) works with philosophical discourse in introducing subjectification as a third educational purpose. He draws upon Dewey and Rorty, emphasising the interplay between individual and experiential knowledge in the context of progress. Through Dewey and Rorty, Biesta (2013a, 2017, 2020a, 2021b) challenges the notion of education as mere transmission; positing that education is a constructive experience involving the learner. Biesta (2013a, 2017, 2021b) also builds

on Dewey's theory that meaning arises through communication, in that interaction and participation foster collective understanding. Rorty is particularly influential for Biesta as the former argues that the significance of educational purpose lies not in the historical context of tools but in human-tool relationships. The focus shifts from a particular technology to the relationship developed between the tool, its user and the context in which this relationship happens. Both Dewey and Rorty advocate for grounding scientific mechanisms of progress within the complexities of human interactions and contextual realities.

Biesta (2013a, 2017) incorporates Rancière's understanding of emancipation in highlighting the teacher's role in facilitating the learner's agency. An emancipatory educational process entails the unpredictability of identity formation, with the implicit capacity to challenge rather than comply with the status quo (Biesta, 2013a, 2017). Biesta (2013a, 2017) uses Rancière's positioning of the teacher's role in education as crucial; a claim which encourages critique of the current in-vogue learner-centred approaches to learning and curriculum reform – reform that Biesta (2013a, 2017) critiques as a 'learnification' of education⁵.

Rancière argues that rather than merging into an existing identity, the role of education is about the learner's coming into their unique identity (Biesta, 2013a). The learner's coming into their own identity involves risk. The risk of 'coming to be' cannot be predetermined, as 'coming to be' is guided by learners themselves rather than by the system.

For this research, whether an education system wants to pre-determine digital identities or not, the risk that exists in the messiness and complexity of the world

⁵ Biesta (2012, 2013a, 2017) critiques the emergence of a language such as 'lifelong learning' as narrowing the conception of education as learner-centric and diminishing the role and value of teaching and the teacher. Biesta's theory of learnification theoretically presents language as a process, rather than a relational interaction, making it more difficult to question its content, purpose and the specific roles and responsibilities it ascribes for the teacher (Biesta, 2013a)

means that it's not possible. This reality means that it is beneficial to recognise the importance of the unique narratives of pre-service teachers (the participants in this research project) as they contribute to education by giving voice to the unique ways in which they have experienced, adapted and responded to their changing relationship with digital technologies.

The work of Arendt, Mierieu and Levinas influenced Biesta's (2017, 2021b) understanding of the importance of subject-ness. These theorists support the idea that subject-ness cannot be developed in isolation but depends on and is connected to the complexity and variability of lived experience. Biesta (2021b) builds on the thinking of these theorists, positing that subjectification represents the learner's emancipation. This notion of emancipatory subjectification applies to both learners in classrooms and pre-service teachers in their ITE (Biesta, 2013a, 2017, 2020a, 2020c, 2021b, 2023b). Biesta (2021b, p. 44) asserts that subjectification involves engaging "the subject-ness of learners". Initial Teacher Education involves integrating the pre-service teacher's subject-ness into practical learning experiences. This emergence of their subject-ness occurs most obviously during practicum experiences in which the pre-service teacher gets the chance to observe, participate and lead learning in an active educational context. Biesta's perspective on subjectification has evolved, transitioning from learner formation to encompassing the existential dimension of education. Subjectification is existential because it remains contingent upon the learner and is not dictated by the system. Coming into an understanding of their subjectification allows learners to recognise that their own agency underscores their decision-making agency in light of the contextual qualifications and socialisation that they are asked to enact.

Subjectification empowers pre-service teachers to independently assess the use of digital technology based on personal judgement and experiences. These personal perspectives of lived experience can contest established policy narratives and offer alternative contextual interpretations when given voice. Ultimately, subjectification

supports pre-service teachers in making human decisions that reflect the needs and contexts of their learners, even when it involves rejecting what data-driven policy suggests is ‘common sense’.

Loveless and Williamson

Digital technologies are integral to education, as they embedded within the socio-technical fabric of culture and society (Loveless & Williamson, 2013a; Selwyn, 2021).

Loveless and Williamson (2013a) conceptualise digital technology as a tool and a relational mode of existence that influences interactions with the world; interactions that include the interplay between digital technologies, educational policy, processes and people, including the pre-service teacher during the practicum. Through this relational lens, digital identity is viewed as an action that reflects individuals’ connections to their broader environments, such that it is intimately connected rather than separate from existing contextual, historical, cultural, and conceptual realities. A socio-technical perspective grounded in the world allows for critically examining digital technologies’ transformative potential and capacity to serve specific agendas (Loveless & Williamson, 2013a). Loveless and Williamson (2013. p. 1) state that the socio-technical “recognizes that technologies and society are mutually constitutive; [where] technology influences social relations, while social relations influence the development and take-up of technologies”.

A socio-technical lens reveals digital identity as comprising a dynamic relationship influenced by contexts that include an interwoven blend of digital technologies and daily life. In contrast to a purely technological view, the socio-technical reality is characterised as an “inchoate, messy and sometimes incoherent vision of the future” (Loveless & Williamson, 2013a, pp. 1-2). Rather than being seen as simply digital identity, the concept is better seen as digital identities, a dynamic interplay of human possession, engagement, and influence by analogue and digital technologies. While for language purpose’s digital identity is used alongside digital identities in this research,

when used it reflects a pre-service teacher digital identity which consists of multiple digital identities that interconnect and are woven into the relationships, change and contexts they experience every day.

Heaney's (2022) positioning of 'music' as a verb, rather than a noun, illustrates this mode of understanding and action. This active positioning reveals that a person's relationship with music is personal, relational and socially embedded. These social connections give rise to historical, cultural and conceptual dynamics that bring about diversity of understanding and music experience rather than uniformity. Loveless and Williamson's (2013a) concept of the socio-technical suggests that, like music, digital technologies can function as a verb rather than a noun, not just an object but a relational interaction. The relationship between digital technologies and each user – in the case of this research project, the pre-service teacher – is not linear or uniform but individual, contextual, and in a constant state of what Loveless and Williamson (2013a) describe as a messy state of attempted reconfiguration. The messy and changing reality of the socio-technical brings into question fixed definitions of digital identity that are positioned to engage a specific digital vision of the future. These fixed definitions try to attach themselves to a shifting foundation representing an imaginary future that does not exist.

Socio-technical theory is also important for this research because of the attention to key stakeholders and actors. The increased influence of non-government actors such as Edtech companies and organisations like the OECD in the educational discourse, shows that it is essential to understand the use of digital technologies when shaping the curriculum (Williamson, 2019). The outcome in policy is significant as the curriculum has the power to shape both how learners use digital technologies and how they interact with the broader world. Loveless and Williamson (2013b, loc 225) suggest a critical question that needs to be asked is "how such changes, collected under the periodisation of the digital age, are being interpreted, thought and translated into

visions and prescriptions for the future of education”. Rather than seeking to embrace a digital solution, their understanding of the socio-technical allows them to first stop and ask the question, why? Stopping to ask the question contrasts with the digital solutionism (a compelling yet usually unchallenged digital mythology, suggesting that continuing digitisation is the universal solution for educational progress and best practices) (Selwyn, 2023a; Selwyn, et al., 2023a; Trippestaad et al., 2017).

Andrejevic and Selwyn (2023) suggest that the current digitisation of education focuses on using digital technologies to facilitate the automation of the education system. This indicates a shift from human to the digital interpretation of data and decision-making, a trend that is facilitated by the overwhelming amount of data that digital technologies provide (Selwyn et al., 2023). This presents a concern for education as it reinforces the increasing dependency in educational contexts on digital technologies and the subsuming of teacher agency for data-driven agency in decision-making (Andrejevic & Selwyn, 2023; Selwyn et al., 2017, 2020, 2023a,)

Selwyn (2021, p. 2) argues that “any attempt to reimagine the futures of education inevitably involves thinking about the futures of technology”. He asserts that forecasting technological trajectories is more complex than commonly assumed. My research project seeks to show how pre-service teachers confront the inherent uncertainties and inquiries arising from their individual experiences of digital technologies. To achieve this aim, I aim to use pre-service teacher narratives of lived experience to explore how they perceive the role of digital technology in education.

Heaney (2022) posits that lived experience should engender scepticism rather than certainty. An individual’s unique relationship with phenomena equips them with experiential knowledge to critique alternative perspectives. Heaney (2022, p.4) emphasises that “knowledge comes through questions”, suggesting that inquiry facilitates the transcendence of previously held beliefs and fosters new insights. Adopting a questioning stance enables individuals to construct new meanings as they

relate their musical understanding to others, enhancing comprehension and adapting to change.

As discussed above, the socio-technical theorisation of the digital realm interrogates the development of educational futures and their impact on learners' identities.

Loveless and Williamson (2013b) assert that digital technologies significantly transform education, and this digital transformation of education should prompt inquiry into how policymakers interpret changes and envision education's future. A critical issue is the potential for non-human entities like data, policy and ideologies to reshape educational goals and values according to their agendas (Williamson, 2019, 2022). Loveless and Williamson (2013a) critique the sweeping techno-solutionist narratives that seek to control education's trajectory, ITE, and the formation of pre-service teacher identities. These universal visions, like Prensky's (2001) digital native concept, are often accepted as solutions but necessitate scrutiny regarding their beneficiaries and consequences for educational aims. Loveless and Williamson's (2013a) socio-technical argument emphasises that the impact of digital technologies on ITE and pre-service teacher identity in Aotearoa, New Zealand, must be contextualised within a broader framework.

The emphasis on data science within educational decision making has been criticised for undermining the pre-service teacher's humanity and ability to develop reflexive agency (Arantes & Buchanan, 2023; Biesta, 2020c; Buchanan et al., 2022; Buchanan & McPherson, 2019; Selwyn, 2016a, 2016b; Williamson, 2017). Reflexive agency is the idea that the pre-service teacher can think and act independently, making their own decisions and judgments when needing to navigate educational challenges. Reflexive agency produces the emergence of transformative agency in which the pre-service teacher participates in decision-making that can radically alter the understanding of education. Williamson (2017, p. 77) asks whether teachers are now merely "data entry clerks and classroom nudge operators".

The datafication of ITE decision-making and processes that are reflective of the broader educational context require critique (Williamson, 2017). Teacher's roles increasingly include the that of data entry clerk in which they upload multiple forms of data ranging from learner metrics to standardised assessments in order for them to be measured. ITE is currently being positioned to facilitate this data entry identity. The human cost of the prioritisation of data needs to be questioned as it points to a reality in which pre-service teacher agency in ITE is being deliberately subverted and replaced by algorithmic decision making (Arndt et al., 2019.; Jopling, 2023a) In this configuration ITE is conceived as a data-driven refinement, as a product or mechanism, that can be coded and put into action to achieve specific predetermined outcomes (Arantes & Buchanan, 2023). Machines are seen to make better decisions than humans regarding education (Selwyn, 2016a, 2016b; Williamson, 2017). The "concern is that human beings will lose hold of the expectation that social knowledge should be grounded in how people, not machines, see the world" (Sefton-Green & Pangrazio, 2022, p. 2077).

For this research, the spectre of ITE being technologically determined sees key elements like Our Code, Our Standards or the Key Teaching Tasks becoming elements of a culture of compliance that limits and narrows pre-service teacher understanding of digital identity, thus locking understanding into an identity that is to be determined by the system decides and its controls (Biesta, 2020c; Coleman, 2022; Lanier, 2011). Instead of being adaptive, objective, reflexive, and responsive, the pre-service teacher digital identity holds them within the specific and predetermined boundaries that are determined by the ascendant narrative. These boundaries, defined by policy, promote performative agency at the expense of personal agency (Biesta, 2020c; Coleman, 2022). The impact of this is that broader factors, such as the social context that should play a role in the pre-service teacher's professional identity, are overlooked (Coleman, 2022).

The Postdigital

The postdigital refers to an understanding of the integration of digital technologies and their relationship with humans that resists a fixed, uniform interpretation. Postdigital theorists see digital technologies and digital identities as multifaceted concepts that have varied and continually evolving interpretations that are already part of everyday life (Ball & Savin-Baden, 2022; Hung, 2019). Postdigital theorists present an understanding of the world where the digital and non-digital are no longer separate or fixed entities. Savin-Baden (2023, p. 21) argues that the postdigital reveals that “there is no digital-real divide, ... [that] is blurred and liquid”. Hence, following MacGilchrist et al., (2021), to understand digital technologies, we must examine the complex, messy contextual realities of society. Those realities include the increasing generation of data for decision-making (Knox, 2019). Knox (2019, p. 2216) explains that the “technologies we viewed as once separate from humanity are now intrinsically bound to us in direct and indirect ways”. Arantes and Vicars’ (2024) work reflects this intimate postdigital connection between digital technologies and everyday life. They suggest that humans already have a postdigital presence and, in their exploration of the use of digital technologies in higher education, posit that “digital technologies have seamlessly integrated with our lives blurring the lines between the physical and digital realms” (Arantes & Vicars, 2024, p. 609).

Consistent with this perception of blurred lines, the very concept of the postdigital is characterised by speculative theorisation that remains ambiguous and fluid, reflecting constant evolution (Ball & Savin-Baden, 2022; Bauman, 2007; Jandric et al., 2018; Jandric & Knox, 2022; Ralston, 2023a, 2023b; Savin-Baden, 2012a, 2021b, 2023; Sinclair & Hayes, 2018). The term postdigital resists fixed definition and instead embodies an open definition, mirroring the dynamic and changing nature of the human relationship with digital technologies (Bauman, 2007; Hayes, 2023a, 2023b; Jandric, 2021; Jandric & Knox, 2022; Johnson, 2023 Reader, 2021, 2023, Otrell-Cass & Fasching, 2023; Savin-Baden, 2021, 2023). Jandric and Ford (2022) underscore the

significance of postdigital ambiguity, asserting that postdigital researchers must preserve postdigital resistance to being definitively defined. Savin-Baden (2023) claims that theorising the postdigital is elusive due to the myriad influences affecting human-digital interactions. Feenberg (2019), in turn, critiques the postdigital as a vague and artificial construct that yields varied applications. Cramer and Jandric (2021, p. 967) describe postdigital simply as a “term that is useful, but sucks”.

In this thesis the term is productive because, following Reader (2021, p. 156) “digitisation is now embedded in the mainstream of human activity to the point where they [digital technologies] are no longer either controversial or the focus of attention”. This assumed integration raises the question of why digital identity is still being prioritised for a postdigital age. Postdigital theory positions digital identities as now simply being part of everyday human existence (Savin-Baden, 2023).

The postdigital presents an intriguing paradox for this research project, given the focus on the digitalisation of education and the emergence of digital fluency in the formation of pre-service teacher professional identities during practicum. In educational contexts, the postdigital has become a foundation for investigating the interplay and relationships between the digital technologies and the non-digital within broader socio-economic and cultural factors (Arantes & Buchanan, 2023; Arantes & Vicars, 2024; Fawns, 2023). The postdigital represents a multifaceted and nonlinear conceptualisation of the digital landscape. Postdigital theory resonates, in this thesis, with Biesta’s work on education and emancipation. The ‘post’ in post-digital is a critical stance taken in spaces like education, where understanding of the digital has moved beyond its technocentric positioning (Arndt, et al., 2019; Hung, 2019; Matias & Aldern, 2020; Otrell-Cass, 2023; Peters & Besley, 2019; Savin-Baden, 2023; Sinclair & Hayes, 2019).

For postdigital theorists, the backdrop of a pervasive postdigital essence necessitates scrutiny and critique rather than passive acceptance of technological advancement (Fawns, 2023; Savin-Baden, 2023). The postdigital represents a critical viewpoint that

perceives the interconnection of human and digital realms as a “complex entanglement” (Jandric et al., 2018, p. 20). This complex entanglement of digital technologies and humans is characterised by a bio-digital existence where both coexist and are also interdependent, thus eroding traditional distinctions between humans and non-humans (Feenberg, 2019; Peters, 2020; Sinclair & Hayes, 2019). The postdigital embraces the blurring of digital and human identity markers by blurring the traditional borders, distinctions, and relationships between non-human and human, digital and non-digital, online and offline (Feenberg, 2019; Peters et al., 2020; Sinclair & Hayes, 2019). The postdigital perspective acknowledges the deep embedding of digital technology in human activities such as education, often without critical examination (Loveless and Williamson, 2013a; Selwyn, 2013a, 2023a).

The blind and uncritical embrace of digital technology fits with what Jandrić and Knox (2022, p. 3) have described as the “magical belief” of both educational policymakers and the public who embrace this acceptance of digital technology as that which can only be beneficial and result in educational progress (Ball & Savin- Baden, 2022; Biesta, 2020a, 2020c; Jandrić & Hayes, 2020; Jandric & Knox, 2022; Karakuş & Kılıç, 2022; Selwyn, 2013a, 2013b, 2017, 2023a). A consequence of this uncritical acceptance is that rather than positioning digital technology within policy development in education to meet best the lived contextual digital needs pre-service teachers experience, digital technology will be locked in as an understanding of the purpose of education that only serves to reinforce how policymakers have imagined the digital future (Lanier, 2011; Loveless & Williamson, 2013a; Sefton-Green & Pangrazio, 2022). Postdigital theory not only questions the state of the digital transformation but seeks to provide a broader, more human understanding of how this transformation is understood (Savin-Badin, 2021; Ralston, 2023; Reader, 2021).

The perceived urgency of ‘digital change’ fosters policies favouring technology as a pivotal solution to educational dilemmas (Pallit & Kramm, 2023; Selwyn, 2022, 2023a).

Digital technology policy-positions have become entrenched in global educational policy as being thought of as necessary for crucial systemic reform (Loveless & Williamson, 2013a; Reinsfield, 2018, 2020a, 2020b; Selwyn, 2022, 2023a). Educational policy has become dominated by 'digital age' rhetoric. This rhetoric of a so-called 'digital age' reflects Biesta's (2013a, 2017) concept of learnification, which restricts educational objectives to narrow parameters. As noted above, Biesta (2013a, 2017) argues that learning-centric language increasingly defines education. Digital-centric language similarly now defines educational progress. Loveless and Williamson (2013b, p. 23) argue that the term 'digital age' has become essential to the "deployment of metaphors and ways of thinking that are now being built into pedagogies, curricula, and theories of learning, and that constantly have the capacity to shape human action".

The postdigital education context, rather than focusing on singular prerogatives reflected by a technocentric approach to education, sees education as an interconnected relational system in which the digital is connected to broader factors (Fawns, 2023). Fawns argues that a postdigital understanding allows for a "more holistic and critical perspective on educational practices that go beyond a narrow focus on digital tools and platforms" (p. 1).

Postdigital theory facilitates a nuanced examination of digital technology in educational contexts, highlighting the dangers of uncritical acceptance and the commodification and dehumanisation of technological processes (Delanty & Harris, 2021; Fawns, 2023; Jandric et al., 2023a, 2023b) and challenging reductive views of the relationship between digital technologies and educational change (Fawns, 2023; Feenberg, 2023).

Postdigital theory not only questions the state of the digital transformation but seeks to provide a broader, more human understanding of how this transformation is understood (Savin-Badin, 2021; Ralston, 2023; Reader, 2021). Postdigital thinking focuses on human engagement and relationships with digital technologies and how these can be used to create what Feenberg (2023) calls a critically constructed response in which

the human rather than technology holds the plug. Postdigital theory's power lies in its inclusion of messy human narratives; this allows alternative narratives to emerge and challenge the dominant narrative linking education's digitization to economic progress (Fawns, 2023).

There is a resonance between postdigital theory and the work of indigenous scholars in how they emphasise the symbiotic relationship between humans and their environment (Stewart, 2021). This postdigital resonance with indigenous scholarship is significant to consider in Aotearoa New Zealand, as Māori and Pasifika epistemologies offer valuable insights into human existence that have been historically overlooked by Western thought (Tuhiwai Smith, 2012; Stewart, 2021). Tuhiwai Smith (2012) and Stewart (2021) argue that these pre-humanist perspectives inherently align with post-humanist theories, emphasising the interconnectedness of human and non-human elements. Post-humanists advocate for reevaluating human existence within history, social relations, and embodied reality (Best & Kellner, 2001, p. 195). Post-humanist approaches contest the notion of humanity as separate from the world, fostering an understanding rooted in the interrelatedness of all factors. Postdigital emerges as a foundational concept within post-humanism.

Ultimately, the postdigital approach empowers researchers to amplify marginalised voices overlooked by traditional narratives, offering insights that enhance our understanding of digital technologies and, in so doing, inform resistance to their dominance (Fawns, 2023; Feenberg, 2019, 2023). Postdigital critique broadens understanding of what it means to be human, broadening understanding of digital identities.

For this thesis, a postdigital understanding of digital identity emphasises the insider's lived lenses (Johnson, 2023). The pre-service teacher's digital identity reflects a unique, timely, and contextual convergence of virtual and physical realities within diverse and ever-changing educational contexts (Bauman & Donkiss 2013; Fawns,

2023; Johnson, 2021; Ortel-Cass, 2023; Savin-Baden 2021). A variable embodiment of digital identity emerges, encompassing digital fluency and the capacity to navigate hybrid, momentary contexts (Jandric et al., 2018).

The postdigital theorisation examines the role of pre-service teachers in a digital context. Jandric's (2021) work revealing the messy connection of digital technologies, humans and contexts allows the post-digital pre-service teacher to be seen as navigating an increasingly indistinct digital landscape that intertwines with their professional identity. The capacity to adapt to digital change suggests that digital fluency is inherently part of the pre-service teacher's identity, and that its definition is fluid and evolving rather than fixed. Postdigital discourse demands that we carefully examine how educational digitisation is presented and that we listen to pre-service teacher experiences.

The postdigital pre-service teacher engages with digital technologies; a relationship deeply "embedded in our cultures, institutions, political systems and relationships" (Savin-Baden, 2023, p. 17). Cureton et al. (2021, p. 229) contend that "[t]he postdigital perspective asks us to carefully consider how the complex fusions of analogue and digital technologies, and social practices intermingle with the diversity of individual student experiences".

The postdigital underscores the necessity for any top-down digital policy reforms to incorporate the lived experiences of individuals affected by such changes in their decision-making process (Jopling, 2023b). Selwyn et al. (2020, p. 91) support this notion, noting that "any school is always a patchwork of new and old resourcing, in which new devices and resources are integrated into a range of older systems and technologies". For many learners, their educational experiences are postdigital "[i]n that digital modes are embedded and assimilated into how they learn, work, and/or live" (Arndt et al., 2019. p. 456).

Digital Identity

This section looks at digital identity and the role of practicum in shaping how a pre-service teacher makes sense of their digital identity. Digital identity is vital because of the current prioritisation of digital technologies in education. The prioritisation of digital technologies focuses on preparing teachers and learners for what Arantes and Buchanan (2023, p. 494) describe as the “indefinitely impending” digital transformation of educational processes and systems. Following the trend within global educational policy to embrace digital change, educational policymakers in Aotearoa New Zealand have positioned the development of a digital identity as an essential educational outcome. The addition of the digital technologies sub-learning area has placed expectations on the teaching profession to assume this identity and lead teaching and learning that supports its development in learners. The NZC prescription of digital knowledge, skills and dispositions is an identity prescription that raises questions for ITE and the pre-service teacher. Rather than assume an understanding of digital identity and the rationale created for its embrace, it is essential to critique it from different perspectives. These perspectives create space to question the particular digital identity pre-service teachers are expected to embrace. The positioning of digital identity is crucial as it can either act like the Borg and assimilate the teacher as a part of an algorithmic empire or liberate their subjective agency and ability to resist being locked into an educational hive mind. The section first examines the policy that has shaped the understanding of digital identity in education, explicitly referring to the Aotearoa New Zealand context. Second, it investigates the predominant ways in which digital identity has been explored and contributed to shaping understanding the how the digital identity of the pre-service teacher is conceptualised. Finally, it explores emerging alternative understandings of digital technologies and how these understandings question the current assumptions about digital identity that are prevalent in education.

How do we understand Digital Identity?

The concept of digital identity is a complex and messy concept to define. Kraynov (2024) defines digital identity as an individual's representation in the digital world.

Digital identity is a multifaceted term that can be used to describe a person's identity in blockchain and binary code, and for others a person's self-curated presence on social media. First, the term digital identity is used by the government and financial institutions to describe an individual's biometric identity that is used for everything from passports to online bill payments (Beduschi, 2021). Both government and financial definitions of digital identity are designed to protect people's privacy and ability to control personal information in the digital age.

Second, digital identity is also seen by theorists like Buchanan (2017; 2018 March 5) and Buchanan et al., (2018) as a term used to describe the identities people create online. These curated online identities act as their version of an individual online brand. The emergence of curated online identity challenge's traditional identity formation as individuals can construct and identify new forms of virtual identity in which they feel more comfortable than their offline identity (Gavrilita, 2021 et al.).

The use of the term digital identity has also emerged within the workplace as a complex reality (Jussli et al., 2023). The inherent digital complexity within educational spaces means that pre-service teachers often face tension when aligning their perception of digital identity with policy and theory. Here, the term digital identity is increasingly defined as the specific conglomeration of skills, knowledge, and dispositions that are often framed in terms of competencies and capabilities that an individual needs to carry out their work professionally. Nazari and Seyri (2021) argue that understanding identity includes the teachers own self-perceptions, which are developed in unique contexts, in relationships with other participants and as a result of theoretical engagement. The argument they make is that any form of teacher identity, including digital identity, cannot simply be theoretically defined by top-down policy.

Instead, understanding of digital identity needs to include the relational communities in which it is developed. Here practicum, as a community experience, plays a pivotal role in the formation of a pre-service teacher's identity. The pre-service teacher has to navigate policy expectations but also construct an identity to meet the needs of the context and the people within it. When the capacity to adapt occurs across multiple contexts, it requires identity to be in a constant state of shift and adaptation (Nazari & Seyri, 2021). What is clear is that no digital identity is the same: it can be passive or active, aligned to the individual's authentic self or an alternate imagining, static or constantly evolving, curated by us, for us, or even without us knowing (Gill et al., 2015). The digital identity of a person is made up of multiple definitions of digital identity, some of which they are aware of, some that they are not, some that they control and others that define their digital identity.

A postdigital identity refers to the constant interplay between a person's analogue and digital experiences. A postdigital identity is seen as a continuously evolving identity influenced by a person's interaction with digital technologies, the social context they find themselves in and technological advances occurring at the time (Arantes, 2024). Fluidity allows for a person to position multiple understandings of themselves socially and at work while challenging traditional notions of identity. Postdigital identity represents a mashup of traditional identity markers and data-driven digital systems (Turkle, 1995). These mash-ups create complex knowledge ecologies that redefine how people perceive themselves and their roles (Arantes, 2024; Hayes, 2023a, 2023b).

Arantes (2024) posits that postdigital teaching identities represent a form of resistance to technocentric approaches to digital identity that place machine and non-human understanding, and agency over human understanding agency. A technocentric mode of digital identity has increasingly seen things like curriculum design, assessment and learner feedback, that used to be informed by teacher agency, instead become automated and datafied (Lupton & Williamson, 2017; Selwyn, 2019; Williamson, 2019,

2021, 2022; Williamson et al., 2019a, 2019b). The postdigital teaching identity shows that the digital identity of the pre-service teacher cannot be understood outside its social context. A postdigital perspective reinforces that human subjectivity, as well as technological systems, contributing to the formation of a broader understanding of digital identities rather than promoting the definition of a singular uniform code. Arantes (2024) goes on to argue that it is crucial to understand the digital identity of the pre-service teacher within the contexts in which they interact with digital technologies, giving voice to social and technological practices and relations. The postdigital identity allows the researcher to examine the digital identity of the pre-service teacher as more than just a code that is designed by policy, thus bringing understanding back to a wider inclusive perspective rather than leaving it in a singular algorithmic focus. The digital identity of the pre-service teacher is seen as more than just a product to be produced in ITE but is instead seen as an interconnected eco-system, in which both the teacher and technology have agency (Arantes, 2024).

Digital identity practicum experiences are thought to be vital for the development of pre-service the pre-service teachers understanding of their digital identity (Trevisan, 2024). Pre-service teacher digital identity tension is a symptom of the gap between expectation, assumption, and reality, highlighting the need for a better understanding of and integration of digital identity within ITE. Understanding the gap between digital expectations and reality is especially important as a pre-service teacher's resilience in navigating data privacy, cultural sensitivity, and fostering a safe and inclusive environment is linked to practical hands-on experiences (Swenson, 2023).

Digital identity tension creates a reality for the pre-service teacher, amplifying their existing identity tension. The pre-service teacher is confronted by the external positioning of digital identity within policy, theory, and technology, disconnecting them from participating in its shaping by presenting a narrow, fixed understanding. These external perspectives contest the pre-service teacher's internal knowledge of how their

experience of digital identity through contextual, relational experiences is constantly in a stage of adaptation and change. Educational contexts are increasingly spaces where the gap between actual and online post-pandemic identities is increasingly blurred as teachers and learners return with new relationships and understandings of digital technologies (Loveless & Williamson 2013a, Krapov, 2024).

For this research project, digital identity is understood as a pre-service teacher's perception of their confidence and skill to think, relate, connect and adapt as an element in the digital world (Bolstad & Gilbert, 2012; Loveless & Williamson, 2013a; Maslin & Smith, 2017). This understanding of digital identity involves mastery of digital skills, the formation of a pedagogy and confidence in digital thinking and knowledge construction (Bolstad & Gilbert, 2012; Brandenburg & Gervasoni, 2016; Gilbert, 2013). Rather than seeing digital identity as a separate form of identity, it is contended here that digital identity is intimately connected to an individual's broader identity. It is an understanding of digital identity that crosses time in that it consists of past, present and the anticipation of future experiences of digital technologies. A separate digital identity is an element that can be fixed and added to the professional identity of the preservice teacher. In this way, an external narrative can control and standardise the identity itself. A connected digital identity is neither separate nor controllable. Digital identity is already part of the unique personal subjectivity of the pre-service teacher, part of the understanding they have developed within their prior personal engagement with digital technology as part of their lifeworld. It is an understanding of digital identity that emerges from within rather than being applied from an external position. A critical element of this form of digital identity is its fluidity, meaning that it is constantly reframing, changing, and contextually shaped (Bauman, 2007; Beauchamp & Thomas, 2009; Blackshaw, 2016; Hong, 2010; Petersson, 2017; Poletti & Rek, 2014). A fluid digital identity is not fixed or unified but fractured, fragmented and constructed from multiple influences, ensuring that it is always in the process of change and

transformation (Akkerman & Meijer, 2011; Bauman, 2007; Blackshaw, 2016; Brandenburg & Gervasoni, 2016; Loveless & Williamson, 2013a)

With fluid digital identities connected to the personhood of the pre-service teacher, the term digital subjectivity is a better conceptual term. Identity reflects skills, knowledge, and dispositions that can be decided upon and coded for the pre-service teacher without their participation. Subjectivity reflects personhood, not just product. Rather than being separate, subjectivity reinforces the idea that the formation of digital identity is intimately connected to the pre-service teacher's lived experience. Subjectivity, more so than identity, is associated with the emergence of self-agency and the ability of the pre-service teacher using this subjectivity to participate. Participation that is active rather than passive. Not only does digital identity require the ability to perform specific knowledge, skills and dispositions, but it also includes the pre-service teacher's capability to think creatively and independently, make informed and owned decisions, and take meaningful action that reflects themselves and the understanding they constantly develop (Davis, 2016; Engeness, 2021; Karakuş, & Kılıç, 2022, Masitoh et al., 2024; Porter, 2024; Trevisan, 2024). In this research project, the term identity is used to represent all ways in which the digital identity of the pre-service teacher can be understood. The term identity rather than subjectivity is used as identity is the primary language used within policy and literature when referring to a pre-service teacher's relationship with digital technology.

Digital identity and ITE

The approach ITE takes has the potential to either colonise or emancipate the digital identity of the pre-service teacher by undermining or empowering their sense of competence and confidence (Biesta, 2013a, 2017; Nykvist & Mukherjee, 2016). The pressure ITE faces results in the positioning of digital identity as a 'pressure point' for ITE providers, a point of (dis)connection that potentially impedes pre-service teacher formation of their digital teaching identities during ITE (Gruszczynska et al., 2013;

Hallas, 2017). The result is a pressured reality where the ITE provider is faced with the choice of programming the emerging teacher as an educational drone or resisting ascendancy and bringing forth the autonomous digital agency of the pre-service teacher (Biesta, 2013a, 2017; Carr, 2011; Lanier, 2011).

During ITE, the pre-service teacher will face increased digital identity tension between externally ascribed identities, the identity they assume they will need and the one that emerges out of lived experience (Loveless & Williamson, 2013). For the pre-service teacher, the tension between external and self-mediated understandings of digital identity has the potential to cause resistance, anger and frustration due to their inability to facilitate navigation of the gap between multiple understandings of digital identity or find the support they assume that ITE will provide (Beijaard & Meijer, 2017; Maslin & Smith, 2017; Petersson, 2017).

For Lanier (2011, p. 5), the tension pre-service teachers experience results from ITE providers not understanding that “being a person is not a pat formula, but a quest, a mystery, [a] leap of faith”. Defining digital identities in ITE raises questions about whether they can be determined by algorithms or require real-time, subjective interactions (Biesta, 2013, 2017; Hong, 2010). If digital identity forms through lived experiences, it suggests that understanding it requires considering rather than excluding personal narratives as part of that process. Since lived experiences are unique and context-specific, uniform approaches to digital identity formation in ITE are questionable (Gourley, 2017). Research suggests digital identity is not a product that can be applied as it also emerges from the individual’s experience and unpacking of multiple unstable, shifting and dynamic social-technical interactions (Gomez & Lachuck, 2017; Loveless & Williamson, 2013a; Teng, 2017). Initial Teacher Education providers are confronted with a Pandora’s box of messy and risk-filled individual contexts and experiences that cannot be integrated by a prescribed policy position (Beijaard & Meijer, 2017; Henry, 2016; Oruç, 2013). The danger of this disconnection is

not just temporary digital identity tension for the pre-service teacher during ITE but also the potential permanent dislocation of their digital identity as a teaching professional (Hong, 2010).

Conclusion

This chapter has engaged with the theoretical foundations that allow this PhD research to question the general positioning of digital technologies and identities within ITE and education. Biesta, Loveless and Williams and the Post-digital theories reveal insights into identities and their relationship with a world that is already digital. A world of lived experiences that are crucial in supporting pre-service teacher understanding of their continually evolving digital identity. Digital identity is revealed to be a concept that cannot be fixed as it is fluid, relational and socially embedded. This reality presents questions for fixed pre-determined positioning of digital identity in revealing the disconnect between policy-driven assumptions and the reality pre-service teachers experience. These lived experiences themselves show the challenge the pre-service teacher experiences attempting to navigate and reconcile multiple expectations of digital identity. The spectres of techno-determinism and digital essentialism are critiqued in this chapter for their potential to code rather than emancipate the pre-service teacher. The danger of datatification is critiqued and the significance of pre-service teacher lived experience in resisting the replacement of teacher agency by data-driven decision-making. As ITE moves forward, this chapter posits that reframing digital identity as an emergent, lived experience has the potential to empower pre-service teachers to resist the subjugation of their digital identity and navigate the complexities of digital change with human agency rather than uniform system-determined coding.

Chapter Four: Methodology

Obstinate Research

With educational research becoming increasingly focused on data-driven answers that provide certainty, value for money and progress, the voice of lived experience remains as a counterbalance to research approaches designed to support policy driven solutions. (Selwyn, 2019; Williamson 2017, 2019)⁶. This focus on data reflects a risk-free research approach that seeks to marginalise the messiness of lived experience in order to prioritise risk free solutions (Biesta, 2013a, 2017). Obstinate research allows insight to emerge from the pre-service teacher's narrative rather than a specific theoretical lens. It refocuses the focus and outcomes of research from policy to people. An obstinate approach stems from Biesta's (2021c) idea of obstinance in education. Biesta (2021c) frames obstinance as resistance in which educators ask questions of the roles and identities the education system expects them to assume. This includes the agency of people to say no!

This obstinate methodology seeks to support pre-service teachers ask better questions about the formation of their digital identities (Biesta 2020c; 2021a). By being supported to question externally mediated identity definitions the pre-service teacher becomes empowered to continue questioning power structures seeking to control and shape their digital identity (Biesta, 2020c).

It is assumed in this research project that there is a better way for ITE to provide a more inclusive path to the formation of a pre-service teacher's digital identity. However, this approach does not assume what digital identity is and where it begins, only that the missing or marginalised voice of the pre-service teacher has the potential to add new

⁶ This is of significance with respect to the recent restructuring of the Marsden Fund by the New Zealand Government. These grants, which were the major source of Government research funding from 2025, now exclude all forms of humanities and social sciences research. Minister of Innovation Hon Judith Collins justified this decision by stating, "[t]he focus of the Fund will now shift core science... Real impact on our economy will come from areas such as physics, chemistry, maths, engineering and biomedical sciences" (Gordan & Argue, Dec 4 2024).

insight (see the section on the post-digital in the theoretical literature review chapter) (Husu & Clandinin, 2017). By understanding the pre-service teacher's own in-the-moment narrative of the messiness, tension and liquidity that they experience in their practicum, ITE providers can better assist the pre-service teacher's navigation towards a sense of digital confidence, competence and fluency (deMarrais et al., 2024; Husu & Clandinin, 2019).

Research that is Open and Inductive

This research approach uses a qualitative methodology that is open and inductive (Cohen et al., 2018; Creswell & Creswell-Baez, 2021; Creswell & Guetterman, 2021; deMarrais et al., 2024; Lodico et al., 2010; Merriam & Tisdell, 2015). Being guided by a flexible and responsive methodology allows knowledge to emerge from within the world, in this case from inside the practicum context via the meaning people make as they relate, engage with, and experience specific phenomena. In the case of this research the relationship between the pre-service teachers and digital technologies (Creswell & Creswell-Baez, 2021; Creswell & Gutterman, 2021; Miles et al., 2020). Previous research on pre-service identity formation in ITE shows that open and inductive approaches effectively explore pre-service teacher identity formation from insider lived perspective (Creswell & Creswell- Baez, 2021; Hooley, 2007).). Pre-service teachers 'lived experience' can deepen understanding, add new insight and challenge common-sense assumptions of how digital identity is formed during practicum (deMarrais et al., 2024; Husu & Clandinin, 2019; Smeyers & Depaepe, 2017; Squires, 2023; Squires et al., 2014).

The flexibility and depth offered by open and inductive qualitative research allows pre-service teacher digital identity to be understood within the complex lived social and educational processes from which digital identity emerges (deMarrais et al., 2024; Hooley, 2007; Squires, 2023). Rather than an outsider perspective in which theory is used as a lens to study participants, the narratives of the pre-service teacher provide

insight into digital identity formation from an insider perspective from which new theory or insight into existing theories can emerge (Savin-Baden & Howell Major, 2023).

Research That is Inside Out Rather Than Outside In

In holding to a particular theory or theoretical position, Biesta (2020c) argues that research design often becomes theory theoretically controlled undermining the voice of the researcher and research participants. Theoretical research generates an understanding of the participant's lived experiences through the lens of theory rather than the participant's voice. The theory that a researcher uses can position the pre-service teacher to act in a certain way and towards producing specific data outputs. These data outputs can reinforce a particular educational vision rather than represent the real needs that the pre-service teacher has. Biesta (2020c, p. 12) argues that theoretical research stances can lead to outcomes in which "theory has control over us rather than we... [having] control over theory or the theories we decide to use". The design of this research is such that the researcher aims to flip the switch from the imposition of theory to pre-service teacher agency. Allowing theorisation to emerge from the narrative of the pre-service teacher enables the pre-service teacher's voice rather than the voice of theory to explain how and why the pre-service teacher has taken particular actions and made particular decisions.

Theoretically driven research methodologies struggle to address the variability, fluidity, and contextuality digital technologies have added to pre-service teacher identity (Biesta, 2020c; Nykvist & Mukherjee, 2016; Özüdoğru & Akkuş Çakır, 2021). This dynamic complexity has resulted in identity tension for pre-service teachers as they attempt to balance the perceptions, realities and aspirations of digital identities, competing ideologies, constantly updated digital curricula, and access to the digital technologies that together require constant upskilling (Beijaard & Meijer, 2017; Nykvist & Mukherjee, 2016; Trevallion, 2018). An approach that begins with people rather than theory creates the space to explore multiple perspectives and pathways as they

emerge and evolve. No uniform answer is found as a destination; an answer for a specific moment is found by rearranging human and digital technology resources within a specific context to navigate the next step ahead (Biesta, 2013a, 2017). These steps offer multiple options that can support ITE and pre-service teachers in developing wiser agentic digital identities as they respond to the digital variability they encounter during practicum.

Traditional linear research processes seek to cope with the messiness caused by human emotion and contextual relationships by creating a theoretical box in which research contexts and those being researched are neatly fitted or by creating a theoretical anchor that fixes the fluidity of the digital world to a theoretical foundation. These approaches support what Biesta (2020c) describes as complexity reduction. Complexity reduction is the deliberate effort by political actors to reduce the perspectives that influence a discourse to a singular controlled narrative (Biesta, 2020c). Complexity reduction seeks to minimise discourse openness, reduce the way meaning can be made in the system and reduce reflexivity by blocking feedback loops that have the potential to offer an alternative perspective (Biesta, 2020c).

Narrative Research

I am tired of being studied. Work with me; that's all I ask (Kuntz, 2015, p. 17).

A narrative rather than grounded theory approach was used for the methodological foundation for this PhD research. Grounded theory, especially Charmaz's (2006, 2012) approach to grounded theory, which includes social relationships and contexts, was an important initial influence. However, rather than the theoretical process, I became increasingly interested in the stories themselves. I wanted to use a methodological approach that made the story of the pre-service teacher, and then the story of the collective pre-service teachers, the hero. Grounded theory leads to a theoretical outcome in the form of a new theory. I chose a narrative approach because it

maintained a focus on the power of the pre-service teacher stories and the questions these would raise for ITE. In using a narrative rather than a grounded approach, it honours the authenticity of the stories. Even if these stories did not lead to a theoretical position, the participant would know that their story had been told, their voice had been heard, and that both were important. These stories are supposed to start conversations that are missing within the educational discourse and by presenting them as authentic narratives rather than a theoretical position, it allows the reader to join the *ahi kaa* and begin their own conversation.

Narrative research theory has guided the open and inductive qualitative methodology that guides this research (Clandinin, 2007; Daiute, 2014; Goodson, 2012, 2013; Goodson et al., 2010; Goodson et al., 2012; Goodson & Gill, 2011; Kim, 2016) and Postdigital theory (Jandric 2018, 2021, 2023; Jandric et al., 2018; 2023a, 2023b; Johnson, 2023; Jopling, 2023a; Hayes, 2023a, 2023b; Pallit & Kramm, 2023; Ralston, 2023a; 2023b; Thompson, 2023; Savin-Baden, 2021a, 2021b). Narrative and postdigital theories focus on allowing new insight to emerge from multiple in-the-moment experiences and contexts rather than from the pre-application of theoretical frameworks. Rather than seeing research as a process that is done for the world, narrative in the form of the participant's voice and the postdigital understanding of digital technologies emerges from the world. The participant's voice emerges as a part of a continually evolving human-technology relationship that sees research as emerging from within the world as being placed upon it.

Pre-service teacher narratives are storied phenomena of how the participant lives out and interprets their unique relationship with digital technologies. (Clandinin, 2013; Creswell & Creswell-Baez, 2021; deMarrias, 2024; Goodson & Gill, 2011; Savin-Baden & Howell Major, 2023). The pre-service teacher narratives in this research reflect multiple social, moral, and insider perspectives on how participants experienced digital

technologies during practicum, and this interplay shaped their digital identity (Beck, 2021; Clandinin & Connolly, 2000; Cortazzi & Jin, 2020; Noon, 2018).

Narrative research or inquiry is part of a rich and diverse intellectual tradition (Bold, 2012; Clandinin et al., 2022; Daiute, 2014; Garvis, 2015). It is a tradition in which its definition, practice and methods are diverse and contested (Bold, 2012; Cresswell, 2013; Daiute, 2014). Bold (2012) regards narrative research as an account of something. This 'something' refers to the stories about human experience and interaction with an interesting phenomenon that creates individual and collective meaning (Bold, 2012; Goodson, 2013). These stories have the potential to provide insight into how people develop their relationships with specific phenomena within specific contexts and for specific purposes (Goodson, 2013). Garvis (2015) argues that narrative inquiry is about understanding people's subjectivity and how it influences and influences their everyday interaction with specific phenomena.

Garvis (2015, p. 3) posits that narrative allows a participant to tell their story with an authentic voice which is "essential to identity and self". Narrative research creates space for a critical analysis of pre-service teacher narratives regarding professional identity in ITE. This space allows the participant to share practical and specific lived insight, including their values, perceptions and interpretations (Creswell & Creswell-Baez, 2021; deMarrais et al., 2024; Goodson & Gill, 2011). As the discourse becomes more human, the gap between reality and expectation that causes tension shrinks, and ITE is better able to respond to the real needs of pre-service teachers (Clandinin, 2013; Creswell & Creswell-Baez, 2021; Goodson & Gill, 2011).

As a position, narrative research emerges from Dewey's theory of experience that posits individuals are continually experiencing phenomena which allows unique stories to emerge from experiences and interactions within specific contexts (Clandinin, 2013; Clandinin et al., 2022; Creswell & Creswell-Baez, 2021, Goodson & Gill, 2011). Dewey contends that individual experiences are a central lens to understanding a person.

Their past helps them understand the ideas and actions they employ in the present, which contribute to future experience expectations (Clandinin, 2013; Creswell & Creswell-Baez, 2021; deMarrais, et al., 2024). Dewey's approach gives rise to the idea that experience is continual and that experiences build on experiences contributing to a constant, changing narrative of understanding that does not represent the need for a definitive answer but how that person understands their relationship with specific phenomena at that moment in time (Clandinin et al., 2022, Meegan 2024).

Clandinin et al. (2022) define the narrative tradition as one in which narratives are not always fixed and frozen but are always encountered in the process and always in context. These narratives represent the stories in which a person makes sense of the world at a specific moment, within a specific context. It is also a story that does not end, so the narrative development process is just as crucial as the in-the-moment answer they produce (Bold, 2012). This is because their knowledge changes as a person engages in different contexts (Bold, 2012).

Narrative research is becoming increasingly popular in educational research as it emphasises pre-service teacher reflections and knowledge construction (Creswell & Creswell-Baez, 2021; deMarrais et al., 2024). This is achieved in response to the continuous experiences they encounter; an experience that empowers and their voice rather than marginalising it. The overlapping of pre-service teacher narratives can present a collective voice with the strength to challenge the tendency to use a 'big data' methodology as a precursor to educational policymaking (Beijaard & Meijer, 2017; Meegan, 2024).

Meegan (2024) uses narrative research to understand how the tensions and dilemmas encountered by teacher-researchers contribute to their identity formation. Meegan justifies his use of narrative research because it supports his interest in understanding stories of human experience. He presents these narratives as those that the participant is continually remaking, such that they can challenge and disrupt rigidly fixed

understandings of identity. Savin-Baden and Niekirk (2007) used narrative research to explore reflective learning by undergraduate students to show how staff experience curriculum development. They highlight the value of narrative research for its flexibility and the fact that it can be used across multiple contexts of lived experience, including education. These researchers present narrative research as an approach that frames phenomena through a holistic lens, enabling phenomena to be understood within multiple contexts while emphasising the immersion in and comprehension of how humans understand their relationship with specific phenomena. Rice (2024) uses narrative theory to develop an understanding of how learners within a special education context learn alongside each other. Their choice of using narrative research is justified by its potential to enable the exploration of how theory is lived in practice and how the voice of learners can “support the development of new insights about time and engagement in online learning” (Rice, 2024, p. 2617). Altum et al. (2021) use narrative research to explore how pre-service teachers experienced a professional development programme aimed at developing their understanding of Universal Design for Learning (UDL). These researchers explain their choice of narrative research as an approach in which the participants can tell their own stories of how they understand not only UDL but situations, relationships and their own identity changes.

In this research project, the narratives used are the practicum narratives of pre-service teachers. These narratives contain pre-service teacher insight of how they wrestle with digital technologies and their digital identity on practicum. Digital technologies and practicum represent narratives of lived experience in which the pre-service teacher encounter’s identity tension (Beijaard & Meijer, 2017). Therefore, it is crucial to hear their interpretation of this change and the messy combination of factors that contribute to this changing understanding. Narrative approaches place the data of the human story at the centre rather than the periphery of the research process (Garvis, 2015). Storytelling allows human subjectivity to be explored as a source of data, allowing the

participant's subjectivity to be researched rather than just seeing the research process as an objective or scientific data-gathering process. It is a methodological approach that focuses on the human story, including emotions and relationships, rather than just on numbers (Bold, 2012; Squire et al., 2014).

Not only does the ability to focus on human stories support the development of alternative understandings of phenomena, but it also gives power to the participant (Bold, 2012). Creating the space for participants to share their internal or hidden understanding supports them in developing an understanding of the agency of their voice and how this voice of lived experience is a valid, reliable, and an important source of understanding for professional discourse. Such an approach allows participants to interrogate their identity in a rigorous and critically reflective way that previously had not been possible. In giving the participant power, narrative inquiry becomes an approach in which participants reveal their understanding of digital identities when telling their story (Savin-Baden & Niekirk, 2007).

Insider Narratives of Lived Experience

Narrative research positions the researcher to learn from the lived experience of the participants rather than exclude or marginalise their lived experience. Garvis (2015) argues that narrative research recognises rather than alienates the subject-ness of participants when understanding how their identity is constructed. The researcher does this by valuing the nuanced knowledge that emerges from lived experiences and how a pre-service teacher interprets and unpacks their educational journey (Wellner & Levin, 2023). A ground-up exploration of allows an insider perspective to emerge from within the participant's subjective experience (Cohen et al., 2018). These narratives reframe understanding of digital technology beyond mere functionality, incorporating human emotion, ideas and actions, and the individual impacts of technology on life (Cilesiz, 2020). Unlike conventional research methodologies that often dismiss human experience, narratives of lived experience embrace and value participant perspectives,

viewing storytelling as central (Beck, 2021). In the case of practicum and the use of digital technologies, narrative interviews that focus on lived experience create space for the pre-service teacher to share not just how they used digital technology but navigated the unexpected, use agency or lose agency, and understand their autonomy (Henry, 2016; Roumbanis Viberg, 2023; Yuan et al., 2019).

Narrative research underscores both the significance of the narrative itself and its construction process. In this way, narrative theory goes beyond just the researcher thinking about the narrative to thinking with the narrative. Thinking with the narrative rather than thinking of the narrative as an object allows the researcher to develop a relationship with the narrative as it unfolds, which changes the researcher's understanding (Clandinin, 2013).

Focusing on lived experience allows a responsive understanding of these experiences to emerge through the pre-service teacher eyes representing a lens into how they see and interpret the socio-technical experience of practicum. This lived experience represents their interpretation of how, in their own words, they confronted challenges, negotiated new learning and made decisions about digital technologies (Rossman & Rallu, 2017; Yuan et al., 2019). Williamson et al. (2019b, p. 90) argue that a research design that "seeks to include the participant as a co-producer of the research, rather than just as a subject, opens the door for the research to explore the "wider context of digital cultures and lived experience". The narrative of the pre-service teacher represents an insider perspective that traditional scientific outside-in methods often miss or marginalise (Elbaz-Luswich, 2012; Koole & Parchoma, 2013; Tomlinson & Jackson, 2019). Narrative responses suggest there is much that ITE can learn from the voice of pre-service teacher lived experience and that it is essential to include lived experience as part of a broader discourse that includes rather than excludes what has been learnt from pre-service teachers (Goodson et al., 2010; Goodson, 2013; Koole & Parchoma, 2013; Merriam & Tisdale, 2015). This research suggests that for ITE

providers to find a better way to help pre-service teachers navigate digital identity formation, their own digital story or narrative during practicum is central to this (Goodson et al., 2010; Goodson, 2013; Meriam & Tisdale, 2015).

Micro-Narratives

Narratives of lived experience do not represent a grand narrative but the participants' micro-narratives about their lived experiences and evolving relationships with particular phenomena. This research project does not explore a grand digital narrative but rather the digital micro-narratives within and between pre-service teachers during practicum. As I commenced this research, Lyotard's (1979) critique of grand narratives and the assumed reliance on grand narratives to explain everything was an important concept for how I understood digital policy. I began to use the term micro-narrative to describe narratives that represent small yet important fragments of how individuals' everyday acts and emotions influence their identity (Daiute, 2014). Micro-narratives are a snapshot of an unfinished narrative in which the pre-service teacher continually constructs, deconstructs, and reconstructs (Biesta, 2013a, 2017; Goodson et al., 2010). Garvis (2015, p. 1) posits that these narratives refer to "...the way in which individuals represent and make sense of past experience, evaluate experiences in the present and plan and anticipate future experiences".

The messiness of lived experience points to a reality where digital identity cannot be understood as a singular narrative, as the lived experience involves multiple, messy, divergent and variable personal, contextual narrative experiences. Selwyn et al. (2020) argue that storytelling is crucial as it can contribute to a collective understanding of digital education and support educators in resisting having their identity shaped for the future vision of an ascendant narrative. Narrative storytelling has the potential to create alternative visions of digital identity that include rather than exclude the lived experiences of the pre-service teacher (Selwyn, et al., 2020). Mutch (2023, p. 4) describes micro-narratives as "data with a soul". Creswell and Cresswell-Baez (2021,

p. 561) suggest that narrative research “captures everyday normal forms of data that are familiar to individuals”. Narrative data can disrupt policy-driven biases and promote a more human-centred dialogue. Pre-service teacher narrative is a counter to ‘ification’ in that its coherence can balance the misinformation presented by data-driven approaches (Biesta, 2013a, 2017, 2020a, 2020c, 2021b; Frankfurt, 2005).

The perspective of pre-service teacher micro-narratives, in contrast to regulatory frameworks, can reveal practical realities in educational discourse. These practical insights reframe pre-service teacher narratives as significant contributors worthy of recognition (Creswell & Creswell-Baez, 2021; Kuntz, 2015; Majoko, 2016). Narrative research reveals that participant stories are relevant and valuable sources of knowledge; they deserve to be heard, they contribute to the research and can further participants’ growth through the narrative research reflective process (Creswell & Creswell-Baez, 2021; Kuntz, 2015; Majoko, 2016). The power of narrative research was reflected in Toloake final comments. These comments reveal that she wanted her voice to be heard. Toloake changed her pseudonym from Elizabeth to Toloake, noting, “Theres heaps of Elizabeths, but you know what, there are not many Toloakes in the world, so I’d like to take that”.

Narrative Coherence

The narrative coherence that emerges from the micro-narratives of pre-service teachers is powerful as these micro-narratives have the potential to shift the balance of the discourse away from a technocentric reductive understanding to a broader, more inclusive understanding (Beijaard & Meijer, 2017; Hamilton & Pinnegar, 2013, 2017). The open dialogue of multiple narratives enables these narratives to be overlapped around a shared phenomenon from multiple participant perspectives; the overlapping allowing threads of connection to emerge in which common connections emerge from across the different narratives (Cohen, 2017; Garvis, 2015). Garvis argues that this creates a structure of collective rather than individual meaning and that this meaning

can be used as an alternative power structure that will be strong enough to speak back against ascendant narratives. With micro-narratives presenting multiple insights into specific socio-technical connections, perceptions, and interpretations when they are analysed together and overlapped, a sense of narrative coherence emerges where multiple voices join together to create a powerful counter-narrative within an existing discourse (Beijaard & Meijer, 2017; Cohen, 2017; Garvis, 2015; Gray, 2018). Narrative coherence is fundamental to understanding collective identity, as they reveal when the participant narratives are overlapped, how common understandings emerge across multiple messy participants' journeys about how participants make sense of the world, relate to the world and build relationships to make progress (deMarrais et al., 2024; Schutt, 2017).

This methodology allows the researcher to amalgamate diverse intersecting micro-narratives into a cohesive "harmonisation of learning, identity and agency" by overlapping them (Goodson et al., 2010, p.129). Attaining narrative coherence is essential, as it can shift the discourse in ITE from being dominated by an ascendant narrative to a more inclusive conversation (Beijaard & Meijer, 2017; Pinnegar & Hamilton, 2017).

Conclusion

The objective of this chapter has been to outline how an obstinate methodological approach can create the space for pre-service teachers lived experience of digital technologies in practicum to inform the discourse concerning digital identity within ITE. An obstinate approach allows the researcher to question and challenge ascendant narratives. By following an open and inductive qualitative methodology, new wisdom emerges organically from the lived experiences of the pre-service teacher narratives. This wisdom shifts understanding from an outside-in perspective to one that is inside-out and prioritises participant narratives over pre-determined theoretical frameworks. Of significance to this methodology is the ability to listen as authentically as possible to

the micro-narratives of pre-service teachers. These micro-narratives alone offer unique insight, but when overlapped for coherence, show how pre-service teacher voice can contribute to reshaping the discourse on pre-service digital identity formation in ITE. Not only does this methodological approach provide a counterbalance to traditional theory-first approaches to research but reveals a much richer and deeper understanding of pre-service teacher digital identities that includes rather than excludes narratives of human experience.

Chapter Five: Research Design

Introduction

This chapter outlines the research design and method developed to explore participant lived experience with digital technologies during practicum and how these experiences shaped their understanding of digital identity. The research design adds an inside-out narrative using the micro-narratives of participants. These narratives reveal multiple interpretations of the messiness of digital technologies' relationship between pre-service teachers in practicum contexts and the discourse. In an era where data increasingly predicts, measures, and determines educational progress it is important new methodologies and insights emerge that allow the messiness of everyday human experiences to also present insight. The design of this research seeks to critique the datafication of education decision making by revealing insight from the voice of participant lived experience. This insight is not new but often excluded or marginalised by data-driven approaches. Lived experience holds important insight and if this voice can break the fourth wall of research convention has the potential to broaden and humanise the discourse concerning digital technologies integration within education and the nature of the digital identities pre-service teachers require. In film, the fourth wall is "an imaginary wall that separates the audience from the action of a stage play for film, which is said to be broken when an actor talks directly to the audience or starts talking as themselves rather than their character" (Cambridge Dictionary, n.d, para 1). In this research project, breaking the fourth wall is a metaphor for when pre-service teachers speak from the context of their lived experience into the discourse surrounding and observing the development of their professional identity. The voice of the pre-service teacher, if allowed to speak, presents narratives that provide a richer and deeper understanding of digital identity. The narratives are important as they create multiple understandings of digital identity, revealing the limitations of the

orthodox position that seeks to qualify digital identity as a universal set of pre-determined competencies.

In the first section, the initial research design, its limitations and its unsuccessful implementation and recruitment during Semester 1, 2021 is examined. This section deals with the impact of COVID-19 on educational research and the insight responding to this challenge presented for gathering the lived experience of pre-service teachers. The second section outlines ethics of how the research was redesigned in response to the COVID-19 pandemic and the lessons learnt from the unsuccessful first attempt at recruiting participants. The third section develops why interviews were used to gather pre-service teacher participant lived experience of digital technologies during practicum. The fourth section outlines why semi-structured interviews were chosen to gather the participant narratives after their practicum experience. The fifth section examines how the recruitment process for participants for the second research approach was undertaken and how the narrative interviews were conducted. The focus of the final section is on how the participant narratives were analysed, turned into micro-narratives, and analysed again for narrative coherence, which is later presented in Chapter Ten.

Table One: Research Timeframe

Semester 2 2020	Initial research design and ethics approved
Semester 1 2021	- ECE, primary and secondary pre-service teachers invited to take part via student notice board. - New Zealand enters COVID-19 Level 3 Lockdown Feb 14 to Mar 7, 2021. - Participation uptake affected by COVID-19 impact on pre-service teachers and ITE.
Semester 2 2021	Research design redeveloped and ethics approved
Semester 1 2022	- ECE, primary and secondary pre-service teachers invited to take part via student notice board. 11 participants undertook practicums in ECE, primary and secondary schools from March to May 2022.

	Semi-structured interviews take place 7 May 2022 to 4 June 2022.
Semester 2 2022	- Semi-structured interviews are transcribed, checked with participants and analysed. - Micro-narratives are written and are checked by participants.
Semester 1 2023	- Micro-narratives are overlapped allowing key themes to emerge. - Key themes are presented within discussion and findings.

Initial Pre-Covid 19 Pandemic Research Design

The initial design for this research was developed before the COVID-19 pandemic. The research design aimed to use two main research tools, social media and semi-formal focus group interviews, to gather data on pre-service teacher narratives on the use of digital technologies during practicum. The choice to use social media for the first stage was because social media had emerged as a research tool with the potential to engage the fluid and liquid reality of the socio-technical space and the identity formation that occurs in these spaces (Aresta et al., 2015). Social media has been used within the broader context of education and the specific space of practicum to explore the digital narrative of the pre-service teacher (Wright, 2010, 2011).

The initial data gathering for phase one of the research was interrupted by the shift of Auckland to alert Level 3 from Feb 14th to March 7th, 2021. The initial data-gathering phase was intended to occur during practicum in Semester One 2021. The COVID-19 pandemic lockdown began at the beginning of the academic year for ITE students. The survey had been released via the ECE and Primary Programme Leaders via their respective notice boards. However, it was decided to delay the release with the Secondary Programme Leaders until clarity around national COVID-19 alert levels and their restrictions were known. This was important to the Secondary cohort as the pre-service teacher's first practicum experience was in March rather than April/May for ECE

and Primary. The School of Education and Programme Leaders guided the decision-making concerning ethics.

The unpredictability of COVID-19 and the design of the three-phase research approach caused recruitment problems as a consequence of the initial research design not being compatible with the reality of COVID-19 restrictions. COVID-19 disrupted the gathering of phase one data as potential participants had other foci and realities that needed prioritising. Prospective participants saw the three-phase process as too complicated, controlled and restrictive. The design lacked the flexibility to shift with the unpredictable influence of the COVID-19 pandemic on ITE, particularly the practicum element that this research seeks to explore. While the daily commitment was minimal, the commitment to regular input over an extended period, using three different data collection tools in a time of uncertainty, was a potential barrier for many participants.

The COVID-19 pandemic changed the educational landscape for ITE and research. Participant response was underwhelming, with only 10 pre-service teachers completing the initial Phase One survey that was emailed to all the providers ECE and Primary pre-service teachers and 1 pre-service teacher indicating that they were willing to participate in Phase Two. These results impacted the quality of the data gathered and prevented the recruitment of participants from further progressing. The lack of participants impacted the quality of the data gathered in Phase One and prevented the recruitment of participants to begin Phase Two. The questions that resulted from the initial data collection attempt concerned: how data can be better collected in a COVID-19 context and in a way that the research project would be of interest to and benefit the participant. The research design also needed to be adaptable to any potential COVID-19 disruptions and cause the most negligible potential impact on participant wellbeing and their study pathway.

Table Two: Research Design Comparison

Pre-COVID-19 Initial Research Design		Adapted COVID-19 Research Design	
Three Stage Research Design	Data Analysis	Semi-Structured Interview	
- Online Survey - Closed Social Media Group - Focus Group			
Stage One: Initial social media survey to all School of Education students • Identity participants. • Identity social media platform to create closed groups for narrative gathering during practicum. • Participant selected. • Social media platform for closed group selected. • Online participant meeting to discuss the project.	<i>A Qualtrics survey gathers data and provides both qualitative and quantitative metrics for analysis, using participant voices to guide decision-making.</i>	Stage One: Initial Survey • Identify participants and gather contact details. • Participants receive a follow-up email and focus questions.	<i>A Qualtrics survey gathers data and provides both qualitative and quantitative metrics for analysis, including gender, age, ethnicity, and education course being studied and how far through this course the participant was.</i>
Stage Two: Closed social media groups • Throughout practicum, participants upload experiences with digital technologies. • Probes used to generate and stimulate discussion.	<i>Data in the form of social media threads is analysed in the moment by the researcher. The researcher identifies key themes and quotes.</i> <i>Threads become transcripts for ongoing analysis.</i>	Stage Two: Pre-Practicum Online Interview • Oral Consent discussed • Procedure discussed • Questions answered	

Stage Three: Post practicum semi formal focus group (Wood, 2012) Participants collaborate in a focus group post-practicum where key themes that emerge from the social media group data are used as prompts to continue collaborative building of understanding.	<i>The researcher analyses data during the focus group by writing key points in a notebook as collaborative discussion takes place.</i> <i>Transcript of the focus group is transcribed for thematic analysis.</i>	Stage Three: Post-Practicum Semi-Formal Interview 1 hr interview conducted at a time of the participant choosing. - Participants asked initial background and identity questions. - Invited to share digital experiences of practicum. - Focus questions are used to probe depth if required. - Participants asked if there was anything they had expected to be asked but were not.	<i>The researcher analyses data during the semi-focused interview by writing key points in a notebook as the conversation takes place.</i> <i>The transcript of the interview is transcribed for continued thematic analysis.</i>
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Redesigning the Data Gathering Method During the COVID-19 Pandemic

The research team redesigned the data-gathering tool based on the feedback from the first attempt at the survey. The digital reality for pre-service teachers became one where digital technology had become foundational to their readiness to enter the profession (Selwyn et al., 2025). The reality of 2020 and 2021 shifted the goalposts significantly regarding the digital experiences and contexts pre-service teachers encountered during that period. These digital experiences and contexts had the potential to yield rich and informative narratives. The COVID-19 reality also placed immense pressure on participants and contexts, creating anxiety and time pressures that make traditional research approaches increasingly complex to engage with when participant wellbeing was at the forefront of ethical decision-making.

A new research protocol was needed to enable a response to change brought about by how COVID-19 had already impacted pre-service teacher ITE and practicum experiences. It was important that the research protocol allowed each participant to have an increased level of agency in decision-making concerning the timeframe of how their information would be shared. This was necessary because each participant's experience of COVID-19 during practicum presented a reality involving unique responses. Digital technologies and practicum experiences during lockdown were dependent on the practicum context; some participants were out of practicum and isolated according to Ministry of Health guidelines after catching COVID-19, while others had ATs who missed extending practicum time due to contracting COVID-19.

The research design, data collection, and analysis structure were developed for an approach that used semi-structured interviews rather than the fixed framework of an online survey, commitment to social media groups, and then participation in an online focus group (Merriam & Tisdale, 2015). A new interview protocol was developed, enabling the provision of informed consent and respecting the privacy of the participant (Atkins & Wallace, 2012; Brinkman, 2023; Edwards & Holland 2013). Privacy was important as education contexts are a sensitive area of study that could involve both pre-service teacher critique of ITE provision and specific practicum context. All efforts were made to keep the privacy of individuals and contexts safe (See Ethics Appendix).

The new recruitment protocol allowed participants to contribute rich, detailed narratives within an adaptable data collection timeframe, with increased flexibility and less overall time commitment for the participant.

This new research protocol included:

- New letter of permission from the Head of the School of Education
- New participant recruitment
- New participant consent form

- New participant information form
- New recruitment and data collection timeframe
- New ethical guidelines for the audio recording of interviews [See Appendix Two for new research protocol forms and tools]

The amendment aimed to refine and streamline the data collection protocol and make it more transparent, flexible, and responsive for the participant. The reality of COVID-19 and the unpredictability of the pandemic impacted educational contexts and participants illustrate that it was crucial to develop a flexible recruitment process that responded to potential changes and that allowed the participant to control decisions about how and when the data was collected.

The initial data collection protocol of a three-phase online survey, with closed social media groups and focus groups, was replaced by a single semi-structured interview. Interviews were chosen as they provided flexibility for the participant and researcher. They also offer an adaptable research mechanism that elicits narrative depth within a limited amount of time (Galletta, 2013; Merriam & Tisdale, 2015). Interviews also allow for detailed and specific exploration of participant experience, practices, value positioning and expectations that other forms of qualitative data gathering do not (Cohen et al., 2018; Creswell & Creswell-Baez, 2021; Creswell & Guetterman, 2021; Edwards & Holland, 2013; Gray, 2018; Miles et al., 2020; Savin-Baden & Howell, 2023; Schutt, 2017; Winwood, 2019). Rossman and Rallu (2017) posit that interviews allow for a flexible, in-depth focus enabling the understanding of phenomena from an individual perspective, through interpreting events and experiences through the generation of rich descriptive data that not only enables the researcher to learn more about the research concept and context but also enables the researcher to learn how the participants thinking is shaped.

Rossman and Rallis (2017) promote the value of a research design in which narrative interviews occur across three interviews. The first covers the participant's life story and,

the second, the participant's orientation toward the phenomena discussed. The third engages the participant's reflective interpretation of the phenomena. The design of this research project focused on one in-depth interview in which all three elements of the narrative interview design were included within one extended interview rather than through conducting three separate interviews. Semi-structured interviews are seen as a practical approach when there is only time to conduct one interview (Savin-Baden & Howell Major, 2023). The decision to go with one rather than three interviews was prioritised because of the time and ethical constraints that COVID-19 imposed on pre-service teacher's overall wellbeing and the lack of participant response to the initial research design, which included extended interaction. The interview structure incorporated the three stages in a singular semi-structured interview. Firstly, the participants connected to their life story and their use of digital technologies before entering ITE; they were then prompted to discuss how they engaged with digital technologies during practicum, after which they were further encouraged to share their understanding of digital identity as a consequence of these experiences (Rossman & Rallis, 2017).

The data collection interview took place after a practicum experience in Semester One, 2022, at a time and location (in person or online) decided by the participant. With the reality of COVID-19, potential participants needed to have as much control over the phases of the project that they would be actively participating in. While participants chose the timeframe for the data collection interview, they could change the interview time and location depending on their situation in relation to COVID-19 and could decide if the interview should take place onsite/in person at an onsite provider location of the participants choice or via Zoom. The use of semi-structured interviews also allowed the participant to reflect on the areas that explored and shaped their narrative such that their thoughts would reflect the reality of their own experience and context (Galleta, 2013; Savin-Baden & Howell, 2023).

The interview questions were designed to explore participant perceptions of practicum as the context in which they have to mediate the multiple, messy realities and perceptions of what it means to become 'digital' and engage with digital technologies (Selwyn, 2021). The interview questions were guided by the critical question, "[w]hat can we learn from the narratives of pre-service teachers to inform the discourse in ITE about how practicum contributes towards the formation of their digital identity?" This learning reflects the insights of pre-service teachers in Aotearoa New Zealand, who have not only negotiated life in a digitally connected age but who have also learned how to teach using digital technologies and according to the new digital curriculum.

The information sheet sent to participants included potential areas of focus for the interview (see Appendix Two). The participants used these focus areas to guide their reflections on this crucial question, and the researcher used them during the interview to assist the participants in telling their stories. The focus areas were designed to be open prompts that allowed the participant to authentically tell their story. This allowed the narrative itself and the researcher's findings to emerge from the participant's perspective and interpretation, which was stimulated during the practicum and also shared during the interview. When shared during the interview, these narratives present a unique lived perspective and, when analysed alongside others for narrative coherence, they can create a strong human-centred understanding of the digital experience of practicum and how it contributes, in the pre-service teacher own words, to the formation of their digital identity (Beijaard & Meijer, 2017; Garvis, 2015).

The Use of Semi-Structured Interviews After Practicum

Semi-structured interviews were chosen as they provided the best method for creating space for participants to authentically focus and share their narratives (Cohen et al., 2018; Schutt, 2017). Semi-structured interviews are regarded as a form of data gathering in which it is easy to get participants to share information as this method is sympathetic to the task of revealing their own stories (Savin-Baden & Niekerk, 2007). It

is a form of interview where questions guide the interview rather than dictate its direction (Bold, 2012). This guided orientation of inquiry allows the researcher the flexibility to follow the participant's line of interest while maintaining the original research focus. Such an approach creates the optimum space for new participant-driven insight to emerge (Bold, 2012). Semi-structured interviews also provide in-depth data, as the response of the data and the specific experience they provide are often rich and detailed. Having the semi-structured interview at the conclusion of practicum also facilitates in-depth narrative collection, as participants do not just reveal their experience but can also, in processing it after practicum, develop further critical self-reflection and interpretation (Savin-Baden & Niekerk, 2007).

After the practicum context, the semi-structured interview created the space for participants to share how their perception of digital identity has been shaped by the practicum context. Semi-structured interviews that are controlled by the participant allow them to share their experiences of identity tension, managing the tensions between expectation and reality, and encounter contextual differences (Levy, 2019; O'Reilly & Kiyimba, 2015; Schutt, 2017). Semi-structured interviews effectively allow the researcher to holistically and contextually engage with the participant's story or journey. By engaging with a broader understanding, the researcher can better understand the digital experiences of participants and the meaning they make out of these experiences (Gray, 2018).

Semi-structured interviews that use an open, inductive qualitative design to gather narrative data suit the ever-changing transformation of educational spaces, relationships and experiences (Hooley, 2007; Rossman & Rallis, 2017; Squires, 2023). The nature of the interview means that open-ended questions can be asked, and the participant can provide an open-ended response, which takes the interview in the direction they want (Josselson, 2013). It also both allows the participant to partner in the research project, and for in-depth exploration of their experiences and perspectives

to emerge. This socio-constructivist emphasis on co-generation of understanding enables lived insight into a direct relationship between digital technologies and the pre-service teacher's context, meaning into the values, emotions, and contextual factors that are both interwoven and influential (Witt, 2010).

The researcher asked each participant to share their experience and direct the discussion during the semi-structured interview. Initially, the researcher invited each participant to share what motivated them to become a teacher. The aim of this question was to get the participant to talk about themselves and see themselves as the centre of the discussion. Then, the participant shared how they used digital technology in their everyday life, opening for the participant to share how they expected to use digital technology in learning how to become a teacher. The researcher further probed each participant's response to gain insight into their practicum experience with digital technologies and how this shaped their understanding of digital identity. To guide the conversation, the researcher used probes based on the initial focus areas. At the end of the interview, the researcher also asked each participant a final question: Did they have any questions they had expected but weren't asked? The researcher then asked these questions, which created a space for the participant to share additional insight they had reflected on as part of the process.

Recruitment and Narrative gathering

Once ethics approval had been granted for the redesigned research method, participants were recruited from an Aotearoa New Zealand ITE provider with several campuses. Recruitment began by sending a participant invitation email to all ECE, Primary and Secondary pre-service teachers at the ITE provider. The potential participants were enrolled in Semester 1, 2022 undergraduate, graduate, and postgraduate degree and diploma programs that lead to a teaching qualification. The researcher sent an introductory email with a survey link to the Heads of the ECE, Primary and Secondary programmes at the ITE provider, who forwarded these out to

the pre-service teachers in the courses they supervised. The email and survey-link outlined the research, and included the informed consent, the research rationale and progress, and how participant's privacy would be protected. As part of the initial survey, potential participants who had previously studied at my ITE employer or who were being taught in Semester 1 2022 by either of my PhD supervisors were excluded from the research process. Participants could then choose to proceed with the recruitment-survey or not.

The recruitment-survey collected participant data and invited participants to one-on-one semi-structured interviews after they had completed a Semester 1 2022 practicum. The recruitment-survey also collected demographic data from the participants who expressed interest in participation. The demographic data included their ITE programme, year of study, age group, gender and ethnicity. The survey also gathered the pseudonyms they wanted to be known by for communication and research. The survey finally collected the email via which all communication would occur with the recruited participants (see Appendix Two). Sixteen pre-service teachers responded to the invitation and completed the initial survey. This meant that all prospective participants who volunteered to take part in part two of the narrative interviews were approached with an invitation to participate in the semi-structured interview phase of the research.

The 16 potential participants were emailed an introductory email containing both a request to reflect on potential focus areas during practicum and the consent forms (See Appendix). The potential focus areas were essential to supporting the pre-service teacher in recognising moments of interaction with digital technologies during the lived experience of practicum and when reflecting on how this interaction influenced their digital identity (Seidman, 2019). Thirteen participants responded to the invitation email by returning their consent forms. After their recruitment, the researcher sent email correspondence to the participant using the participant's pseudonym for the purpose of

setting post-practicum Zoom interview times that suited the participant. A week before the Zoom interview, an email was sent with the Zoom link, confirming the time of the interview and providing privacy information. Of these 13 participants, 11 responded and completed the interview using Zoom. The interviews took place with screens off to protect the participant's privacy, with the researcher limiting himself to using the participant's pseudonym. The two participants who did not participate in the interviews after being recruited did not respond when emailed to schedule an alternative time after not coming online at the time of their initially scheduled interview.

For the 11 recruited participants who shared their narratives, the semi-structured interview began with questions concerning informed consent and an outline of the interview process. The semi-structured interview prompts were designed to encourage participants to share their stories and allow them to choose the focus they wanted to emphasise and develop in-depth responses and interpretations of their digital experiences of practicum (Edwards & Holland, 2013). The semi-structured design allowed the lived experience of the pre-service teacher during practicum with respect to their interpretation of experiences, practices, value positioning and expectations to authentically emerge (Cohen et al., 2018; Gray, 2018; Schutt, 2018; Winwood, 2019). The opening questions aimed to gather the participant stories, put the participant at ease, and facilitate the beginning of an in-depth conversation. These background questions were then connected to more specific questions to draw out the story of each participant's digital experience during their practicum. The questions were open, allowing the participants to focus on what was important to them such that they could control the direction of the conversation. The researcher focused on listening and taking field-notes during the conversation so that this data could later be connected to the transcript when it was read (Creswell & Creswell-Baez, 2021; Creswell & Guetterman, 2021; Elliot, 2020; Miles et al., 2020). Probes were used to get participants to thicken their responses and give more information. They were also used

to get participants to elaborate on their story when they began to move the conversation off on a tangent (Creswell & Creswell-Baez, 2021). After the interview, the participants were invited to share anything they still needed to share and also asked if they expected to be asked questions that were not asked. If participants noted a question they expected had not been asked, they were prompted to give their response to this question. At the conclusion of the interview, the transcription process was discussed with the participants and how, after the transcripts had been drafted, they would have to provide feedback on the narrative, the transcript, the accuracy of both, how the information was interpreted and if they wished to exclude any information.

After the interview, the researcher conducted a reflective appraisal of the process to feed-forward into the following interview and identify critical elements from the field-notes that could be cross-checked with the transcripts during the data analysis stage of the research. After the interview process, which was extended as 2 participants contracted COVID-19 and could not be interviewed at the scheduled time, the completed audio from the interviews was transcribed. These transcriptions were then emailed to the participant for checking. The transcripts formed the raw narrative data that was analysed and then used to write the participant's micro-narratives.

Turning Narrative Data into Micro-Narratives

The participant data analysis focused on a thematic approach (Braun & Clarke, 2006, 2017, 2022; Squires, 2023; Terry et al., 2017; Terry & Hayfield, 2020). A thematic approach was chosen as it allowed for the key themes from each participant narrative to be drawn out in conversation with the researcher and contribute to the formation of a unique micro-narrative (Braun & Clarke, 2022; deMarrias et al., 2024). The thematic approach used allowed the researcher to identify themes that emerge within narratives and examine how these themes connect to specific experiences that include the relationship between the participant and a phenomenon within a specific context (Bold, 2012). The micro-narrative being the pre-service teacher's story about how they

understood and interpreted how their digital experience during practicum contributed to their evolving understanding of the digital identity that they would need to have as a teaching professional.

The first stage of the data analysis focused on familiarisation with the data through engagement with the participant narrative transcripts, and generating initial codes and developing initial themes (Braun & Clarke, 2006, 2017, 2022; Squires, 2023; Terry & Hayfield, 2020). The data analysis process began in the semi-structured interview with the researcher using a notebook to capture key ideas, reflections and questions that could then be returned to during the analysis of the transcripts. In this notebook, the researcher recorded while they interviewed the participant in-the-moment key quotes that stood out and highlighted key areas that provoked thinking or prompted them to find out more. The researcher used these highlights to probe and add more depth to the participant's conversation

After the interviews, the transcripts were then read in-depth, with the focus being on specific sections and revisiting initial coding and developing ideas and connections in more detail. A key element of this was reading around the section that contained the theme to ensure that the understanding of the code and how it was connected to the wider narrative was understood (Bold, 2012). These initial codes included key relationships, phrases and words that emerged from the narrative. Grounded theory influenced in part this approach to coding as the codes emerged from the initial reading of narrative data (Bold, 2012; Charmaz, 2006, 2012). These codes were written down the side of each transcript during the initial reading of the transcript, which was done in full.

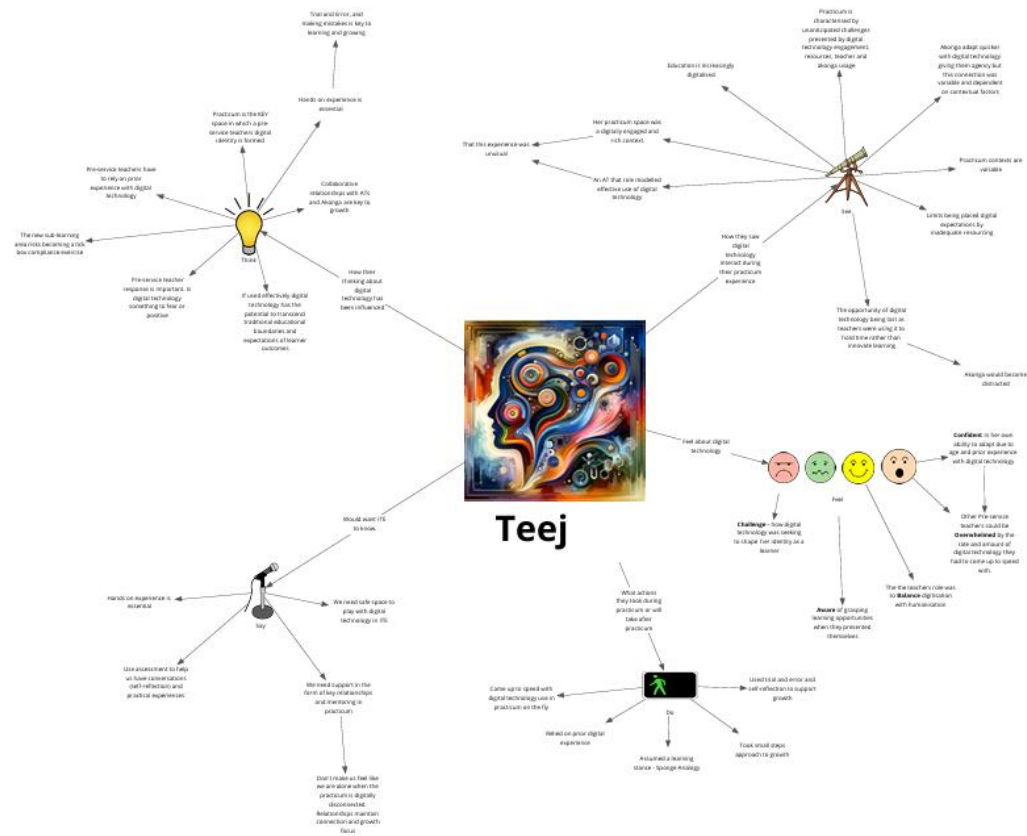
The key underlying focus was reading the participants narrative in their own words and trying to draw from this the single most important insight or message that they wanted the reader to take away from their conversation. This approach allowed the researcher to focus on the narratives and stay true to the authentic voice they wanted to

communicate. Using quotes in their exact form ensured that they reflected the theme that was identified by the researcher. This process involved identifying key quotes that represented crucial themes. The researcher used different coloured pens to highlight quotes and make notes in the margins. These notes identified key ideas and potential themes that were emerging. This coding allowed for separate areas of a narrative to be connected within wider themes that emerged.

The aim was to continue the dialogue that had started in the online semi-structured interview with the transcript of the interview. I imagined myself in conversation with the participants. As I read their words, I continually asks myself the questions, “what are they trying to say” and in says this “what does this mean for me as the researcher who is trying to tell their story”. This involved making notes in the margins of the transcript, not only identifying themes and key quotes but also writing in the questions each participant response had generated.

The decision was made not to use software such as NVivo for the analysis to ensure that the researcher’s relationship with interpretation and understanding of the emerging micro-narrative was as authentic as possible. A key element of the research analysis was reading each narrative several times to let the data incubate and allow for new themes that may previously have been missed to emerge. This incubation process included re-examining the field notes taken during the interview and reading the transcripts to deepen understanding of the data and make connections (Rossman & Rallis, 2017). The analysis during stage one focused on inductive coding in the form of descriptive, direct quote and concept codes that focused on allowing the voice of participants to speak (Cresswell & Baez, 2021; Miles et al., 2020). This analysis aimed at lean coding with a continual rereading of the transcript with the intention of collapsing the codes until only a few codes emerged as key themes.

Image One: Lean Coding Diagram of Teejs Micro-Narrative.



The image above is the visual diagram that resulted from the researcher's analysis of Teej's narrative. The key themes were refined and collapsed until the major themes that Teej wanted to share emerged. These became her story in the micro-narrative and included the quotes that constantly stood out within reading and break the fourth wall to connect the reader to the emotion and humanity Teej conveys.

At the end of this first stage, the micro-narratives were written up. This was done using the coded transcripts to develop diagrams of the key themes and included quotes that represented the participant's authentic voice and interpretation (see example of Teej above). Once the key themes in each narrative were identified, coded and diagrammed, the researcher wrote the micro-narrative of the pre-service teacher's practicum experience of digital technologies with a specific emphasis on allowing the

participant's voice to break the fourth wall and speak directly into the discourse. The aim was to create succinct narratives by stripping away excess detail and preserving the core message. Quotes and narrative voice were woven together to create a coherent, readable flow that reflected the messiness of participant experience and the central themes that emerged. In choosing whether to include a direct quote or use narrative voice to convey the participant understanding, a range of factors was considered. First, did the quote genuinely represent the theme being discussed? Camila contemplated how ECE teachers were under pressure to use digital technologies, but this created tension between its use being a tick-box exercise or a catalyst to capture authentic learning. For Camila this raised an ethical question about how digital technologies were being used to communicate learning with parents. Two quotes from Camila were chosen that reflected each side of this theme first her contemplation,

That the teachers were behind in writing up learning stories for their children that they were documenting the learning on, so taking a photo of them doing an activity was one way to sort of tick the box to say yup, I've done this task, it's complete, and I don't need Ministry of Education breathing down my neck when ERO comes and does an external review or something like that.

The second her experience from her most recent practicum where digital technology was integrated to capture learning as it happened.

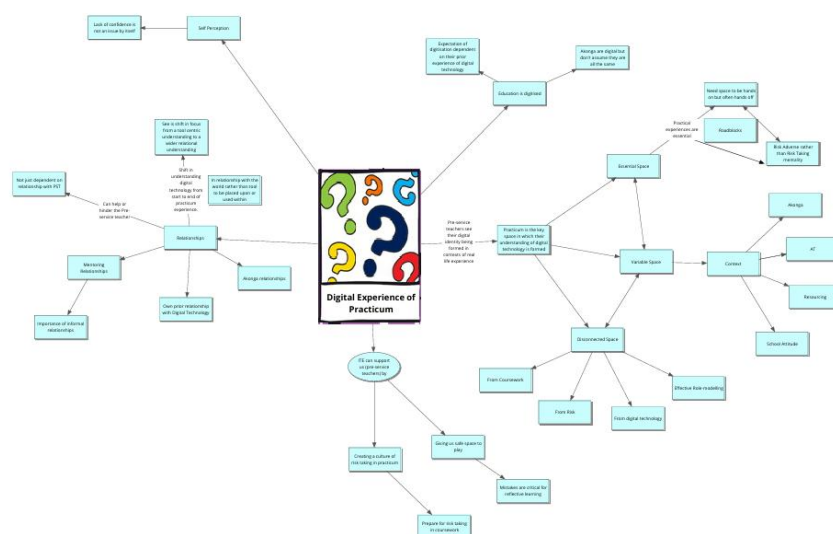
On practicum that I've completed, teachers would set up – they'd have an intentional teaching plan and take a photo without the child knowing that the camera was there. They're not telling the child, look, sit here and do this so that I can take a photo. They're engaging with the children in a small group, and then while the children are focused on the task, the teacher grabs the camera and takes some photos without the child looking, so you can see the facial expressions on the child's face, you know, how focused they are, that they are intently say weaving paper to make a kete or otherwise.

These quotes reinforce not only the theme that was emerging from Camila's decision making but also given an indication of how it has shaped her thinking about how she will use digital technologies in her own practice moving forward.

Second, did the quote add illumination to the theme being discussed? For example, the use of Chester's description of experiencing student device use on practicum in the art classroom illuminates "the battle" that he encounters by sharing his observation that "in that 30 seconds that I turned my back, they've placed their phone, they've recorded, they've done their TikTok". Finally, did the quote add emotional resonance to the theme by not only bringing a sense of perspective but also in how they felt? For example, the use of Jane's quote when discussing her connection to digital technologies and gaming, "Even when I'm driving around, I'll be like, oh that's a really cool house, I'll look that up on Google Maps and make that on Sims, because I'm just a weirdo like that, always taking inspiration.", exemplifies the theme of how the digital world is now, simply for some people, an everyday part of the real world. These factors supported the inclusion of quotes that bring depth and emotion to the research in a way that highlights the human dimension of the data that was gathered. As each micro-narrative was written up, a cross-checking process with the original transcript and field notes was used to check the validity of the micro-narratives. The completed micro-narrative was sent to each participant to check for accuracy and to request the provision of permission to use the finalised research narrative in the writing up of the research.

In stage two of the data analysis, the raw data and the micro-narratives were analysed for recurring themes that connected the narratives and represented narrative coherence between the individual micro-narratives. These again emerged as diagrams that created a visual understanding of the overall picture that emerged from the conversation.

Image Two: Visual of Themes That Emerged From Overlapped Narratives



The researcher then again used lean coding to refine the emergent themes into a series of key themes that would be presented in the findings and discussion (Beijaard & Meijer, 2017; Braun & Clarke, 2006, 2017, 2022). While five key themes emerge from the narrative overlapping these simply represent the synthesis that emerges from the overlapped narratives in terms of the strongest and most connected voice. The themes of narrative coherence were re-coded, cross-checked for accuracy, validity, and consistency with the original transcripts and then reduced until five critical areas of narrative overlapping emerged. Rather than speaking solely from each micro-narrative, an approach that focuses on building micro-narratives into a coherent narrative allows the participants to speak with one voice. The choice of quotes to include in this element of the analysis was influenced by the voice that they gave the overlapped narrative and also the balance they provided to ensure that all participants had a voice and again all participants stories as part of the collective could break the fourth wall and speak into the discourse. This narrative coherence allowed threads of collective understanding to emerge from across the overlapped narratives. The strength of this collective coherence creates depth and breadth that allows the participant voice to break down the fourth wall from inside the practicum context into a decision-making discourse that

exists outside the practicum contexts where pre-service teachers are located (Beijaard & Meijer, 2017; Cohen et al., 2018; Garvis, 2015; Gray, 2018). The key threads of narrative coherence, that are drawn from across the micro-narratives, are presented in the Chapter Ten of this research project. They represent the threads of the pre-service teachers unique lived experiences that tie them together, giving their voice collective resonance as something that might enter the discourse about how participants interpret the formation of their digital identity during their practicum experience (Braun & Clarke, 2006, 2017, 2022; Squires, 2023; Terry & Hayfield, 2020).

Conclusion

This chapter presents a research design that offers an alternative to conventional research approaches that often emphasises the certainty of data over the messiness and unpredictability of human experience. The research design supports the exploration of pre-service teacher narratives of lived experience regarding their relationship with digital technologies during practicum in a way that reveals pre-service teachers have a voice and it is important for this voice to be heard within the conversation. The research design aimed to highlight how research about digital identities within ITE can shift from a data-driven theoretical approach to one centred in participant narratives. Early challenges in the research design stemmed from the impact of COVID-19 on participant recruitment and data collection. What emerged from its redevelopment was a less rigid approach using semi-structured interviews that allowed rich, authentic micro-narratives to emerge. These inside-out perspectives gave unique socio-technical understanding of how pre-service teachers experience digital technologies in practicum and how this shapes their digital identity. The research design highlights how overlapping micro-narratives can contribute to a collective voice that questions the common-sense of dominant, top-down policy and data driven narratives.

Chapter Six

Chapters Six to Nine contain the micro-narratives of the eleven participants who participated in this PhD research. These individual narratives represent rich, deep insight into how an individual pre-service teacher's relationship with digital technologies emerges during practicum and how these experiences shape their understanding of digital identity.

One of the first questions the participants were asked was, "What motivated you to become a teacher?" The motivation to teach drew particular narratives together into clusters of connection. These clusters represented diverse participants, contexts, and experiences connected by the motivation of either being born to teach, a desire to change careers, a desire to make a difference, or a desire to pass it on. Overall, the participant narratives show that learning to teach is not the result of a formula but the continuation of each pre-service teacher's life journey.

Born to Teach Narratives

Introduction

This chapter explores the narratives of pre-service teachers who feel born to teach. Many pre-service teachers enter the profession because of their intrinsic motivation to work and impact learners' lives. This intrinsic motivation represents a connection they have always felt to teaching (Buskist et al., 2005). The call to teach has always been part of their identity, providing them with a profound and meaningful sense of purpose (Hansen, 1996, 2021; Palmer, 1998). Teej, Lucy, and Sally provide narratives of pre-service teachers who perceive teaching as their inherent calling, a gift they were born with and want to share with others. They have developed this conviction themselves, others have seen it in them, or it has emerged as a realisation that connects their passions.

Teej is pursuing a graduate degree in Primary teaching. She seeks to empower learners and recognises the role of digital technology in enhancing learning outcomes. Her narrative highlights the necessity of the practical application of digital technologies and acknowledges a disparity between expectations and actual experiences among pre-service teachers. Teej discusses how her positive engagement with digital technology during her practicum fostered the formation of her digital identity.

Lucy is completing a Grad Dip Secondary. Her narrative incorporates insights from her prior experience teaching English abroad and homeschooling. Lucy's account reveals a dissonance between her anticipated digital experience and the realities faced during her practicum. Her understanding of digital identity evolves from specific technologies to recognising the need for adaptive competencies to navigate ongoing digital transformations. Her narrative explores how practicum settings nurture and constrain adaptation.

Sally is studying for a BEd Primary degree and is in her second year as an online student. Her story depicts a pre-service teacher re-entering the workforce post childcare. It illustrates a cautious approach to digital technologies, stemming from limited prior exposure and concerns about their impact on human interactions. Her narrative of cautious engagement illustrates her growth and underscores the significance of formal and informal support networks in growing her understanding of digital identity.

Teej's Narrative

This narrative unpacks Teej's subjective understanding of how ITE and practicum contributed to her emerging digital identity as a teaching professional. Teej loves being in a space where people can express themselves how they want. She loves to learn and share what she has learned with others. Teaching is her "niche in the world, which [she says] is an amazing feeling". Teej wants to create an inclusive learning space, saying "I've done a lot of study and just being able to shape the future of our Tamariki is

something that just sits very close to my heart and I'm very, very passionate about it". Practicum helped Teej realise "I am completely invested in this profession; I just absolutely love it". Teej feels empowered in the classroom, reflecting, "[i]t's a feeling like no other really... immersed in the environment and teaching our students. It's quite an empowering feeling".

Completing her MSc during the pandemic, digital technologies were an "absolute godsend." Zoom facilitated online lectures, creating a digital learning environment for all. However, Teej had mixed feelings about being a digital learner, both "loving" and "hating" aspects of it. She loved the adaptability of digital technologies in providing a platform to continue learning during the pandemic. She also recognised that these digital technologies presented drawbacks when learning online and conducting practical research remotely. Teej ultimately prefers in-person learning over online classes. She believes she thrives in person as she likes the hands-on experience and engaging in questioning without being hidden behind a screen. Teej considers being hidden behind a screen to pose a challenge. However, Teej persevered because she recognised her "super" adaptability and accepted that she could do nothing.

As an adept learner, Teej embraces the unfamiliar aspects of practicum. Exposure to the unknown facilitates her learning. When asked how the unknown did this Teej reflected, "That's why I love it so much because I am such a nerd". Teej then went on to say that she responded to unanticipated challenges by "researching and continuously trying new things or implementing new strategies". Teej felt such an approach equips her to tackle various obstacles effectively. Teej benefitted from a digitally enriched home setting that familiarised her with tools like Apple TV and Chromecast. This prior knowledge allowed her to integrate these technologies into her educational practice. Teej notes that "having that knowledge or practical use before going into the classroom has been very useful".

Teej had to learn primary learning platforms “on the fly” because she did not experience them in her primary schooling. Interaction with younger siblings helped Teej adjust. Teej recounted that her youngest sister was nine years younger than her. This meant that Teej “got to interact and engage with digital technology while she [her sister] was at primary school, which has definitely helped my practical application of it in the classroom”. This reflects Teej’s belief in the importance of hands-on and practical learning.

Teej believes in digital technology’s capability to meet the varied demands of education in classrooms in Aotearoa New Zealand. Digital technologies serve as an effective educational platform that transcends traditional boundaries. As a proponent of Universal Design for Learning (UDL), Teej recognises that digital technologies enable “students to find specific or individual specific ways to develop and advance their own learning and that it’s not a one size fits all.” Her practical experience with digital technologies has fostered a favourable perspective on its applicability for her pedagogical approach. Witnessing diverse applications of digital technologies has reinforced her conviction that digital technologies has the potential to be of “ huge benefit for teachers and the education sector”.

Teej observes that learners frequently adapt to digital advancements more rapidly than their educators. Teej saw learners assuming increased agency in the educational context. Teej observed this agency in learners using “a lot of shortcuts and tricks to hide things from us”. This resulted in Teej believing as a teacher that “students are always going to have the upper hand when it comes to technology, whether we like it or not, whether we acknowledge it or not”.

Despite the potential of digital technologies for diverse learners, Teej observes inadequate focus on enhancing learners’ learning with behavioural or learning challenges. In her observation, she has seen teachers rely on digital technologies as a time filler to occupy learners, so they won’t distract the learning of others or the ability

of the teacher to focus on other learning groups. She contrasts this with other observations where teachers effectively use digital technologies. When this happens, Teej has seen that digital technologies can significantly enhance learning outcomes for learners. With teacher guidance, learners can engage meaningfully with digital tools rather than merely being occupied with them.

Teej acknowledges the pivotal role of primary educators in shaping the future digital proficiency of learners. She emphasises the necessity of hands-on experiences with digital technologies. By establishing a practical foundation, primary teachers effectively support the learning of learners to be hands on themselves and have “practical experience with a whole range of different learning tools, learning strategies, which I think will be beneficial in the long run.”

Teej believes that the pre-service teacher’s personal mindset closely influences her ability to use digital technologies. A learning mindset of “just being a sponge” drives Teej to try and “soak up” as much information as possible. Teej wants to learn “practical ways” to implement digital technology. Teej believes access to more practical opportunities will allow pre-service teachers to observe both positive and negative uses of digital technology in practice.

Teej is critical of ITE coursework for lacking the need for practical experience in using digital technologies. She notes that there is minimal focus on digital technology implementation. She observes, “[t]here isn’t such a big focus on the implementation of digital technologies”. As a kinaesthetic learner, she finds her coursework overly theoretical. Teej desires more opportunities to practically apply theory. She views practicum as the primary avenue for learning about the digital realm. Teej believes her practical integration in school taught her more than university lectures and the literature she read, reflecting that “honestly I learnt more in the eight weeks that I was actually integrated within the school than I did listening to lectures or engaging with the literature”. Although practicum offers potential for practical experience, its effectiveness

varies by school and allocation. This variability poses challenges for pre-service teachers in utilising digital technology without adequate resources, “[i]f they don’t use digital technology, it is kind of hard as a student teacher to bring that in and fully immerse students if they don’t have the resources or experience”. Additionally, schools used their “own digital platforms...and then own way of integrating digital technology”.

Teej’s practicum experience significantly enhanced her understanding of digital technologies. Her practicum school effectively integrated digital technologies, facilitating Teej’s learning, leading her to say:

Way more about digital technology or about how classrooms work and how to apply different strategies to different learners. Also just being able to build that rapport with your students. You can’t give them or expect them to do something if they don’t have any buy in to what you’re doing.

Teej’s educational background shaped her perceptions of digital technologies. Teej expected to see digital technologies more integrated within educational practice, which was confirmed. Education has become more digitised, altering the teacher’s role and emphasising externally developed platforms. Teej noted increased access to devices, reflecting, “[t]he school that I was in, they had access to Chromebooks in every classroom and obviously the Chrome casting to the TV’s”. Teej observed that teachers now focus on digital technology setup and content creation, with lessons centred on content visibility, noting “a lot of our classes and lessons were based around putting up that content for them to see”. Learning has shifted towards platform-based methods, which is evident in the prevalence of Google tools. Teej also encountered unfamiliar apps like Google Jamboard, which learners could efficiently utilise.

Practicum enabled Teej to engage with educational technology platforms. These platforms enhanced her understanding of UDL, particularly Epic and Prodigy. They exemplified her perspective that digital technologies can facilitate personalised learning experiences and that “digital technology aren’t just one box”. The platforms accommodated diverse learning styles and helped learners improve their numeracy

and literacy after the COVID-19 lockdowns. Teej's practicum context provided her with a comprehensive digital education experience. This experience affirmed that access to such platforms enables teachers to employ varied pedagogical strategies.

Practicum offered Teej extensive resources for the cultivation of digital learning experiences. As a visual learner, she created and presented digital materials aligned with her learning preferences. Teej utilised Google Slides for resource development and Google Chromecast for distribution. She also participated in online poem blends, promoting collective reading in class. This exposure contributed to her understanding of interactive pedagogical approaches for various group sizes. Teej also facilitated oral language development through Mystery Doug, fostering engagement and debating skills among learners. She considers digital technologies vital for effectively teaching te reo Māori. Teej employed an online Māori dictionary for a "Five Plus a Day" activity, enhancing learner's pronunciation and encouraging thematic vocabulary exploration. Teej emphasises the necessity for "students to engage with digital technology." Intentional and differentiated engagement can mitigate the risk of learners losing touch with their learning. Teej actively initiates this process. In a Chromebook-using school, she used her iPad in various collaborative groups to effectuate "tiny bits of difference to hopefully enhance their learning experiences."

Teej acknowledges the potentially overwhelming nature of digital technologies for pre-service teachers and their ATs, stating, "Using digital technology can be daunting for long-term teachers". She perceives her role as infusing her digital fluency into the practicum, advocating for a tuakana-teina relationship:

New-age teachers coming through that have been able to interact with different types of digital technology. I know we're not completely au fait with all of it but just being able to hopefully produce that tuakana-teina sort of relationship with our PLM or AT.

Teej recognised this during her initial practicum and noted that “positive relationships can significantly impact interactions, highlighting the importance of mutual relational support”.

Teej perceives both her school’s emphasis on digital technologies and her digital proficiency influenced that her particular practicum experience. Each pre-service teacher’s engagement with digital technologies is inherently unique because of individual digital literacy and the specific resources available in each practicum setting. Teej notes that many educators, including those in her family, often find digital technology intimidating “because it’s so new and [because] the fear of the unknown does tend to tip a lot of people”.

Teej acknowledges the complexities inherent in educational digitisation. She observes that the dynamic nature of digital change presents substantial challenges for many individuals. Teej offers a distinctive viewpoint as a self-identified member of the digitally transformed generation. She emphasises the importance of incremental progress in building confidence and adaptability, stating, “[i]t just starts with small steps; you just have to start; that’s the hardest part”. This perspective is critical for addressing the challenges posed by digital technologies:

I think, for our generation or for these newer teachers coming through, we automatically become more adaptable because this technology is ever changing. It fluctuates every single day and we’re in that environment all the time, which is beneficial, I think, in the long run.

Teej compares the importance of te reo Māori and digital technology in Aotearoa New Zealand. Confidence in integrating incremental steps was deemed essential.

Embracing mistakes as learning opportunities can transform negative experiences into positive ones. Teej views these incremental steps as foundational for fostering connections with learners.

Teej did her practicum in a low decile school where many students were eager to engage with digital devices for recreational purposes. This introduces concerns regarding distraction, with Teej noting the ambiguity between educational and recreational use of devices. Teej identified, “There’s a fine line between having their own device because then there’s no line between education and recreation”. Teej perceives the unrestricted use of digital technologies as blurring the lines between education and recreation, necessitating teacher awareness. Teej posits that awareness represents an initial step for pre-service teachers to channel learners’ enthusiasm for digital technologies effectively. She uses the example of knowing what learners are engaging with online with apps like Roblox, which has the potential to enable teachers to transfer this usage and interest in educational practice.

Teej also sees developing collaborative relationships with learners as necessary when maximising the potential of digital technologies for education rather than seeing digital technologies as something to be limited or feared. Teej believes that digital technologies are:

...definitely the way forward because it’s everywhere and we can’t stop it and nor would we want to, to a degree, because it is developing our education. It just comes to creating those strong boundaries within the education system.

Teej asserts that digital technologies are now part of the educational landscape and should not serve as a rationale for inadequacies in pre-service teacher support. Teej acknowledges the persistent rationale concerning the value of novelty but reflects, “we can’t always keep using that same excuse, that digital technology is new, but it isn’t integrated as much as it probably could be”. As an advocate for experiential learning and “being chunked in at the deep end”, Teej advocates for incremental support for pre-service teachers in ITE:

... to interact or even just engage with different platforms before we went into school so that way, we could use that experience or use those platforms and bring those into the school, rather

than just automatically jumping onboard with what the school already has.

Supporting small steps in coursework equips pre-service teachers to foster digital collaboration with ATs and learners. Teej, while confident in her initial steps, acknowledges that not all individuals share this confidence. She identifies a need for increased opportunities within ITE to “play with new technology. Such opportunities could assist less confident pre-service teachers in navigating practicum challenges, particularly when faced with unexpected digital resources or AT fluency. Providing a space for experimentation eases the common concern pre-service teachers face during practicum. She says, “I have to teach kids on this platform that I have no idea about” by creating spaces for them to build digital “adaptability” and “resilience”. Teej critiques maintaining a narrow focus in the teaching profession, “tunnel vision... doing the same thing all the time”, advocating for ITE to cultivate the adaptability required to engage with the varied and developing digital contexts encountered during practicum experiences. She stresses integrating cultural inclusivity into ITE to support pre-service teacher gradual progress.

Practicum provides an experience where pre-service teachers should embrace gradual steps and accept failure. The ability to fail fosters the development of adaptation and responsiveness in the teacher’s disposition. Once “chucked into the deep end”, this disposition supported Teej in trying new things, as “every mistake [becomes] your best learning, [and] so it becomes a positive. Embracing failure facilitated a deeper comprehension of her learners, enabling her to adjust her methods accordingly.

Learning from errors allowed Teej to respond adaptively.

I guess once you get to know your students, you’re like, okay, well this is going to be the best time to do this because they’re the most focused. Then this is the best time to possibly chuck in a little bit of SSR or Epic time to calm them down after break.

Teej’s practicum shows the significance that trial and error plays in a pre-service teacher’s growth. Learner’s voice often provided needed feedback and reinforced the

reality that digital fluency “was not one size fits all”. For Teej, learners made each day different, as the success or failure of her decisions to implement digital technologies often depended on the response of learners in the moment:

Some days it was really, really positive, you know, using Mystery Doug or using clips to help express information, and then other times it was kind of like no, Miss, I'd rather read it today. I'd rather work in a small group rather than sitting here on the mat watching a video. Or, oh actually Miss, today I'd rather have my Chromebook, and try and search for my own information, things that interest me rather than what I'm putting on the board.

The willingness to pursue trial and error helped Teej better understand her learner's needs. This enables her to adjust in the moment rather than after its completion.

Learner's feedback helped Teej develop an adjustment-focused questioning mindset.

Teej reflects as she practises, asking questions that adjust her decision-making:

...Like how are these kids doing today? Are they going to be able to get the best out of this lesson or am I going to change it so that they're actually going to engage and not fall asleep or not lose interest?

Being in multiple digitally diverse contexts is a significant experience for Teej as she grows her digital fluency. For Teej, being unable to access digital technologies to practise would have been a roadblock. Teej kept returning to her 'sponge analogy' and maintaining a focus where she could try to absorb as much of the experience, environment, and learnings as possible. Her disposition as a learner requires environments that connect rather than disconnect her from digital technologies:

We're never going to know everything there is to know about digital technology, but as long as you have an open mind going into it, I think that automatically makes your confidence that little bit higher or that little bit stronger, because you don't know what to expect and I think that makes it better.

Teej asserts that pre-service teachers “can't stay stagnant” and must adapt to digital advancements. Pre-service teachers should engage in inquiry. Questions are “really, really important... Yes, you can have an open mind. Yes, you have to acknowledge that you don't know everything there is to know, so ask, because you're never going to

know if you don't ask"? Initial Teacher Education inadequately equips pre-service teachers to self-reflect on digital technologies. Such inquiries foster adaptability, responsiveness, and open-mindedness in pre-service teachers.

Teej underscores the importance of comprehending how learners utilise digital technologies, cautioning against assumptions. "We cannot presume their home access or proficiency with these platforms". During her practicum in a low decile school, Teej observed particular learners who:

... would be excited to go home and play Roblox or play Minecraft, and then you have those students that go home and use their digital technology to expand their knowledge, or they go online and do ... extra math courses at home.

She also saw most learners had:

... [n]ever seen it before. They'd only just been introduced to it within the year or when they came to school, or when they were put with a certain teacher. I think obliterating all of those assumptions is super important.

Teej observed digital technologies blurred the line between leisure and education for some learners, distracting them, but that other learners could distinguish the blurred lines and remain unaffected. This observation prompts ethical inquiries concerning her decision-making and potential responses from other learners. She identified the necessity of practising scenarios before practicum, focusing on real-time digital decision-making amid various interconnected factors. Teej illustrated this with her experience of using YouTube to soothe an autistic boy during her practicum, which inadvertently incited jealousy among other students with restricted access.

In reflecting on the emphasis on digital technologies, Teej recalled her own digital experiences from high school, highlighting the disparity between her high school education and her subsequent life:

We had our computers [at] every lesson. I look back at that now and I'm like, okay, yes, I learnt how to type or how to process my ideas in a different way, but is that screen time, is that beneficial in the long run? Did that actually help my learning? Looking back

on that, I can't tell you if it did or it didn't. I'm relatively good at self-reflection and I look back at that time and I'm like I would have no idea if that helped or hindered my ability to learn.

Teej critiques the MoE's approach for being merely an additional set of standards, asking, "Is that really where we need our educational system to go"? She observes that the emphasis on digital technologies primarily pertains to pre-existing tools educators use. Teej expresses concern over the NZC's "digital tunnel vision", which she believes constrains comprehension of digital technology and could see it become just another set of standards that learners must tick off. Teej considered how education policy could restrain the potential of digital technologies.

With digital technology across the globe, it already is being used in a realm of different environments. Why do kids now have to achieve another set of standards or, like you said, competencies to get their high school or primary school qualifications? It should be a tool that's used to aid education, not stump kids.

Teej sees her identity as a teacher in the digital age as one that should bring balance because "digital technology is expanding, it's fluctuating, it's growing and growing and growing faster than we can breathe". It ensures learners "know that it's there, but it's not everything". For Teej, this realisation was significant because:

A computer is never going to be as good as the person standing in front of you interacting with you in my opinion. A robot could teach you a lot of things, but a robot isn't going to teach you social skills or interactions or how to ask questions. That's the creative and innovative learns that we need and our tamariki need to be guided in that direction.

Teej emphasises the teacher's crucial role during the post-pandemic period. Teachers humanised an otherwise technological environment. There is recognition that technology alone is insufficient; human agency is vital for humane outcomes. Teej reflected:

... digital technology is there to help us with the aspects that we are wanting to move forward in, or to take away some of that pressure so that we can focus on the more important human interactive skills.

Teej sees her role as a teacher as balancing the idea that digital technologies make life easier, but at the same time sees that digital technologies are not “the be all and end all”. Teej envisions the future of education filled with possibilities “where there’s a potential for anything to happen”. She asserts teachers play a crucial role in prioritising human flourishing over mechanistic outcomes by “continually questioning what do we want our students to look like in the next ten years”.

Teej argues ITE must transcend conventional digital assumptions and adequately support pre-service teachers to avoid producing graduates who can “tick boxes that we have to tick off. Teej perceives that:

Lecturers look at my generation, you know, I’m only 24, I’m seven years out of school sort of thing. They already assume that I have a strong technological background or technological knowledge, which yes, we probably do in comparison to them, but that’s not to say that we know how to do it properly.

Teej saw ITE doing this by promoting more conversations and practical experiences that empower learners rather than solely focusing on the curriculum and its predetermined goals.

Summary of Teej’s Practicum Narrative

Teej’s narrative presents a hopeful view of the use of technologies in education when effectively integrated. This is about how teachers who actively use technology can improve learning for students with different interests. However, achieving digital fluency for effective teaching is an intricate process. Teej notes that pre-service teachers often lack digital knowledge in both practical and real-world scenarios. She and her peers view this limitation as a learning opportunity, emphasising the importance of the mindset that fosters digital fluency. Demonstrating digital fluency, Teej relies on a learning-oriented mindset; her approach prioritises support-seeking and adapting prior digital knowledge over specific theories or tools. Teej insists that digital technologies in education should be tailored to individual learners’ needs, not adapted to a standardised learning model. Teej underscores the responsibility of primary teachers in

equipping learners to use digital technologies, dismissing excuses related to lack of confidence or knowledge, given the complete digitisation of education. She also points out the disparity between ITE and the practical needs of pre-service teachers, highlighting an overemphasis on theory at the expense of the practical application of digital technologies.

Furthermore, she acknowledges that schools and ATs significantly impact pre-service teacher digital fluency, and their approaches to digital experiences and learning design can either foster or hinder it. She highlights the importance of collaboration between pre-service teachers, learners, and the AT. The notion of blurred boundaries arises as learners integrate elements from home and various other digital influences into the classroom environment. Teej asserts ITE can better assist pre-service teachers in achieving digital fluency by creating intentional opportunities for experimentation and learning from failures during their training.

Teej's View of Digital Identity

Teej exhibits confidence in her digital identity, seeing herself as a “new age teacher” who grew up interacting with digital technologies. Her previous experiences in digital environments fostered her ability to adapt swiftly to the practicum’s contextual and digital demands. She identifies adaptability as a fundamental characteristic of digital identity. Her “super adaptability” is based on her motivation to assist others and her conviction that digital technologies can enhance diverse learning opportunities. This adaptable disposition relates to both adapting to digital change as it happens and adapting digital technologies to develop unique learning for specific learners.

A crucial factor supporting the growth of Teej’s digital identity as a pre-service teacher was her engagement in enriching digital practicum relationships and environments. For a visual learner who learns by doing, having a chance to participate in classroom practice and decision-making was vital. As she continues to develop her digital identity,

Teej envisions her role as a humanising counterbalance to the increasing technological influence in educational settings, pedagogical approaches and processes.

Lucy's Narrative

Lucy has always aspired to be an educator. Recalling her childhood teaching aspirations, she reflected, "I think I always wanted to be a teacher, even when I was little. Some people play doctors and nurses; I played teachers and schools. And I just found myself in that role over the years". Before her ITE experience, she home-schooled her children abroad and taught English.

The COVID-19 pandemic prompted Lucy to use digital technologies with increasing frequency. Previously, she was a non-user of social media, so she adopted platforms like Zoom and Teams for connection and academic purposes. The pandemic served as a significant impetus for her digital engagement.

Lucy is "not really a social media person". Apprehensions regarding privacy and mental health make her hesitant to engage with social media, and she has intentionally chosen to distance herself from curating an online digital identity. She identifies as "a bit anti-Facebook", expressing concern over its culture of over sharing and her children's online presence, not wanting to see "every single thing that my children were doing". Nonetheless, she acknowledges both the advantageous and detrimental aspects of digital technologies, particularly noting its value for communication while living abroad: "with technology, we could just Skype my parents ... [which was] much easier, much cheaper also when you're calling from overseas". Conversely, Lucy perceives social media as detrimental to mental health, citing documented increases in mental health issues linked to platforms like Instagram. Her husband echoes her sentiments, calling "Facebook covet.com because it's just people showing pictures of their expensive holidays, but that's not always the reality".

Lucy anticipated using digital tools in ITE, including smart boards, and considered online options when “there were too many teachers away with COVID”. The primary digital platform she encountered during her practicum was Google Classroom, which differed from her ITE provider’s use of Microsoft Teams. Unfamiliar with either platform, Lucy had to adapt quickly during her initial weeks. During coursework, peer-to-peer support using Teams was a peer-initiated response that Lucy found helpful. This interested Lucy “because most people would use Facebook. New Zealand seems to have a love of Facebook. Everywhere you go, someone’s got a group... you’ve got to have messenger; you’ve got to have Facebook to know what’s going on”.

Inadequate resources hindered Lucy’s use of digital technology during practicum at the lower decile school. Her ATs failed to allocate time for discussing practical applications of digital technologies. Lucy felt unprepared, particularly with platforms like Google Classroom, resulting in a lack of assistance from her ATs. “I think that they assumed that I knew... I was unfamiliar with things like Google Classroom, so I had to say I don’t actually know how to use this, but that didn’t translate into any help”. The practicum caused Lucy to “be a bit stressed” as it compelled her to depend on previously acquired digital skills as a tutor in her initial degree. “I kind of thought, oh well, I will be able to just have a bit of time to play around and [will] need some time to work that out”. Although these skills were not directly applicable, they provided a conceptual framework for problem-solving in real-time. The framework allowed her to identify connectivity issues with her Mac, yet her AT could not assist her. Informal support emerged as Lucy engaged family and peers to bolster her efforts. She sought help from her husband by sending photos of the connections needed for her devices and a fellow pre-service teacher lent Lucy her laptop. The lack of in-practicum support was “a little bit stressful because I actually had to teach the next lesson but I did not have the right connection”.

Lucy experienced stress due to varying levels of digital technology and fluency in different classrooms and between ATs. She actively inquired about the functionality of each new room she entered. Aware of the digital context, Lucy sought support from the school's technology personnel. Despite their limited availability, they assisted with pre-observation technology checks for the evaluative lecturer. Lucy recognised the potential for technological failure during the lecturer's visit, prompting her to devise a contingency plan. She prepared alternative materials to adapt swiftly if needed. "I'd come up with all different scenarios, and I was prepared to just go without it. I had alternative bits of paper and things like that. I could have moved on quite quickly."

Entering ITE with limited knowledge of digital technology integration, Lucy gained confidence during her practicum, stating, "[t]hat I can do it. I just have a little bit more confidence. Even if it doesn't work, I will work it out. I'm not silly." Lucy did not "see the associate teacher using the technology at all other than in his office using Google Classroom, you know, to upload slides and things like that, but not in his actual teaching". Lucy enhanced her digital fluency by understanding the contextual factors of each room, realising that learners often possessed more knowledge than the teachers and could use digital technologies to solve problems. Her digital practice faced limitations based on available resources in different learning environments. She comments that "some rooms I'd go into and think, oh, I'd rather be in a different room because I know how everything works". Without role-modelling from AT, Lucy relied on her observations of peers and learners for her digital fluency development. An instance of this independent learning occurred when a group of Year 11s created a survey:

I actually didn't know how they went about making the survey, but I said make a survey and then they did it, and I had to say how did you do that? Which was a bit embarrassing, but they were so good, the students. They were brilliant.

This experience supported Lucy in getting over feelings of embarrassment about the use of digital technologies and developing reciprocal relationships with learners. As she

says, "I'm learning too, they're learning. It was yeah, I think it was somewhat helpful. They liked being able to help me as well".

Lucy's husband and family serve as a reliable support system for her, helping access technological tools and as a safe space for testing their plans with digital technologies.

I would be on the phone to him, so outside of the school... He knew which connection to buy. He looked into that. He ordered it online. Helped me test it out. I also use my family, like I'd never done a Kahoot! before and I didn't really know how it worked, so after dinner everybody sat round and I did my lesson to them and I started with the Kahoot! My son's girlfriend actually hadn't long left school and she was saying, oh no, you press this button and you do this and then we'll do this, and she was helpful.

The evaluative lecturer proved to be a significant source of insight that the AT could not provide. This enabled Lucy to adopt a learner's position and enhance her fluency with various digital tools. The evaluative lecturer was also an excellent resource for addressing queries regarding her digital pedagogical choices and easing her concerns. This interaction bolstered Lucy's confidence in further developing her digital fluency through specific applications like Kahoot! and selecting suitable digital resources for educational purposes.

Lucy perceives digital technology as a continually developing entity, that is causing ongoing adaptation and progress. She recognises post-practicum that, while she may lack specific skills for certain scenarios; she possesses the confidence to seek help and develop the digital fluency required by the situation:

I'm not sure that I would ever feel completely capable because every school's going to be different, isn't it, so we're always going to have something to learn, and technology changes. But I think in my next practicum I would ask beforehand. I would say I've got a knack, what kind of technologies do you have? You know, because if they're not using Google Classroom then what are they using? I'd maybe have a look beforehand because when you go into practicum there is so many factors and if I can just make the stress just a little bit less on the technology front and just have a little bit of knowledge beforehand of what the school uses, I think that would be helpful. And when I get a job

also, I'll be asking that kind of question, those kinds of questions.

Throughout her practicum experience, Lucy saw a digital reality in which learners were more digitally savvy and engaged than the teachers in both appropriate and inappropriate activities: "I saw them playing games and watching Netflix. Messaging. Some pornography. I saw, I don't know, anything that there was to see, they were doing. Yeah, laptops, phones, tablets."

In dealing with the inappropriate use of digital technology, Lucy was:

Told not to take phones away or even tell them to put them away. Just to engage with them. They had a relationship-based learning philosophy and therefore I was to engage with them, oh, what are you watching? What's the game you're playing? How do you play it? Some people are looking up universities and so that was a bit easier for me to engage with. Oh yeah, what are you thinking about doing? Things like that. Sometimes I had to negotiate with one boy, like you can finish that game and then you get on and you do this. I felt like there was a lot of... I felt like the students were failed a little bit in that regard. Maybe that's my own educational philosophy though.

Lucy's educational philosophy contrasted with the AT's approach. Lucy believes "that they are there to learn and not play games". While the AT advocates for learners to self-manage, Lucy's observations based on her own family experiences indicate that learners require guidance to grasp the significance of self-management. She noted that learners were often distracted by a slow learning pace, leading to gameplay interruptions, as "[s]ome would just walk in and start playing games straight away. It didn't matter what you were doing".

Lucy asserts that learners opted for distraction "because they were allowed to", reflecting a hands-off school and AT stance on digital technologies. She attributes this leniency partly to the lower decile status of the school, suggesting that relaxed regulations regarding technology access adversely affect learner's academic performance and literacy:

I felt like the school also could have blocked pornographic sites or Netflix and Facebook and Instagram. I felt like they should have been [blocked]. Also because it's a – it was a low decile school – I felt like there was a lower expectation of behaviour in that regard but also of achievement, and that bothered me because I felt like if they just put the phones away that achievement might be better.

Lucy finds it interesting that learners had an innate desire to be in the digital world but often had limited access to the digital technologies that were provided:

In the Year 11 class, I often would have 20 students and only six would have a laptop and that was difficult because you absolutely needed a laptop. The school did provide some, but there seemed to be... I don't know how the students were meant to access that. Different departments would have laptops but not my department when they were essential.

The use of mobile phones by learners was as a form of self-distraction rather than learning was an area where Lucy sees that more intentional guidelines are needed.

She is:

Undecided whether it should be phones in bags or whether it should be hand in your phone as you come in the class. Maybe I'd start with a softer approach because you don't want to – it's a bit like picking kids up on uniform. You don't want to start the lesson badly, but there needs to be an expectation from the very beginning of the year as well [a clear indication] of what is expected.

While the school context gave rise to reflective thought, it was engagement with peer pre-service teachers that provided stimulus regarding how Lucy's understanding grew and developed:

There was another student teacher who came in just for four weeks. She came from a school where it was phones in bags, and she couldn't believe what was going on. When she did her lessons, she put [up] a – the first slide was [showing an image of] a laptop with a tick next to it, a piece of paper with a tick next to it, and a mobile phone with a cross.

Lucy needed to be made aware of the digital sub-learning area in the technology curriculum. She acknowledged the significance of this change but emphasised the necessity for boundaries to exist. Lucy expressed concern about feeling outdated and

noted that younger pre-service teachers might have differing views. Her apprehension stemmed from witnessing learners' distractions and inappropriate material access. Lucy believes schools and ITE do not sufficiently equip pre-service teachers to foster a safe digital environment. Her ITE coursework experiences did not prepare her for addressing inappropriate digital technology use. Lucy advocated for safety as a primary objective, encompassing consent, security, and available options. Lucy contends that ITE coursework should intentionally focus on preparing students for the digital aspects of their practicum. She says, "I don't think that we had any – I had no idea [specific digital technologies being used] before I went in". Lucy thought that digital citizenship and safety should be a foundational aspiration of ITE pre-service teacher preparation for the digital realities of practicum. Prior to practicum, Lucy expressed a desire for additional preparation:

... a session in our initial teacher education on digital technology, like some schools use this, some schools use this. Maybe there was the view that most people were either young enough to have used technology at school or had children and had already engaged with it. I don't know. I had no idea... it doesn't necessarily need to be long. Just some ideas on what is used, how to navigate it. In our curriculum workshops, both teachers did go over very quickly where to find things, but that was a bit quick for me.

Lucy posits that ITE coursework could enhance pre-service teacher navigation of digital technologies in the classroom. This foundational knowledge would mitigate the necessity of seeking information during practicums, allowing greater focus on immediate problem-solving. The primary obstacle to progress was scarcity of time, not a lack of confidence. Lucy articulated, "I feel confident that I will work it out, but it just takes time, and you don't always have time."

Lucy notes that time scarcity significantly hinders the development of her digital identity. She advocates for increased coursework time, focused on the practical integration of digital technologies. Furthermore, Lucy would like ITE to provide more opportunities to engage with specific digital platforms, as navigating online curriculum

spaces is essential to teaching. She perceives the coursework-practicum linkage as bolstering pre-service teacher inherent problem-solving skills. For Lucy, a deliberate emphasis on digital practice within coursework could enhance pre-service teacher abilities to navigate the digital environment in the classroom. She envisions ITE coursework as a means of establishing a robust foundation for digital technology usage and NZC navigation, which many pre-service teachers encounter for the first time during practicum. This focus would eliminate the need for information searches regarding digital tasks during practicum, thus facilitating in-the-moment problem-solving. Ultimately, the lack of time, rather than the lack of confidence, was the primary impediment to her potential progress.

Lucy also reflected that her digital fluency depended on the available digital tools in her teaching context; however, this did not exclude her from engagement in teaching and learning. She suggests that her technology use would lead others to perceive her as capable. "I use the technology, so I think they would think I was capable as long as it worked. But if it didn't work, then I'd just move on pretty quick. Yeah, I think they'd think I was reasonably capable". Ultimately, Lucy's practicum experience demonstrated her ability to adapt to the unpredictability of digital technologies, affirming her ongoing commitment to learning.

Summary of Lucy's Practicum Narrative

Lucy's narrative discusses her increasing use of digital technologies as a pre-service teacher. Although Lucy anticipated a significant role for digital technologies in ITE, her experiences did not fully utilise the available digital platforms. Consequently, Lucy had to self-initiate adaptation to digital technology during her practicum. She noted the crucial role of peer support in this process. Insufficient digital resources and her AT's limited skills hampered her progress in digital fluency. Still, Lucy utilised her previous digital experiences and formed informal support networks to mitigate these challenges. Rather than solely concentrating on digital tools, Lucy stressed the importance of

adaptability and the dynamic nature of developing digital fluency. Throughout her narrative, Lucy voiced concerns regarding the misuse of digital technologies by learners, which conflicted with her educational philosophy. She also underscored the necessity of dedicating adequate time and space in ITE to prepare for the digital realities that would be her practicum experience. This approach would allow pre-service teachers to better engage with the digital elements of teaching during their practicum.

Lucy's View of Digital Identity

Lucy sees herself as something of a foreigner to the digital world but accepts that she has to and can develop the necessary capabilities and confidence. This said, she tends to be reluctant to use digital technologies in her work. She recognises the benefits of different digital media for communication and connection but is very concerned about privacy, protection and wellbeing. This concern about safety and privacy has remained central to her developing her digital identity within ITE. With the emergence of her digital identity, Lucy sees her ability to grow hindered or supported by the type of support and connections ITE provides before pre-service teachers begin practicum. A key aspect of Lucy's digital identity is her growing confidence in developing informal support networks, connections and relationships that sustain her growth when formal support is absent.

Sally's Narrative

Sally has always aspired to teach, reflecting, "I just love being around children". After initially lacking the requisite grades for ITE, she began and succeeded in a food and beverage management career. As a parent, she dedicated her time to her children. Upon her youngest child's completion of school, she enrolled in ITE to pursue her teaching ambition and "fulfil what I really, really wanted to do".

Sally attributes her teaching aspiration to her familial experiences, particularly in caring for her younger brother. She possesses a natural inclination for nurturing younger

individuals and derives joy from their company. Sally believes she is meant to be a teacher.

When asked about everyday digital technology use, Sally responded, “I’ve obviously got a smartphone”. She employs her smartphone and laptop for life organisation and limits social media use to Facebook and WhatsApp for family communication. She prefers these platforms for sharing family photos with relatives abroad. Sally deems it unnecessary to engage with other social networks. Her reluctance towards social media stems from her age and observations of her older children’s usage. She says, “[t]hey’re on Instagram and Snapchat and all the stuff. I don’t see a desire to be involved with all that stuff”. She perceives no benefits from participating in additional social media platforms, relying on television and the New Zealand Herald for news. Sally acknowledges the prevalent issues of bullying associated with social media but feels little concern at her age. She notes social media’s role in rapid information distribution, recognising its tendency to amplify negative news while advocating for a greater focus “on positive news sometimes”.

Sally had no expectations regarding the use of digital technologies in ITE. When probed about how she felt, Sally reflected that she was, “very nervous to be honest”. This nervousness stemmed from being a home for so long and the belief that she was not very “computer literate”. Her ITE provider alleviated these nerves with orientation sessions on digital technology usage. Sally remarked that her ITE provider showed her class how to use the [provider] website and all the things that students could do on this. Sally found this support to be very beneficial, and she identified that it was crucial in developing her confidence.

With reduced anxiety, Sally advanced into practicum, using Mahara to upload learning evidence. She found Mahara highly user-unfriendly and struggled with uploads due to limited provider support, starkly contrasting her initial experience. Peers of varying ages shared this sentiment. Mahara was “all over the place, I don’t know, and I’m

talking about 20-year-olds also saying the same thing, to be fair, and if they're finding it difficult, I'm probably triply finding it difficult".

Sally relied on peer networking to cope with the stress of using Mahara, which was compounded by typical practicum pressures and COVID-19 pandemic challenges. She emphasised the importance of peer support during this time, saying, "I really needed my peer support who did help". This informal peer support came from a group of fellow "mature students" with whom Sally communicated and had already completed a few group assignments. This group emerged as an informal in-the-moment online community during practicum using WhatsApp groups and Messenger:

We just tag into there and say hey, is anyone else struggling to do XYZ and then one person will say I did X and the other one will say but I did Y and then you sort of have a little discussion. We've also had a few Team talks, just to have a chat about what we're doing and whether it's the right thing.

The group emerged from Sally's initial connections via her ITE provider Facebook year group. Sally used the provider group to build connections with like-minded peers, as it was "open to everyone and [there was] lots of communication there, which you can go in and see questions and you think oh, I'm not that stupid. Everyone else is asking the same questions".

Sally created the group from connections she made via her ITE provider's Facebook group. She utilised this platform to connect with peers that she was closer, appreciating the open communication and shared inquiries that participants made.

Sally regarded her ITE provider as "extremely supportive" and says that she "can't fault them" for facilitating the development of informal peer support networks. She felt it was her obligation to expand her network, asserting that peers should be the primary resource for assistance. Insights from peers offered valuable perspectives and motivation to engage with lecturers. The peer community fostered an environment of security that encouraged open questioning without apprehension:

... I also feel like some of the questions I ask are a bit silly because I'm a little bit behind, so if I ask a peer who's 23 or 25 and they're also saying I have no idea, then actually it is a legit question and then I would contact a lecturer and generally I'd have a response quickly.

The COVID-19 pandemic facilitated valuable learning experiences for Sally. The transition to at-home learning for learners enhanced her engagement with digital learning. At-home learning necessitated the acquisition of new skills and active participation. Sally reflected, "I didn't even know how to use Teams to start with, so just downloading it and logging on for lectures, and whatever, was a challenge for me, but I learnt very quickly, and I adapted to it".

The COVID-19 pandemic also enhanced the educational potential of peer social media groups. These groups were crucial in offering both learning and personal support:

We had a once a week chat, there was five of us, we would come online and have a little chat and see where we were at with our work. Even though we probably didn't have many assignments at the time, it was just checking in and making sure their families are okay, where they're at with their studies, just general hi, how are you? That lasted, we probably did 20 minutes, half an hour, chat once a week and that was really nice, to just see people of like mindedness, all in the same situation.

Sally deemed her informal peer support network essential, fostering a secure environment for her adaptation and social engagement. Initially lacking knowledge in digital technologies beyond her smartphone and laptop, this network bolstered her confidence to continue to grow rather than atrophy, enabling Sally to remark that she could show her husband "what to do (laugh)".

Despite receiving assistance for digital coursework connections, this assistance did not apply to her practicum setting. Her practicum employed Seesaw, yet she lacked access to the platform as she was not "privy to logging on or being part of it [Seesaw online parent-teacher community]". Because her AT prevented access, her experience with

digital platforms was limited. In the classroom, she only used technology to connect her laptop to the TV and start lessons with mirrored YouTube videos or other relevant content. While this reflected the practicum context and AT decision-making, Sally did not focus on thinking about digital technologies except when using Mahara as an element of the practicum assessment. This was because she “wanted to go in and be hands-on and just be with the kids, and enjoy the learning and the environment, and making a difference”. It was not her intentional choice to disengage thinking about digital technologies but a realisation that digital technologies were going to be part of the experience, whether or not she thought about it. Sally saw that, in education, digital technologies:

[Are] part of life. Without a doubt you're gonna have to be digitally competent or whatever the word is to be able to go further in the future. I think I just move step-by-step as I move on, and I get introduced to different things, and I've just got to be open to learning and seeing where it takes me.

Sally is unconvinced her AT's reluctance to grant her access to digital platforms like Seesaw had any effect on her overall experience. While she was “there to learn”, she acknowledged the AT's need to safeguard the school's professional image, and she understood the rationale behind the restriction on Seesaw communication. “As this was my first proper practicum, I understand why the teacher didn't want me to communicate on Seesaw. It goes to parents. It sets the teacher up [as scapegoat, rather than the technology] basically if I do anything wrong”. Sally observed that the AT's usage of digital tools provided minimal insight that included a lack of hands-on experience to provide her with practical understanding.

Sally's practicum lacked opportunities for leadership and the development of digital solutions because of the scarcity of digital resources. The classroom's limited allocation of 10 laptops and 3 iPads for 24 learners with restricted access to platforms like Maths-Whizz impeded Sally's engagement with these resources.

The class would be divided in threes and one would use Maths-Whizz or whatever when it was their part of the rotation. That was all set up, I didn't need to do anything. So long as I looked on the screen and they were on Maths-Whizz, that's all I needed to know.

This was partly because of the AT's reluctance to allow Sally to take the lead in using digital technologies. This prevented Sally from being in a position where she could make a value-decision on the effectiveness of a particular digital technology:

I guess if I knew how to use them, I would be able to see how beneficial it would be for the children. They obviously are beneficial according to the teacher that I had, but I would rather find out myself rather than be told that it's a good thing to use.

Sally was also hesitant to fully embrace digital technologies because of her belief that they diminish the learning experience rather than enhance it. She recognised that digital technologies have the potential to disconnect learners emotionally and could be misused by teachers as a time occupier rather than for creating meaningful learning experiences:

I'm a little bit old school in that I don't want to use devices too much and to diminish the whole learning process of people and emotions, and I think it's a very easy trap to fall into to just keep the children quiet while you've got an issue to sort out or whatever. That's not really what they're there for. They're there for a different purpose, which I understand, but it's a very easy trap to fall into I think and a lot of teachers I think do that, unfortunately.

Sally dismisses digital technologies as a suitable substitute for the teacher. She argues that the limitations and absence of emotional engagement render it unsuitable. Nonetheless, she acknowledges the importance of digital technologies for learners' future employment prospects. Digital technologies significantly contribute to her professional growth, enabling her to be "digitally aware and able to learn how to use devices because it is the future, "while needing to maintain a balance between technology and human interaction, as "I believe that human interaction is really important".

Post-practicum, Sally realises the necessity of furthering her knowledge of digital technologies, with hands-on experience being paramount. Trust and guidance in technology utilisation are crucial, as she asserts that if “I knew how to use them, I would be able to see how beneficial it would be for children”. Mere observation of the AT’s usage without active engagement is insufficient for her learning. For Sally, the educational platforms were “obviously beneficial according to the teacher that I had, but I would rather find out myself than be told that it’s a good thing to use.”

Sally’s practicum experience explains the need for continuous learning in digital technologies; however, the gatekeeping by ATs hindered her progress and stalled this learning from taking place within her interaction with learners. While Sally does not doubt that she could learn how to use specific digital technologies, without knowing being able to use these digital technologies, she does not know what to expect. Sally used the example of an online student management programme that uploads information and provides insight into each learner. She saw this as having immense value left practicum still needing to learn how to use this type of programme.

I have no doubt about it, but I just don’t know what there is at this stage. I don’t know what to expect. I know doing roll call for example, there’s another, it’s some programme that the school has got that it automatically uploads and that sort of stuff. There’s a lot involved with that. You can see what’s wrong with children, how many days they’ve missed, why they’ve missed, all that information. I would need to learn how to do that.

However, what showed strongly is despite the need for more connection with digital technologies, Sally was less nervous about engaging with them in practice. She admits:

I know that I don’t know everything if that makes sense. I’m ready to learn. I’m very open to the idea that technology is also changing the whole time, so if I did learn everything today, tomorrow I’d be learning something new. But I am definitely more confident, without a doubt.

Sally’s informal support network also proved to be a vital connection as it opened her up to the struggle her peers were also experiencing:

It was good, in the nicest possible way, it was good to hear that they were going through the same struggles. If they weren't going through the same struggles that they were able to tell me, no, this is how it's done. The same thing happened to me and this is what we did. It was really good, very much a good support to have peers with you.

Sally noted if she experienced a practicum that provided inadequate technological support if a peer-support network was absent, she might "potentially give up".

During her practicum, Sally observed learners actively engaging with digital technologies and finding them to be an enjoyable experience. She acknowledges the learners possess superior technological proficiency compared to her own; learners were "very efficient, they know a lot more than me I reckon". The AT controlled Sally's experience of how learners were guided to embrace of digital technologies:

I think to be fair, the teacher that I had was quite specific about what they needed to go on the computer for so they wouldn't just sit on the computer and do their own thing, they were on the computer to do Maths-Whizz and when they'd finished Maths-Whizz they closed the laptop and put it down to charge. There wasn't an opportunity to go beyond what the task was.

Regarding the digital technology curriculum, Sally saw that digital technologies were a crucial future priority for learners to learn. She emphatically agrees "100 %" that digital technologies should be prioritised because they represent the future. Her understanding of this focused on getting learners to use computers as a tool rather than the current prioritisation of digital design and computational thinking:

I mean everyone needs to be able to use computers and have a basic foundation for computers. I don't think things like coding and stuff is important but I think learning how to use a computer, how to use Microsoft, how to use Excel, how to use all these sorts of things makes people capable in the working world really.

Sally reflected that aspects of computational thinking, such as coding, were something she "definitely" does not think would help her in her life and she has "no, no idea" about why the MoE had prioritised it.

Sally does not see digital technologies diminishing the role of a teacher but rather that the teacher “would have to change according to the technology [being used].” Her role as the pivotal relational lead in a learners’ learning would remain, but as part of this, she would increasingly involve them in constantly educating themselves “in technology [use] and being able to adapt to new technology, whatever it is.”

Summary of Sally Practicum Narrative

Sally’s narrative examines the impact of digital technologies on her life, emphasising her cautiousness and concern for the learners’ well-being. Although she utilises digital technologies in the school, she remains hesitant to fully engage, prioritising the protection of learners from risk. The theme of uncertainty arises as Sally enters her practicum, feeling apprehensive and lacking confidence in her computer proficiency. The usability of digital tools obstructs her development of digital fluency, as the provided programs were cumbersome and impeded her reflective growth. Networked support from family and peers was vital for Sally to overcome these obstacles. Without such networks, she may have abandoned digital technologies altogether. Usability issues are evident during her practicum, characterised by limited access to digital resources. Sally consciously avoided digital technologies, associating them with a lack of hands-on experience, solid teacher-student rapport, and enjoyable learning. She hesitates to adopt digital technologies, fearing they may compromise the educational experience and hinder human interactions. Adaptability to technological changes is essential for fostering digital fluency, underscoring the significance of the teacher’s role.

Sally’s View of Digital Identity

Sally sees herself as a cautious engager with the digital world. She is reluctant to immerse herself in the digital world beyond using tools to organise her life and connecting with those in her close network who use encrypted platforms. Increasingly, she is beginning to see the significance of digital technologies in education.

Undertaking ITE during the COVID-19 pandemic proved to be a mindset-shifting

catalyst that opened her mind to the potential of digital technologies in education.

Despite being nervous about her digital competence, she has increasingly been willing to use digital technologies if they provide an advantage for learners. While she is confident in her capacity to learn and adapt, she is concerned about the lack of usability of some educational platforms, the actual digital resourcing, and ineffective digital mentoring by ATs can challenge this adaptability. Sally perceives a commitment to ongoing learning as essential to developing her digital identity as a pre-service teacher.

Conclusion

The narratives of Teej, Lucy and Sally reveal that pre-service teachers view digital adaptability as a core element of a pre-service teacher's digital identity. All three encountered unexpected challenges with digital technologies and their ability to adapt and problem solve was crucial to developing confidence in their digital identity. For Teej, the chance to adapt was embraced while Lucy and Sally were supported to adapt by the external support networks that they curated. The narrative also reveals that practicum is crucial in the development of a pre-service teacher's digital fluency, but that the impact of practicum could be developed or limited by the context that they found themselves placed in. The importance of support networks also emerges in the narratives with informal and formal support shown to be significant in supporting each pre-service teacher to navigate the digital challenges they faced.

Teej, Lucy and Sally all see digital technologies as having potential in education if the right frameworks are put in place to manage potential distractions. The narratives clearly reveal the participants' view that there is a disconnect between ITE coursework and practicum that could be overcome with more practical and hands on experience with digital technologies. The 'born to teach' narratives highlight that despite entering ITE with varying connections with digital technologies and expectations of its use,

through fostering connection, supportive relationships and safe hands-on experiences, ITE can support pre-service teachers to navigate the digital change they experience.

Chapter Seven: Career Changer Narratives

Introduction

This chapter explores the narratives of pre-service teachers who are career changers.

Career changers are a cohort who enter ITE, bringing with them a unique lived experience of digital technologies in their professional life (Rowston et al., 2019).

Career changers bring with them the lived experience of a previous career, including integrating digital knowledge, skills and dispositions, and experience into their professional practice as they navigate digital change, expectations, and contexts (Kim et al., 2023). They are often seen as having maturity, resilience and a strong work ethic that they are perceived to draw from their previous careers (Varadharajan & Buchanan, 2021). This combination of experience and confidence, if effectively engaged in ITE, can support career changers because it gives them the ability to grow an understanding of how digital challenges can be navigated to maximise the potential of digital technologies in the classroom (Rowston et al., 2019; Varadharajan & Buchanan, 2021). Career changers also represent a critical pre-service teacher narrative with much to contribute to the discourse.

Toloake participates in the Graduate Diploma of Teaching Secondary within the ITE provider's online learning space. She is passionate about her family and community. Her career changer narrative is about creating the stability to provide time and energy to both. Toloake's passion for her Tongan heritage came through powerfully. After the interview, she exemplified this by intentionally changing their pseudonym from Elizabeth to Toloake when addressing direct quotations. In her view, "[t]here's heaps of Elizabeths, but you know what, there's not many Toloake's in this world, so I'd like to take that [name]". This profound decision reflected the importance of her cultural heritage and identity.

Hannah comes from a whānau heritage in education. Resisting teaching as a career until she knew it was her decision, she returned from Australia to Aotearoa, New Zealand, and entered ITE during the COVID-19 pandemic. She is in Year 3 of the BEd Primary at the ITE provider. Hannah's narrative is about changing careers from hairdressing to teaching because they knew it was right for her. Hannah's narrative focuses on a person already connected within the digital world while wrestling with the challenges that this presents in relation to her use of time, decision-making and identity. It is a narrative that concerns how digital technology influences her perception of digital technologies in education and the digital identity she needs to develop.

Robbie, an American expat, has dedicated a significant portion of his professional life to the IT industry in Asia. However, the COVID-19 pandemic offered him an opportunity for introspection during the lockdown period. This reflection led Robbie to make a life-altering career change that led him to teaching. His narrative reflects what he has learned about digital technologies, and the unique insight and perspective this has given him about the digital shift in education. Robbie is studying for a Master of Teaching and Learning/Postgraduate Diploma in Primary.

Toloake's Narrative

Toloake's family is her "number one priority". Teaching offers her stability, consistent income, and reduced stress, which are all conditions that contribute to her familial focus. Her decision to teach was fundamentally aimed at providing "time for my kids". Additionally, she aims to inspire learners from her community to pursue higher education, as she pushes "Pacific islanders to achieve higher and to know that there is higher education, that education doesn't have to just stop at high school".

Toloake perceives society as "very dependent on technology and everything that technology offers". She acknowledges that her reliance on social media hinders communication with family. The excessive time spent on social media "scrolling, scrolling, scrolling" through blocks of video feed distracts her from meaningful

interactions. She realises that her online engagement inhibits her from having more quality time with her children and meeting her other responsibilities. Toloake's child highlighted this issue when they requested her undivided attention during playtime. Toloake was playing with her children and scrolling on her phone simultaneously. Her child says, "Mummy, can you please put your phone down for one minute and play with me". This concern regarding digital distractions would later manifest during her practicum.

Before ITE, Toloake was unaware of the educational applications of excessive use of digital technologies. She indicated that her professional identity requires further development in this area. Having experienced a traditional pen-and-paper education, she says she was unfamiliar with online platforms like Google Classroom. Toloake entered ITE, recognising the need to prioritise digital technologies, which was essential for learners.

Toloake notes that digital technologies foster a cultural prioritising of online presentation, leading to diminished privacy and heightened anxiety. Social media complicates self-presentation when it conflicts with personal beliefs and values. The artificial ideals of beauty and success proliferated on social media exacerbate anxiety regarding personal achievements. As a "very keen achiever", Toloake feels anxiety about comparing her achievements to those "other [that] people are posting about". She identifies this anxiety as a catalyst for both social and educational benchmarks. Educational pressures compel learners to disclose their results online, complicating their ability to manage their privacy regarding these results.

Toloake regards her laptop as a pivotal component of her engagement with digital technologies. She emphasises the necessity of possessing quality digital tools for success during her practicum. Toloake asserts her duty to provide a laptop, highlighting the digital divide affecting pre-service teacher access to digital technologies. A scholarship enabled her to upgrade her laptop, ensuring her digital capabilities were

reliable and consistent. Toloake believes she “would be struggling now to ... keep up with anything online” without a laptop. The stability and consistency of digital technologies are fundamental to delivering quality education during practicum. Toloake envisions a reality where educational success is contingent upon the availability of digital technologies.

Acquiring a new laptop alleviated stress and tension throughout her practicum experience. A dependable laptop that “would not just die on me” was crucial to fostering quality teaching, learning, and interpersonal relationships during practicum. The laptop serves as a tool for effective teaching and learning and bolsters her confidence to participate actively in the practicum. For Toloake, neglecting to bring her laptop to the teacher-only day underscored its significance: She saw that the laptop was essential for her to contribute and for the AT to share documents with her. Without her laptop she struggled to see what the teachers were doing. She also realised it gave her connection in a manner where she did not feel like she was annoying the AT by sharing a screen.

Viewing digital technologies as “the laptop itself” Toloake posits:

The laptop is all you need. You just plug it into the HDMI and whatever you’ve pre-planned, whether that’s on WORD Document or a slideshow, you just plugged it in and then you continue on with the day without kind of writing [using the whiteboard].

Toloake perceives the transition to digital tools as essential and one learners grasped better than teachers. Toloake maintains a traditional “pretty old school” pedagogical approach. Although she considers laptops crucial for instruction, learners prioritised the teacher’s presence. While learner’s use of laptops facilitated Toloake’s teaching, laptops also diverted the learner’s attention away from the teacher. The availability of laptops led Toloake to experience diminished control over learners’ learning focus and progress. The integration of digital technologies presented a challenge during the

practicum. ATs attempted to model strategies, such as requesting learners to close laptops, yet learners merely adapted by utilising other technological forms:

When they close their laptops then their phones come out. They have so many different ways of using technology technologies that one closes and then another opens, so there definitely has been a struggle with getting their focus zoned into in on just myself me.

Toloake acknowledges that digital technologies may divert educators from focusing on teaching. The laptop, perceived as essential for professionalism, concurrently diminished the value of teaching. Like social media, the laptop facilitated organisational multi-tasking, while diverting Toloake's attention from prioritising the learners learning. When asked about how she was diverted Toloake responded

... when they're on their laptop doing schoolwork. I'm on my laptop catching up on assignments or looking at emails, instead of really having absolutely no technology and zoning into in on the kids and assisting them.

While a laptop was deemed sufficient, Toloake's class during practicum faced inconsistent access to digital technologies. Learners often neglected to bring chargers, resulting in laptops being non-functional throughout the school day. This lack of laptop access hindered both teaching and learning, presenting a significant challenge for learners and the educator. Toloake reflected that she had observed when learners had no access to digital technologies, there was often nothing that teachers could do as:

...they don't have the ability of providing any last-minute paperwork of that today's session to accommodate for those that maybe don't have laptops, or those that were too late to loan borrow a laptop, from or those that have one – their laptop has died before the period that they've come to the class has begun.

Limited access to digital technologies has led Toloake to understand how reliant teaching and learning are now on digital technologies and how challenging it is to adapt without them.

The malfunctioning laptop exemplifies the precarious digital environments teachers encounter. Toloake perceives this obstacle as a significant challenge for educational institutions due to the growing necessity for laptop-based learning and the variance in student access to digital technologies. This situation reflects the digital inequity between students with laptop access and those without, as well as the economic stratification among students who can afford superior devices versus those who can afford the standard ones.

Toloake acknowledges that her teaching efficacy depends upon learners having dependable laptops, which is also linked to her teaching confidence. She proposes that providing various laptop chargers in schools could alleviate some pressure, although the high cost of chargers renders such a solution improbable.

Toloake identifies a disjunction between the academic emphasis of coursework and the digital realities faced during practicum. The gap between Toloake's experience of ITE and practicum was evident in her lack of engagement with the digital platforms used by the school; these were not integrated into coursework before practicum. Upon commencing her practicum, Toloake found herself unfamiliar with Google Classroom. When asked how it impacted her practicum, Toloake reflected that she just had to start using Google Classroom on practicum and had no prior experience with this platform. When she went into the practicum class, Toloake remembered, "It was all new to me. I didn't even know how to use Google Classroom. She underscores ITE's need to familiarise future educators with the digital tools they will encounter. Beginning practicum without prior knowledge of these platforms left Toloake feeling unprepared and disappointed, as she believed she should have been informed beforehand. She perceives a disparity between pre-service teachers possessing a "general knowledge" of the platforms used and those lacking such familiarity, which added to her practicum challenges. Toloake lamented that she "had no clue about Google Classroom, so it

would have been nice to learn to acquire some form of general knowledge about Google Classroom.”

The disconnect between coursework and practicum necessitated Toloake's self-navigation. She adopted a positive attitude, reassuring herself, that she would “figure it out on the way”. The AT emerged as a crucial support for her self-navigation. Toloake benefited from being placed with a digitally skilled AT familiar with Google Classroom. AT assistance bolstered Toloake's confidence in acquiring new knowledge during the practicum. Toloake and the AT developed a learning partnership, as they were concurrently learning Google Classroom. The AT's ongoing learning fostered Toloake's sense of shared experience as they were both navigating their respective uncertainties. Despite the AT's essential role, Toloake acknowledged that many ATs are still in the learning phase. She noted that “we were both kind of both on in the same boat, and she was just maybe two or three steps ahead of me, and that I had no idea of what I was doing”. Like Toloake, the AT had questions, lacked comprehensive knowledge, and was only marginally ahead. For Toloake, the collaborative relationship with her AT was valuable, as the AT was willing to assist and recognised the mutual learning opportunity. Toloake understands that AT's confidence and proficiency can constrain the development of such collaborative partnerships.

Toloake also pursued a collaborative relationship with learners. This collaboration helped her to realise that her digital identity did not require her to be an expert and instead could emerge in partnership with learners. Practicum helped Toloake to realise:

...it's okay to not know everything and kind of make it known to the students – you know what, I have no idea what this is, do you? If not, we can learn it together.

The realisation that learners could be a source of support opened the door for Toloake to let her learners know, “I'm so lost”, and ask the question “how do I do this”? Learners were “very, very open to helping me... The students seemed to know everything about technology, so I just asked them a question and be open with it's okay not to know

everything". The learner's support was crucial during the practicum when the AT was unavailable due to COVID-19. The learners provided Toloake with guidance. This support alleviated significant stress and enhanced her perspective. Toloake recognised that she could overcome technological challenges through collaborative practicum relationships with appropriate support.

She advocates for coursework that incorporates digital tools that are relevant to the practicum experience to alleviate "panic areas". Confidence developed prior to practicum is crucial, enabling progress even in the absence of formal support or technological assistance. Toloake believes that practice in coursework fosters the ability to "quickly whip something up in one's mind and to just do something on paper rather than online".

In response to inquiries about improving support for pre-service teachers, Toloake provided some insight, saying:

I would like for the education provider to offer more... there's nothing that caters to anything with technology online, with like Google Classroom, and the different types of platforms that school may use... Just getting to know Google Classroom, Canvas, and all the other platforms that might be available, so we don't go into a school and look... or having to put some sort of pressure on the teachers to kind of have to reteach us about something that we should have already learnt and we should come to practicum prepared, already knowing about.

Toloake is critical of ITE coursework for inadequately addressing the role of technologies in professional identity formation. Coursework must enhance its focus on digital technologies that are used during practicum, ensuring "everybody enters practicum are on the same page, because we're not the same age". A lack of support from the AT regarding digital technologies may induce "panic anxiety" in pre-service teachers. This anxiety stems from uncertainty in planning and preparation before practicum, potentially leading to disillusionment with the teaching profession if support is lacking. When asked about the impact of "panic anxiety", Toloake believed it could

lead pre-service teachers to say they don't want to be a teacher anymore, as they find the uncertainty and panic anxiety it induces too much for them.

The COVID-19 lockdown practicum allowed Toloake to observe the beneficial role of digital technologies in maintaining class connectivity. Despite the absence of video, the AT's presence during scheduled class times facilitated necessary support for Toloake and the learners. This decision to engage online empowered the AT to be:

... available for any questions and queries, which was definitely helpful... a few years ago, if we didn't have that, the student teacher would be like oh, well this is all on me, but having that accessibility and connection through technology just made you feel like you weren't alone.

Toloake gained insights into learners' interactions when using digital technologies during her practicum. She noted that learners utilise digital technologies beyond what is understood to be their academic purpose, which is also contrary to expectations. This duality highlights the critical role that technologies play in education and furthermore, their potential to be a distraction:

They play games, like during the time that you're talking and just when you think – you know, you think they're zoned into to doing their work, and then you walk around and they're playing a game. So they definitely are focused, but on the wrong thing.

The use of digital technologies by learners for non-educational purposes proved to be frustrating for Toloake. Although laptops could detract from learning, the AT could not restrict laptop access as much as phone usage as laptops were essential for the use of the learning platform. Toloake regarded the laptop as an indispensable tool for teaching during practicum. Digital technologies facilitate a scenario where learners can selectively engage in their studies or succumb to distractions. For Toloake, this situation prompts the need for an examination of the autonomy granted to learners in their learning interactions and, furthermore, challenges her pedagogical approach. Toloake says:

It definitely made me feel like my lesson wasn't interesting enough to be able to grasp their attention and it made me feel like I had to do something crazy to get their attention or I had to get them to close their laptops to listen to me. So it definitely for me was a distraction and I'm just like okay, why am I up here if everything is online and everything in terms of what I'm teaching.

Toloake is critical of the NZC's digitisation because it fails to achieve true inclusivity. Her practicum experiences revealed a cultural disparity in the assumed uniformity in the use of digital technologies in the NZC. This digital gap is relevant to Toloake, highlighting her Pasifika community's disproportionate risk of becoming digital have-nots. She believes that

...we have to bear in mind that together doesn't mean everybody, like not everybody has the access to get a digital device. Not everybody has the money to get a digital device. Those that are in a position or a place or even like an income state to afford, they're already like – they'll be all for it, you know, yeah, this is good, this is a good movement, but for those... and I would speak for my people who may not have that access or may not have that income to afford or put themselves in a place to be able to afford it.

Toloake sees that the pressure to digitise education places a lot of pressure on families to supply the tools needed to access digital learning. Toloake has seen the financial pressure that parents in her community have encountered trying to provide digital technologies for their children. Many parents work overtime to provide what their children need for a better education. Even though Toloake believes that digital technologies open access to better education, many parents will only just provide what they can afford, which would create a technology gap with learners, who had access to better quality digital technologies.

Toloake sees that more government planning is needed to ensure that digital technologies are provided for all learners and designed to meet their needs.

Government responsiveness will ensure from Toloake's perspective that:

...everybody's on the same level, same stage, and we can all go together from the same start line rather than those who have

already got their devices, they're like running fast, and everybody who's still working for it isn't even on the start line.

The starting point must incorporate each learner's cultural background instead of imposing a digital culture. Toloake asserts that the learning traditions of Pasifika learners should be embraced, not disregarded. The argument is that a digital tool alone cannot foster equitable educational opportunities without acknowledging the learners' cultural context. Toloake contends that any educational digital transformation must integrate the oral traditions inherent Pasifika culture:

We learn through oral stories, we learn through teaching, we learn through action doing, so online isn't our strength, I would say. It's something that we would have to learn and something that we would have to work hard for to possess.

Toloake argues that resourcing digital spaces is crucial for Pasifika, as quality digital tools are essential for learner connectivity. The disparity in device quality of devices provided by parents significantly impacts learners' opportunities to engage in digital learning environments. The absence of brand-name devices engenders anxiety among some learners. When asked about what this anxiety looked like for learners, Toloake saw that this situation can "influence how a student perceives school". Rather than seeing school as a safe space that prepares learners for higher education, learners' anxiety about digital technology means for learners using Toloake's words, "it's more like I don't want to be here; I'll take myself and my lower laptop home (laugh)".

The barrier to digital education arises from socio-economic factors that prevent learners from accessing digital technologies rather than from the teacher herself. The functionality of digital technologies may also be compromised due to power depletion before the class conclusion. This results in the disruption of instructional delivery and learning engagement.

Summary of Toloake's Practicum Narrative

Toloake's narrative examines the disruption caused by the digital world to interpersonal relationships. It elucidates how pursuing digital connectivity can compromise authentic relationships and meaningful engagement. Furthermore, Toloake's narrative underscores the importance of digital tools, especially laptops, as providing a gateway experience to the digital world. The notion of a pre-service teacher's digital fluency being contingent on their digital tools is a recurring theme. Digital tools are pivotal for enhancing the digital fluency of pre-service teachers to support learners in digital learning. Toloake's narrative accentuates the tool's role in assisting teachers rather than in assisting learners. Challenges related to disruptive usage and limited access hinder learners' effective utilisation. Another salient theme is the dependency on digital technologies for effective teaching, which consequently affects learners' learning. This perspective resonates with experiences from the practicum, where pre-service teachers faced inconsistencies regarding the availability of digital technologies in educational settings. Schools either failed to provide necessary resources or the technology learners brought was unreliable.

Toloake conveyed apprehension regarding the increasing dependence of education on digital technologies. The role of the AT emerges as a critical theme. Entering a practicum unprepared necessitates that the AT alleviate the pre-service teacher's anxiety and assist the pre-service teacher in acclimatizing. Building collaborative relationships between the AT and pre-service teacher is deemed significant for overcoming challenges. Nevertheless, this partnership heavily relies on the AT's digital fluency, often perceived as an incidental attribute. The importance of engaging learners, through leveraging their digital knowledge and connections, is also highlighted. Such relationships are found to be highly effective in assisting pre-service teachers in addressing digital challenges.

Additionally, Toloake's narrative emphasises the necessity of enhanced engagement and a targeted approach towards integrating digital technologies in ITE. The influence of culture in comprehending digital technologies is particularly noteworthy, as a universal approach is inadequate. The discourse on digital equity reveals a digital divide affecting Pasifika pre-service teachers and learners, countering the notion of inclusivity implied by "everybody". Her cultural perspective includes criticism of the commercialisation of digital environments and the emerging branding disparities in particular educational contexts, which may lead some learners to opt for disconnection over participation. The theme of learners' engagement and distraction also arises, indicating the need for innovative pedagogical strategies to mitigate reliance on superficial online searches and the uncritical practice of copying information.

Toloake's View of Digital Identity

Toloake's digital identity is intertwined with her use of her laptop, serving familial communication and professional functionality. It encompasses personal reflections on the anxiety and distraction stemming from her increasing reliance on digital technologies, outcomes that she did not expect in her initial use of digital technologies for the purpose of communication and connection. Her developing professional identity also reflects the same concerns, with the anticipated benefits of adopting digital technologies not manifesting as she had hoped.

Within ITE, Toloake has come to perceive her evolving digital identity as a pre-service teacher, hinges on her capacity to adapt to change. Cultivating this essential disposition relies on her engagement in environments and relationships that nurture digital identity during practicum, alongside coursework that prepares pre-service teachers for the practical realities of teaching. A significant aspect of Toloake's digital identity is her Pasifika heritage, which informs her that digital engagement is deeply connected to her cultural identity and existence.

Hannah's Narrative

Hannah's career change was catalysed by the COVID-19 pandemic, leading her to a profession she had spent "her life trying to avoid". Raised in an education-focused family, Hannah attempted to distance herself from discussions about a teaching career during her upbringing. Following her secondary education, she pursued university media studies but dropped out, eventually beginning a hairdressing apprenticeship in Australia. The pandemic interrupts her apprenticeship, prompting her to have the realisation, "I actually did want to do teaching, and so I just applied to do my teaching degree". As Hannah puts it, "I think I always kind of knew that I wanted to do teaching, but I think that I wanted to make sure that it was a decision that I was making myself".

The realisation that digital technologies are a big part of Hannah's life was accentuated by the pandemic. She uses social media platforms to maintain connections with loved ones: "[m]y mum lives overseas, and so I'd be using Facebook Messenger every day to talk to my mum. It's a big way of communicating with friends and family". Hannah reflected that "I can't really imagine life without technology".

Hannah employs various social networks for distinct purposes, with Facebook Messenger being her primary platform, supplemented by Snapchat and Instagram. Different platforms serve different functions for her; she feels compelled to use Facebook while actively engaging with others on various networks. Despite being perceived by Hannah as a disconnection tool, Facebook is integral for familial communication. She joined this platform during Year 9, motivated by family involvement and entertainment, but ultimately felt distracted and detached from reality due to excessive social media use. The amount of time Hannah spent on social media was very distracting and made her feel "very disconnected from the real world". Hannah acknowledges the potential benefits of unplugging Facebook but recognises her necessity to keep connected for familial updates.

Hannah utilises Snapchat for friend communication, noting its effectiveness in eliciting quicker responses compared to Messenger. Instagram is a tool for community engagement and personal photo curation, where she collaborates with friends on book reviews. One thing that Hannah does on Instagram is do book reviews with friends who share her interest in reading. When prompted about how she did book reviews on Instagram, Hannah responded that she and her friends have their “own page for that kind of thing [book reviews]and connecting to other people around the world that like to read”.

Hannah perceives digital technologies as being profoundly impacting, asserting that these technologies shape many aspects of professional life. As an observer of international discourse, she cites the abortion rights debate in the United States and the repercussions this debate has had on political perspectives in Aotearoa New Zealand, as an illustrative example:

You just like to think that [in] a place like New Zealand, it wouldn't be like that, but at the end of the day I think whatever's happening around the world, it definitely ... influences all of us one way or another, if it's like advertising or the way we do anything, I guess.

Hannah is concerned about the unfiltered information shared online. She knows that some people and companies manipulate information to present “what they're trying to get across”. Hannah's response was mixed when encountering this information online:

In some ways I'm very definitely like what the hell, that's just very intense and very scary, but other times it's just kind of like oh, I don't know, you just brush it off because you're so used to seeing it.

Hannah's observation of intensity and scariness highlights the increasing influence of external politics on Aotearoa New Zealand's political landscape. She perceived unfiltered information as detrimental to her sense of gender equality and justice. The online reaction in Aotearoa New Zealand, to the Roe vs Wade (24th June 2022) Supreme Court decision overturning the original 1973 judgment on abortion rights

exemplified this phenomenon. The changes in U.S. abortion laws incited fervent online discussions within Aotearoa New Zealand. This dialogue has been particularly distressing for Hannah and her peers, illuminating how problematic personal discourse in negative, unfiltered and disempowering comments is masked as free speech. Unfortunately, the online commentators and trolls perpetuating such rhetoric often neglect the experiences of other individuals, even their friends. Hannah noted the resultant impact on her peers; some felt oppressed while others expressed unfiltered viewpoints.

Hannah did not realise how much schools have changed since she left in 2013. She commented that:

One of my cousins that goes to the same high school as me, she was saying that the school is now focusing on being paperless and so they all have to have an iPad or a tablet or access to a laptop or something like that...Going to my practicums and seeing kids doing coding as a part of their inquiries or their topics, I think it made me realise how much different the world is from when I was a kid.

Hannah attended a practicum at a “pretty digitally focused” primary school, which excited her because the “digital world can open up so many possibilities”. However, it was also scary. When asked how she responded to this range of emotions, Hannah reflected, “[t]here’s pros and cons to everything, and I guess it’s yet again finding that balance between what’s right and what’s wrong with the digital world.”

Hannah appreciates films and series like Ready Player One and Westworld, which imagine both digital technology’s beneficial and detrimental aspects. For her, achieving balance is crucial to prevent individuals from getting “sucked into the digital world where you just wake up and it’s the first thing that you want to do and just rely on”. Hannah perceives an increasing difficulty in maintaining this balance as the distinction between reality and the digital realm becomes more ambiguous. She finds it challenging to conceptualise the extent of the digital sphere, particularly with discussions surrounding the metaverse, expressing uncertainty about distinguishing

reality from illusion. She now questions how the metaverse exists, commenting, “I guess when some people think about the metaverse, it’s definitely a virtual reality kind of thing. Who’s to say that we’re not already doing that in the real world with social media and things like that?”

Despite Hannah’s perception of a progressively indistinct socio-technical reality, her latest practicum involved minimal anticipation regarding the influence of digital technologies.

I think because I haven’t really been at a practicum yet where digital technologies are heavily relied upon within the students, except for one practicum where it was during lockdown last year, so obviously we needed computers. But I didn’t really see that as a practicum because it was just such a strange time.

This practicum during the COVID-19 lockdowns forced Hannah to complete an entire practicum experience without meeting students or the AT face to face. She did not even step physically inside the school grounds.

At first, I found it quite awkward, like being in a video call with about 20-odd students and just trying to develop relationships with the students. Some of them were really cool and reached out to me straightaway and we relied a lot on email, having to talk to each other and things like that, definitely not the same as building relationships.

Hannah’s key lesson from the practicum was the importance of integrating both digital and non-digital teaching methods and discerning their appropriate application. She noted that digital integration varies based on the school and the year level, and believes this is particularly so, when considering the challenges that new entrants face due to their lower levels of independence.

Hannah’s own prior knowledge of her own experiences at school helped her understand her current practicum experiences. Hannah reflected that she always compares her experience on practicum to her own experience at primary school. When she was at school in the early 2000’s her classroom had a TV screen and at least five computers. Her current practicum school also had TV’s in every classroom. Still,

Hannah reflected that technologies like Apple TV and Chrome casting had changed how these digital technologies were used and learners engaged with them.

Hannah exhibited a notable interest in her Year 3 practicum class. This cohort was called “the Covid year” because they’ve never had a full year of schooling”. These learners had depended extensively on digital technologies for learning. This was at the expense of foundational skills in literacy and numeracy, which prompted schools to revert to foundational skills like writing and speaking when learners returned to the classroom rather than continue the emphasis on digital technologies.

During her practicum, Hannah’s exposure to digital technology was confined to observing teachers uploading learners’ work to Seesaw. This practice was deemed “not an important part of the learning anymore” by teachers. The transition to digital documentation of learners’ work lacked educational significance, as parental engagement with posts was minimal due to time constraints or forgetfulness. Consequently, Seesaw and the updating of the school website became mere procedural tasks, leaving teachers to feel “like they were wasting their time”.

Hannah notes that her ATs were delegating aspects of their instructional responsibilities to digital technology.

... they had Jump Jam and they do that as their source of fitness every morning. They quite relied on the Chrome casting for that part. Also, other teachers would rely on YouTube for fitness. I think it kind of showed me that a lot of teachers aren’t really confident with doing fitness themselves or didn’t find the importance for it so would just squeeze in like the first 10 minutes of the day or something like that.

This contrasted with a previous practicum completed in her previous year of study:

Where I had a new entrants class, I was quite relied on for storytelling and songs and things like that, whereas this year I didn’t really notice it that much as a main source of teaching.

Hannah found “it particularly interesting” as outsourcing not only influenced the role and opportunity given to her but also affected Hannah’s ability to develop as a

storyteller and singer. The emphasis shifted from honing her skills as a performer of stories and songs to using digital technologies to teach drama and music instead.

Hannah lacked the opportunity to lead digital learning during her practicum.

Consequently, despite the practicum's focus on digital technologies, she felt a disconnection from teaching. This disconnection arose from her AT's lack of integration of digital tools, which influenced her mindset. Hannah reflected, "my AT didn't really use it [digital technologies]" so, "it just kind of didn't cross my mind either". Nevertheless, she recognises the significance of digital learning for her professional development:

I didn't really realise how much in the classroom you definitely do kind of rely on it, like if it's not directly for the students, it was for myself, like just to figure out timings of the day and reading my lesson plans and things like that.

Hannah learned to rely on Google as a source of information and saw that it built understanding with learners:

If the kids were asking me something and I didn't know the answer, I'd be like oh let's Google it together. I know that they definitely enjoyed learning things with me through that sense. Or sometimes I'd get them to go on the iPad and try and find the meaning of something.

Apart from Google, the other tools that Hannah learned to rely on were YouTube and Khan Academy. When asked how she relied on them, Hannah replied that she used them to improve her understanding of math. Not having done maths in a long time, the learning platforms helped Hannah come up to scratch on areas like fractions in the maths curriculum, which she needed to refresh her knowledge on.

One thing that Hannah experienced during practicum was coding. When she started her practicum:

They were just at the end of their coding unit. They use Bee-Bots. That was pretty cool. That was pretty simple and easy and a bit challenging for them as well, but it was also great because then it led them into a maths unit which was mapping.

Hannah aims to enhance the use of digital technologies in her classroom. She emphasises the necessity for learners to be knowledgeable and safe when using digital technologies.

Hannah prioritises teaching learners to communicate their concerns, to trust their gut... and [to] just let adults know if something isn't right was important". When asked, Hannah shared that she believes this principle is role modelled and stems from her "having a good relationship with my students so they feel like they can do that". This illustrates her apprehension regarding the overwhelming nature of digital information. Hannah seeks to alleviate these concerns by focusing on "the youngest class, [so] that I wouldn't have to worry about that kind of stuff so much with them".

Overall, the digitisation of education:

... was something that I haven't really paid much attention to when it comes to my own teaching or education, so if it does ever get to that pathway, it's something that I'd have to think about ... probably like communicate with other teachers as well. I think just the ethics and all that stuff around that can be a lot bigger than what I can handle.

Hannah's concern about digital technologies was supported by sporadic practicum engagement and a lack of intentional engagement during ITE coursework. She could not remember doing any specific digital technologies papers within her course of study. Her ITE did make her aware of protecting her online profile, but in terms of teaching practice with digital technologies, it was lacking. With the speed of developments in educational digital technologies, Hannah believed there needed to be more emphasis on preparing pre-service teachers.

Hannah considered the integration of digital technologies within coursework to be essential for pre-service teachers and learners:

Whether we want to believe it or not, it plays such a big role in the child's life. I know a lot of the kids when we get them to write recounts, a lot of it was just like I watched YouTube or I played Roblox... for some families that's just the reality for them just to help them with their day-to-day lives is digital technology.

Engagement with digital technologies in ITE is crucial for enhancing both pre-service teacher pedagogical practices and their comprehension of the digital tools that are used by learners. This understanding can enable pre-service teachers to leverage available resources and effectively facilitate autonomous learning opportunities. As Hannah noted, “A few of my students have done really well with their writing, just because of the type of language that they’ve learnt from YouTube and things like that. It’s quite interesting”.

Hannah’s awareness of learner’s use of digital technologies is somewhat restricted. As she remarked, “I think that I only saw one or two or three students using digital technologies”. Hannah expressed her views on the Ministry of Education’s emphasis on integrating digital technologies into the curriculum:

A good idea. I think that the world that we’re heading towards is definitely going to be very reliant on technology, so I think it’s just best that we do prepare the future generations for a world where technology can be used. Especially for New Zealand, I suppose, where we’re not behind in [the use of digital] technology.

Hannah expressed apprehension regarding expanding new educational priorities, notably the digital sub-learning area integrated into the NZC. She posited that this development could affect pre-service educators.

I think it stresses teachers out a bit more [when they are] trying to find the balance of trying to fit all the stuff in because I know some teachers are quite old-fashioned and just love doing like reading, writing, maths, and not like cross curricula... Me and my friends have all been a bit woah about [this] because we’ve just been learning this curriculum and now there’s that curriculum refresher coming out. It’s just a lot.

Although she recognised the stress induced by the deliberate emphasis on digital technologies for educators, her practicum observations revealed minimal opposition to its integration. Instead, there appears to be a consensus regarding its inevitable role in the future of education.

Summary of Hannah's Practicum Narrative

Hannah's career transition reflects a return to a previously avoided career choice, ultimately leading to personal clarity. With existing confidence in digital technologies, she recognises the necessity of cultivating an educational rapport with digital technologies in ITE. Her narrative illustrates the transformative impact of practicum on her development of agency and awareness. It underscores the increasing interconnectedness of digital platforms while recognising diverse individual engagements with digital technology. Hannah articulates the significant influence of digital technology on pre-service teacher cognitive and emotional responses. A prominent concern is the challenge of navigating unfiltered and manipulative information.

Additionally, she contemplates integrating digital and real-world experiences for pre-service teachers in contemporary educational contexts. During her practicum, Hannah expresses concern about synthesising digital and non-digital teaching methods. She notes the effects of COVID-19 on her practicum, observing a reduced efficacy of digital technologies in fostering communication as educators delegate responsibilities. This delegation of responsibilities heightens tension, restricting pre-service teacher digital and broader developmental growth. Hannah's experiences prompted her to acknowledge the educator's commitment to promoting the well-being of learners and fostering meaningful engagement with digital technologies. She becomes increasingly aware of learners' distinct digital perspectives on the learning environment. Throughout her journey, Hannah sustains an optimistic outlook, stressing the necessity of human agency in digitisation to ensure it remains meaningful and human centric.

Hannah's View of Digital Identity

Hannah is digitally confident. Digital technologies have significantly influenced her life, and she actively engages in the digital realm through various platforms. While she recognises the benefits of digital technologies, she is apprehensive about the

proliferation of both unfiltered information and discourse in digital spaces. She has encountered uncertainty and insecurity concerning politically charged gender-related issues.

As a pre-service teacher, her digital identity embodies this apprehension, as she aims to safeguard learners and assist them in acquiring online safety skills. Hannah is increasingly mindful of the indistinct line between reality and digital representation. She is concerned about learners becoming overly dependent on digital technologies. Furthermore, she opposes the idea that embracing a digital identity could constrain educators' self-expression, creativity, and imagination.

Robbie's Narrative

Covid-19 was the catalyst for Robbie to change careers from corporate IT to teaching. Forced to be out of the office and working from home, created space for him to ask, "do I want to keep doing what I'm doing"? Thinking about "what do I want to do with the time that I've got and what would be important", Robbie remembered he had "done some teaching previously when I was living abroad". This was a time he "just really enjoyed" and decided "I'd like to get back into it".

While Robbie's IT roles revolved around digital technology, he was not "a massive social media person... It just wasn't my thing, so I have never really done that". Outside work, he uses digital technology for entertainment (listening to podcasts) rather than communication or connection. Robbie does use Twitter for "emergency information" and has Instagram and Stravia accounts but considers himself not "super social" on them.

Robbie also sees "how toxic" social media can be, which reinforces his lack of interest. The toxicity of social media "almost speaks for itself" in that this emphasises a socially curated presentation of identity that not only inhibits genuine connection and interaction but creates space for disseminating "toxic" information. He sees evidence of this

culture in the “disinformation and hurtfulness out there and the misrepresentations people see about people’s lives. Everyone picks the best moments. Very [few] people pick the hardest moments to represent or their moments of failure”. Toxic information creates online spaces for ‘friends’ to share disinformation and bully those who hold different views. As an American citizen, he looked at the disinformation spread by friends and others about the 2016 Presidential elections and “I was just like, my god, I want nothing to do with this”.

Robbie views social media as a trap, as those who actively use it must keep producing content to keep up and remain relevant. After attempting to engage with Twitter, he questioned the relevance it pretended to create:

Why do I need to know...? Like there is so much information from so many random places. I just thought I don’t gossip like that, and nor do I need to know everybody’s inner thoughts - and nor did I want to share mine.

Robbie also sees “irony” in his choice to disengage from social media as changing career to teach was forcing him to become more “familiar” with social media, as this is “the stuff that kids are consuming and involved with”. This challenges Robbie, who wants to remain disconnected but is concerned about the ideas and conversations that “kids are consuming and being involved with... body image, bullying, how people talk, just wrong information just being spread around and just...yeah, that’s why I find it toxic”. Despite this toxic reality, Robbie was aware “a substantial proportion of the world consumes it abundantly, and so I feel like it’s something that ... you need to be familiar with”.

Robbie entered ITE comfortable with digital platforms and confident using laptops, iPads and phones to create content. He feels with digital tools, “in general, I understand how they work, even technically, and feel somewhat comfortable moving through them, but I don’t feel like – I just feel like I need to be familiar, with TikTok and things like this”.

Robbie considers digital technology to be “the main channel for creating things for University as well as a sort of finishing place for lesson plans and things like this”. He uses various digital tools, including a laptop and phone, to organise his study.

The online platform used by his ITE provider met his expectations, but its usage was lower than expected “because it seems to have started this year, and so most of the teachers weren’t totally au fait with how to use it”. His frustration with its lack of use was further compounded by the shift to online modes of learning necessitated by COVID-19:

... everything went online so suddenly the best we got is this, what we’re doing with Zoom and sticking people on calls, and I just feel like there has got to be better ways for that to be done... I just feel like like some of the digital delivery and I feel that our classes that we study onsite at uni have been a little bit of a trainwreck because really the teachers, we’re trying - some students were needing to call in and they just get stuck on someone’s laptop in the corner.

The manner in which the hybrid approach was pursued during COVID-19 was different from what Robbie had expected, given his corporate IT background. Robbie’s experience of the hybrid approach within his previous IT career was one of it being well-resourced and effectively practised. Robbie was surprised that this was not the case within ITE. He was instead surprised that there seemed to be a lack of planning and organisation. Robbie entered a hybrid ITE context where:

...the professors were just like dial in on your laptop. I thought it was kind of like, really? Aren’t you guys prepared for this in some form? You’ve had a year or something with it.

Robbie felt ITE could better support classroom readiness with digital technologies. Reflecting on his course experience, he shared, “I don’t think that we are getting very much in that space... We had our first digital technology class lecture today, it’s an academic lecture, [and] it wasn’t super practical”. Instead, Robbie felt he got most of his understanding “of what I was doing in the classroom ... [through] talking to other teachers”. Having self-initiated radar as a pre-service was important. “You sort of

eavesdrop; you sort of ask questions. Somebody mentions something that you don't know. you're like what's that?"

While Robbie liked digital tools and thought they had "a real place", he was also cautious digital tools can be "too heavily relied upon and can also be cumbersome to apply, and they get sold as being the cure-all, and that's not the case". Robbie learned to adapt by listening to and questioning the teachers he respected, using practicum to observe "what teachers were using and how they were trying to engage the kids and using digital tools". This drive was not an ITE focus but driven by Robbie's existing interest in ITE.

Robbie engaged with digital technologies on practicum by making "observations of what people were doing in class". Robbie experienced a practicum context and AT who were reluctant to provide access to platforms like Google Classroom or a login for school systems. While this made sense for privacy reasons, it meant Robbie had to make do with learning what he could from his observations of the AT. Robbie saw the use of digital technologies in classrooms as "clunky" and was surprised that there were "not more integrated platforms considering that there's just things that kids have to do". As a teacher, "You've got to create work, you've got to hand in work, you've got to do roles, you've got to do these things. It's always amazing to me how that stuff seems so difficult to bring up".

Robbie's prior use of digital tools in his IT career gave him a strong sense of digital fluency. His practicum occurred in an ILE (Innovative Learning Environment) space where 84 learners were placed within three learning areas. Each learning area had its own television and Chromecast which Robbie could log onto, from his laptop, once the AT "got the sort of network logins worked out."

The digital classroom surprised Robbie' in practice. It was an "eye-opener" to see how reliant activating the digital classroom was on the availability of digital technologies and

how learners cared for and chose to use digital technologies if they were available.

Robbie saw the Google Chromebooks available in “varying states of functionality and destruction”, resulting in different rates of charging and access for the learners. He also saw how difficult it was for teachers to monitor digital technologies and ensure that learners were doing their work. Aspects like the setup of the classroom space, the ability of learners to shut their computers lid down, and Google access around school firewalls, in Robbie’s opinion, challenged the teacher’s ability to ensure that learners were locked into learning and not getting lost or distracted by the digital spaces of that they were choosing to engage with.

A lack of digital planning and functionality within digital spaces also surprised Robbie, with teachers relying on available digital technologies’ “rudimentary-ness” rather than a specific system or platform as an overarching application. Consequently, much of his learning involved the observation of rudimentary-ness in practice. For some teachers, this meant using digital tools to organise their work, but “then they did not use it ... [these tools] in the classroom; they weren’t leaning on technology in that way”. When Robbie saw effective use of digital practice, it was often by chance and dependent on Robbie’s own exploration of the classroom space. Robbie initiated experiences in which he saw teachers using Minecraft, Kahoot! and Helperbird. Minecraft, offered “an example of something where overheard the guy, saw it happen in a classroom, and then just sort of walked around and looked”. With Kahoot!:

Someone just mentioned it in passing. I was in the teacher’s staffroom and someone mentioned this thing called Kahoot!... I just sort of played around with that, actually did make a couple of those and did an activity or two with the kids around Kahoot!

Robbie acknowledged that teachers effectively utilised digital tools to plan learning experiences by accessing websites like TKI.⁷ Robbie believed teachers often

⁷ TKI or Te Kete Ipurangi was the Ministry of Education’s online digital home for curriculum content, teaching resources and news. It has since been replaced by Tāhūrangi which went live during November 2023.

intentionally missed incorporating digital technologies into actual learning activities.

Robbie experienced accidental rather than intentional learning when it came to the use of digital technologies during practicum. Any intentional inclusion depended on the

attitude of the pre-service teacher rather than on the input from the ITE provider or AT.

It was “just about some of that watching, some of that listening, just overhearing teachers, and with the teachers, it was literally in the staffroom, more often than not or

during some passing conversation”. The best piece of digital advice Robbie gleaned

within practicum came from hearing a teacher share at a 15-minute morning tea

learning session where the teacher shared their digital tips:

One of them talked about digital tools and he had just a good statement, which was don't try to much at once. Just try to sort of tick off one or two things, even like one a term or whatever it is.

The practicum informed Robbie of how many outside factors influence a pre-service teacher's experience of digital learning and teaching. The school itself, the platforms it chose to use, and if the pre-service teacher had access to these all played a part.

Robbie relied on the quality, functionality and reliability of the digital tools he had

access to. Robbie sees that learners love digital technologies and teachers that

“automatically capture what they are doing” if they are using the right platforms.

However, this potential was limited by the availability of workable digital tools. It raised

the question for teachers, “[w]hat if a kid doesn't have their laptop? What if the keys

don't work in that way? What if they hadn't charged it that day?’

Robbie does not see digital technologies as “a cure-all” for education if the provision of

digital technologies is limited. The inability to provide a clear, uniform foundation also

meant that schools were often sold on a particular digital solution but failed to provide

the hardware and digital professional development to support teachers in integrating

digital technologies into their practice. Robbie reflected that some schools would

embrace a particular techno-solution and present this to teachers as the problem being

fixed. The result is that many teachers don't buy into digital technologies, as rather than making their job more accessible, it is time-consuming even when initiating its use.

Robbie observed that various classroom factors could stall digital technology initiation. These included the interest and ability of ATs in digital technologies, the time needed to upskill learners, the time required to manage the digital technologies administration and the availability of network resources to connect and run specific digital technologies.

This creates pressure for a time in which the teacher has to learn a solution, address the technological problems it presents when implementing the solution just to find that, in the end, "it doesn't spark enough interest to take the time ... and then it just becomes ... a headache, or it doesn't get used". Robbie used the SMART whiteboards at his ITE provider as an example, where educators had them to use, but "they don't use it in that way. It's just a thing to put slides on". Robbie saw that digital technologies such as cell phones, laptops and iPads worked well in the classroom as they were technology "that people can kind of get their heads around, and all I need to do is just cast it to another screen".

Robbie sees school attitude as pivotal in supporting the pre-service teacher. The pre-service teacher can prepare digital learning and teaching and bring it to a practicum context. Still, if the school does not have a digital learning policy, then digital teaching will need to be adapted to a paper version so that "you have some way of [being] able to get to those kids that don't have access, for whatever reason". For him, this resulted in a "slight shyness about how much digital stuff I would do or how I would use it". This shyness also reflected a reluctance to use digital technologies until he saw what digital tools learners had access to, and if this would result in a loss of time. One key thing Robbie took away from the practicum was the need to find out more about platforms that could be used to develop responsive learner-focused approaches.

During the practicum, the reality of time and the need for speed challenged Robbie because of “the speed of stuff that comes at you, with how much information there is”. Digital technology “changes so fast. I know [that] what was a good site two years ago may not [be] now”. Robbie sees that ITE could better support this development speed by providing more practical opportunities in which adaptability could be practised. This would enable problem-solving discussion and learning space with “more openness on the things [that] you need to look at”. While Robbie was “relatively comfortable” using digital tools, he saw the importance of practising responding to the messy digital reality and the challenges presented in classrooms, a reality where “everything changes and rolls over so fast”.

ITE coursework needs “some practical discussions on what digital tools are useful in the classroom and how people do and don’t use stuff”. Robbie used his exploration of Minecraft as an example and how, for “some of these large global platforms, it would be interesting to hear or be exposed to some of that”. Rather than hear by ear about how one school was using platforms to support Mātauranga Māori and the cultural knowledge of celestial navigation, Robbie sees if informal discussions were formalised in class reflective discussions, all could benefit. This represents a missed opportunity to discuss an “engaging digital lesson or lessons, or how these things might be, and this is how it was built with these applications or possibly making it part of an assignment”. Robbie saw this kind of assessment as going beyond “just write me a lesson plan” to one that challenges the pre-service teacher “show me how you are truly going to use a digital [platform] – like show me how you’re going to use Minecraft for education”.

Robbie believes coursework could shift its focus from theoretical understanding to practical application of digital technologies. He was eager to be pushed by challenges that test his ability to respond with “down and dirty practical-ness”.

Robbie observes that learners primarily used Chromebooks or iPads to fulfil the tasks assigned by their teachers. However, he noticed that their engagement with digital technologies often shifts from initial connection to drifting off or getting distracted:

You'd set them on a task and they would open up and they'd start to write something. Then they'd get to talking with each other and then they just drift off towards YouTube, which I think was still allowed through. They'd work on their Spotify playlists. They had their earbuds on. It was certainly for some of them they were hiding out and just drifting.

In part, Robbie put this down to:

The nature of that particular classroom was, kids could be against a wall so in essence all your seeing is the back of their laptops and you didn't know for sure what they were doing. You could come by and they'd close their lid or turn the... you knew they weren't doing what they were supposed to be doing.

Robbie, because of his IT background, had empathy for learners, suggesting from his previous experience it was "hard to stay focused, and that's a corporate office. That's not a kid thing. We've all got that, and corporations spend big money trying to figure out how to keep people on task in that way".

Robbie witnessed how the lives of learners intertwined in their digital spaces, leading to the sharing of unwanted images and cyberbullying. This was primarily because of uncontrolled access to digital technologies, especially cell phones:

... we had some problems where some kid was vaping and they're not supposed to vape, obviously. They got a picture taken, they posted that on social media, and these are 12, 13-year-olds... So they get lost in those [moments] and there was certainly crossover from the digital frame into the real world, definitely.

Robbie also experienced this crossover between the digital and real world by learners. Once he grasped this concept, it became a genuine means of connection and involvement that he found enjoyable and used effectively to establish relationships with learners:

Some of the kids thought I was Louis Theroux from the BBC. Okay, well there's a whole dance, a whole song because he

does raps, he did a rap, and I look vaguely like him in that I am a middle-aged man with glasses... I've got the salt and pepper hair, and a white guy and I don't sound like a Kiwi so therefore I might be British, I guess. I don't know.

So I'm walking around, and they're like, hey, mister, are you the jiggle jiggle guy? Are you the jiggle jiggle? I'm like, what? I thought they were mocking me. I didn't know what they were talking about. [When I] Found my way all the way back to getting what it was about. It was actually quite funny:

What's happening online is absolutely coming out into the world. In that instance it was great fun. I figured out the rap and I had them thinking I was Louis Theroux, and I said the rap for them in person and they loved that, so that was just a blast.

This experience Robbie described as “the wake-up call” that helped him to “realise that I'm going to need to engage with this”. Robbie has shifted his emerging practice to consider ways in his classroom to create space for learners to share digital content or a trend with him as a teacher and show him how to do it. Robbie initiated this development by “trying to engage and respect that that's a world they're in and trying to at least give it a go - because it's huge for them. It's massive”.

Robbie, in contrast to many of his peers, sees the importance of learners being connected and having a phone. He discusses how the learner's response to a question differed from Robbie's own experience in school:

The kids were asked, would you rather have a phone or a car? A cell phone or a car? Kids were like the cell phone, and I was like that was never a thing for me. I wanted the car. That just shows how important it is, because, for me, the car was the same as the phone for them. It got me to my friends, and it got me hanging out with my friends and that was what it was about.

When considering the aspirations of the digital sub-learning area of the NZC, Robbie thought this “sounded like hyperbole”. He saw that digital technologies were already important by “default”, as all careers involved using digital technologies. Robbie says, “Kids natively do this because they have their apps and their phones, and they know where they are, and they move around, and they know they can share”. The aspiration of being able to engage with digital tools was necessary as “[m]ost people, the vast

majority, are going to consume things. It doesn't mean that they're not going to be able to be savvy, but they need to be able to understand how they work". Regarding coding and building what worked, Robbie, because of his IT background, saw this as a skill that most learners, like those skills needed to be a surgeon or welder, were particular. In fact, coding and building what worked fit only a certain subset of the learners who had the capacity and capability to be software engineers:

So when you get down to the people who really know and then you'd even get beyond the layer of those people because most of those people are actually just really savvy at using multiple applications to move things. When you get down to people who can really do code, that's another layer below. Those people, they've got to be willing and able to sit in front of a screen and really enjoy that for hours. That's a weird skill and a rare skill.

Robbie did not see how the sub-learning area's priorities contribute to a "well-rounded education". He makes this point, when he says:

I think there's space to show those concepts expose people to that, but I think it's much more important that they're savvy on how to leverage the tools they're more likely to use, which is here's Google Slides. This is how you do this, this is how you move information across, this is how you link things between documents, this is how you sort of can leverage these tools that you'll end up using. And, most importantly, which is in the digital world because I did work with an agile software development team, this is how you work a problem, this is how you sort of chip away at things.

Robbie was very supportive of the design element of the sub-learning area as it encouraged learners to learn the process of design-based thinking and problem-solving. This process made it easier to engage with learners using applications like Minecraft, and grab their attention:

It's about seeing a problem, thinking of a solution, trying to prototype, so finding out information, asking questions, trying to figure out what might work, prototyping something as quickly as you can, getting feedback, going back, starting again. I felt like you could do that stuff with kids. They just need to understand that you go, you try to think of something, you put a draft down, you rework it, you see how it sounds, you go back, you do it again. If you've got some real clever ones, you can open up the reins for them to do a little bit more.

One of the baseline elements that Robbie would like to see introduced into the curriculum is teaching learners to identify “fake news” and “cyber-bullying”. Robbie sees school as a place to talk:

... about things that are up there and how fast they spread.
Talking about how much the digital world is anonymous and
people are looking for reactions, and they will say and do, and
put things out that they would never look you in the face to say.

Digital empathy is a capacity that Robbie sees as essential for learners. Digital empathy is the ability of learners to think critically about the messages they receive and send, enabling the agency to “imagine how things that you say are responded to”. For Robbie, this skill is significant as digital technology influence, which, in his view, is “not going anywhere”.

Summary of Robbie's Experience of Digital Technologies in Practicum.

Robbie's decision to change careers reveals the importance of prior lived digital experience. He cautiously engages with social media because its platforms contain toxic information and induce constant pressure to create content to stay relevant. Despite his caution, he is aware that he cannot escape the digital world, as his desire to disconnect is contradicted by his choice of profession. Robbie emphasises the importance of understanding how learners both use digital technology and exist in the digital world to connect with each other. This paradox forces him to bridge the gap between his disconnect and connection to build a relationship with learners. Although Robbie is confident when using digital tools, he acknowledges that this does not necessarily translate into an effective digital pedagogy in the classroom. He sees the need for more practical support to integrate digital tools into educational practice and facilitate achieving outcomes.

Robbie emphasises the potential of educational technologies but warns it is not a cure-all for education. This is due to the variability of digital technologies across different educational contexts, making the “digital classroom” concept more of an idea than a

physical reality. Adaptability and self-initiation for pre-service teachers is an essential aspect of digital fluency. Robbie reveals that pre-service teachers must learn to rely on their abilities to navigate the challenges of digital technologies in the classroom rather than relying on a planned or structured framework.

Robbie's lived practicum experience reveals that digital fluency can depend on elements 'outside' the pre-service teacher's control. In particular, the attitude of the practicum school towards digital technologies is seen as an element that can either enhance or hinder a pre-service teacher's digital fluency. Robbie also explores the concept of time and space, recognising the need for pre-service teachers to practise adaptation in response to the rapid changes in digital technologies.

Blurring what is framed as digital and non-digital is another theme, both in Robbie's life and in the lives of his learners. It is a theme that highlights the importance of educators' understanding of how learners navigate the digital world as it intersects with the educator's own world, often in unpredictable ways. Finally, Robbie's narrative underscores the importance of focusing on a well-rounded education that considers intertwining the digital realm with all aspects of a person's life rather than solely focusing on technological outcomes.

Robbie's View of Digital Identity

Robbie came into ITE with a clearly defined and developed professional digital identity due to his previous IT career. However, he was reluctant to build his digital identity, as he was not interested in the performativity and toxicity he perceived to exist in this space. Increasingly, he saw the irony in this as his career choice meant he had to embrace a more connected digital identity. Not only was Robbie increasingly aware of how his previous knowledge, skills and dispositions supported him in spaces that were supposed to be digital, but that learners transitioned seamlessly from the real to the digital. It was essential for him to understand this identity. Robbie encountered several experiences during practicum that highlighted the importance of this transition to him,

helping him see how to build a connection with learners. Robbie saw that ITE did not provide the space and support that he expected would be needed to grow the professional elements of his digital identity. The gap between expectation and reality was more significant than during his previous professional experience in the corporate world. Robbie saw that, for his digital identity to continue to evolve, it was important for ITE to provide the connectivity needed to develop positive relationships, space and practical opportunities.

Conclusion

The career changer narratives of Toloake, Hannah and Robbie emphasise the importance of lived experience in shaping pre-service teacher understanding of their digital identity and the crucial role that practicum plays within this process. The disparity between ITE coursework and practicum experiences is also evident in the recurring theme about the disconnect between the theory taught in ITE and the digital reality experienced in practicum.

These narratives show that ITE does not support pre-service teachers to feel prepared to use devices that schools use, leaving it to them to adapt on the fly. This lack of connection meant that many participants had to rely on building their own support networks, relying on existing relationships outside of ITE. The importance of the AT also comes to the fore in these narratives with the participants highlighting that their progress depended on the school and ATs' digital fluency. The variability that was evident created both inconsistent practicum experiences and limited opportunities for hands-on learning.

The career changer narratives clearly show that these pre-service teachers place equal importance on both adaptability and technical skills as a foundation of their digital identity. They reveal an awareness that learners exist in a hybrid world where the barriers between the physical and digital are increasingly blurred. This has caused

challenges for students learning and contributed to a realisation of how digital technologies have influenced each of the participants.

Chapter Eight: Make a Difference Narratives

This chapter explores the narratives of pre-service teachers who are altruistic in pursuing teaching as a career (Richardson et al., 2006; Thomas & Beauchamp, 2011). These participants are motivated by their own experiences, family connections and experiences of schooling to make a difference in the lives of learners. These pre-service teacher narratives reveal how a complex interplay of personal, social and emotional influences guide many pre-service teacher decisions to make a difference (Richardson et al., 2006; Thomas & Beauchamp, 2011). Abby and Camila's narratives reflect their motivation to begin ITE, which is characterised by life experiences that have led them to choose to teach because they want to make a difference in the lives of learners.

Abby is completing a one-year postgraduate qualification in primary teaching. Her motivation to make a difference stems from her experiences during her own schooling. Abby experienced a school context in which teachers were not relational or supportive. She is motivated to engage learners better with the curriculum content she is passionate about and provide holistic support that caters to each unique learner.

Camila is completing her third year of an onsite BEd ECE undergraduate degree. She was undertaking this degree as part of a specific Pasifika pathway that her provider offers. Camila was studying to restart her career and resume work after taking time off to care for her children. Her desire to make a difference by becoming an ECE was motivated by her own experience of raising a family and the impact that having focused time with them provided. Camila's narrative represents the story of a pre-service teacher who now wants to create this concentrated time within ECE so other learners can flourish.

Abby's Narrative

Due to her primary school experiences, Abby aims to be a change agent. She believes “enhanced support and engagement could have significantly benefited her education”.

Abby wants to be the supportive teacher she did not have in primary school. It was “very black and white, not a very loving environment”, and one that failed to accommodate her individual learning preferences.

Abby considers herself to have been at just the right age to embrace social media:

When it was really blowing up. I was about 14 and that's I think the perfect age and so I definitely feel like I got sucked into that. I don't really remember not having social media.

Abby uses multiple social media platforms on her phone to communicate, keep in touch, look at the news, and entertain herself. She uses Messenger to talk to friends and communicate with people “mainly because it's quick and easy and most people are on it”. She uses Instagram for enjoyment, viewing it as a leisurely space to be “mindless” and escape from the culture of constant notifications associated with other forms of social media. Abby also uses Snapchat to share photos: “a little bit of YouTube and TikTok, that's definitely entertainment”.

Abby acknowledges the adverse effects of social media. She expresses concern regarding her increasing screen time. She believes individuals are drawn into using social media due to the allure of an idealised lifestyle. Witnessing “unobtainable” experiences on social media fosters aspirational goals and a sense of belonging. Abby perceives herself as effectively managing this societal pressure:

I'm at an age where I can manage it well. I do find myself getting carried away, but I'm pretty good at still being able to be like 'oh I've got work to do, I can turn it off'... it definitely is a worry (laugh).

Abby believes digital technology “can be a massive advantage” in education. She also thinks learners use of social media can be “quite scary”. She believes the use of social media, “starting younger and younger is just so scary”. Abby reflected, “we don't know

the effects ... it's been ten years since it probably blew up; we've never had a generation of kids as young as eight or nine using social media". Abby is most concerned about privacy and the ease with which social media allows people to communicate with learners:

Children who are younger, and they're so trusting that they don't, may not see things that aren't, like the bigger picture, or may not see things that are not quite as good as they are advertised to be, can fall into rabbit holes. I definitely think that there's people who do not have the best interests of children so I think that can be a scary part of it.

Social media is also "really difficult to monitor". Even though there are ways to restrict usage, "there's ways around it and there's ways that parents don't know". Abby observed learners aged 8 and 9 on practicum communicating using secret messenger functions on platforms such as Messenger that could allow "hidden communication that is potentially damaging". This communication allowed them to speak secretly as the messages dissolved when they had been read.

Abby expected digital technologies "would be quite limited to the basics, reading and writing, initially" but would not be a key feature in her "initial learning process before practicum". It was surprising how integrated digital technology was in the practicum classroom compared to her schooling: "when I was in Year 6 was when smart boards got introduced, and that was revolutionary". It was not only the digital tools that had changed but also the digital technology mindset that teachers used in the classroom:

Going into practicum... I definitely thought we would use it in reading and writing, but more for teacher models as opposed to the children using it themselves quite as much as they did. I thought it would be more projector-style, teacher-led, rather than student-led.

Abby's practicum context utilised digital technology to "help students advance their learning or support... those struggling students". She was impressed by the integration of technology, contrasting it with her prior primary experiences, thinking "oh wow I

didn't realize how integrated it was, this is great... I was like, this is so different to my experience of technologies in primary". Although surprised, she felt reassured that she felt "really confident in using digital technologies". Abby considers digital technology a "strength of mine, so I felt totally fine". This allowed her to be confident such that she could adapt to it rather than just feel "oh my gosh I can't do this".

Practicum allowed Abby to see "digital technologies used in all aspects of the curriculum, which was really cool to see". She observed learners utilising Chromebooks for inquiry and across various subjects, including maths and music. Learners employed diverse apps such as Prodigy and Epic and collaborated on book creation using class iPads. Each classroom was equipped with nine Chromebooks, and learners had the option to use BYOD, while for younger learners, iPads were available for photo-related activities. Abby recognised the uniqueness of her opportunity, noting, "it's quite cool they had that option because in a lot of schools you sort of don't".

Abby's digital AT emphasised that technology use extends beyond specific tools, focusing on its integration into learning to enhance subject comprehension. This perspective allowed her to appreciate digital technology "in a way that is successful rather than just aiming to use digital technologies to tick a box".

Abby taught learners how to use PowerPoint tools, something that previously had been put in the 'too hard' basket. The AT was reluctant to try too many new things, as Year 3 learners had, due to the COVID-19 pandemic, "pretty much their whole school at home". The AT showed a ...

... bit of hesitation to sort of push them to try different ways of doing things and as a result they had really low knowledge of digital technology. We sort of really worked to find new ways that we could make it easier for them and not complicate it for ourselves.

This low-level knowledge of digital technology meant some learners were slower at using digital technology. Those who could use digital technology could work faster and produce higher-quality outputs. This led to many learners:

Seeing other people in the class who are way ahead of you and feeling like you're not up to the same part that they're up to. So, there was a lot of that comparison in my class because they haven't had it for so many years, they haven't had to compare their work to anyone [else's], so suddenly people are at different stages.

Abby ensured learners were logged in for application usage and found peer support beneficial. This collaborative approach of “pairing digital-capable learners with those with less confidence” effectively addressed the login challenge. Abby and her AT decided that “[i]f logging in is going to slow them down, then let's find a different way to do it.” This enabled learners to “practise with being shown how to do it” and this took the pressure off the AT and Abby “because we can't go round 25 times and then show each child”. This adaptation in the moment allowed for the pace of learning to continue and the lesson to flow.

Abby concluded her practicum feeling proficient in digital technologies but acknowledged the potential for misplaced confidence. She often overestimated the abilities of learners, as she struggled to simplify tasks and “slow it down and do it step by step”. Abby noted many teachers faced slower progress due to the impact of COVID-19; time had to be spent logging learners in, affecting lesson time. She found it challenging when login issues prevented engagement in activities, leading her to implement group-work strategies that allowed learners to share devices or bring their own to school to work more independently.

Initially, Abby was reluctant to use digital technologies because of uncertainty about school expectations and the AT's model. “Luckily” for Abby, their AT intentionally “integrated ... [them] from the beginning”. The AT's early integration of technology bolstered Abby's confidence in developing critical literacy lessons. Embracing this

integration eased her initial hesitation, as “once it was shown to be integrated, I had no problem”. Abby recognises this when she states that...

I think if I was in a school where it wasn't used as much, I definitely would be a little bit more hesitant because I'm like oh, like I don't know how... but yeah, it was modelled to me, so I felt more comfortable to use it.

Practicum proved to be a threshold moment for Abby concerning her use of digital technologies in her professional practice:

I don't think I realised until I was actually on practicum that it is a strength of mine and how much I like to use it as well. It's a strength, but I also do enjoy it. I find it really engages students, especially at Year 3. I think it's such an advantage and I think I just would have—yeah, I think we would have missed a lot of learning opportunities if we didn't use it or I didn't have that modelled to me.

The AT's effective modelling of digital technologies was critical in Abby's grasping opportunities, which developed her ability. She contrasted her experience with that of a friend:

I have a friend who was in a Year 1 class, and she didn't use it at all, so she has no idea how to integrate technology in the classroom, so yeah, it makes a significant difference, and I think the confidence, other teachers in the school were not as confident to use it so they didn't as much, whereas mine loved it. So yeah, it's definitely down to the individual teacher.

Abby posits that pre-service teachers may benefit from not encountering ineffective role modelling when ATs lack digital fluency. She contends that ITE coursework equips pre-service teachers with essential skills despite potential digital disengagement during practicum. Nonetheless, she recognises that this scenario limits their understanding of real-world digital technology integration. Abby notes, “it would be really sad if it wasn't being used because it's such an advantage”.

The capability to utilise digital technologies prompted Abby to engage in critical thinking and devise practical solutions to challenges. This process resulted in epiphanies that

affirmed her competence in using and effectively employing digital technologies. Abby illustrated this by sharing an example involving a dyslexic student:

Talk to Text on Google... was just a game changer for him. That was a huge advantage and gave him a lot of independence because he would start to talk down on himself, you know, oh, I can't do it, no one can read my writing. So being able to get it down on paper and do it himself was a huge positive for him.

Having completed her practicum, Abby acknowledges the necessity for there to be digital adaptability if she wants her “classroom to be a place where all students can succeed”. She emphasises the need to research appropriate apps and websites tailored to specific groups of learners to enhance their learning. Abby recognises the importance of finding digital tools for learners that correspond to additional learning needs, something that is exemplified by the value of Google Talk to Text. Abby asserts that familiarising herself with assistive methods will facilitate her teaching. As an illustration, Abby cites her discovery of Google Talk to Text when doing independent research, which empowered her to introduce this app to her learners confidently. She recounts consulting her AT, who encouraged her to proceed with the introduction.

Reflecting on her ITE experience, Abby perceives the ITE providers need to be more proactive in supporting pre-service teacher digital fluency. She critiques the basic nature of the digital technologies covered and the focus on comprehension over practical application. Abby expresses satisfaction in conducting her “own research” of additional resources relating to these interests. She highlights that there is a New Zealand Facebook group for teachers, although it emphasises the efficacy of communication that comes from “talking to other people”. Abby appreciates the informal support network among teachers, valuing their practical insights derived from shared experiences. This knowledge is significant because it is based on actual practice. The idea “this worked for me” holds significance as knowledge that Abby trusts. She considers being able to access teachers sharing firsthand practical experiences about what works for them and does not work as invaluable. This

information gave Abby increased knowledge about different digital technologies and what digital technology strategies would work for some year levels and not for others.

Abby contends that ITE should better equip pre-service teachers to “explore more of how to use digital technologies rather than just what they are ...how it’s they used actually in school rather than just what is used”. Despite the contextual variability of technology use, Abby feels somewhat unprepared, even in a supportive environment. While a confident adapter, she recognises that other pre-service teachers who did not have the same experience with digital technologies or were older may struggle to adapt. Things such as:

Just going over ways in which you can integrate it in different curriculum areas rather than just, oh, you know, to get – I felt like when we were learning what digital technologies were, it was like ticking a box, like oh they use them how? They use them – like this is what they use, but it wasn’t like this is how they use it and this is how you can use it in art and this is how you can use it in writing and this is how you can use it in music.

Just ticking the digital curriculum box in ITE without saying anything more had Abby reflecting that this, “just makes me frustrated because I’m like there are so many missed opportunities because it’s just not being done correctly, it’s [digital technologies] not being covered correctly”. While Abby understands digital technologies are “relatively new and constantly changing, so it’s like, how can anyone keep up?” she believes that more can be done to support teachers and schools. She argues for enhanced support for educators and institutions, noting that there is a disconnect between policy and practical usage stemming from the outdated perspectives of policymakers.

Learners’ use of digital technologies was mediated during practicum by a very active AT, who curated the class situation “so there wasn’t that option to sort of look at other technologies”. This was because learners had come from Years 3, 4, 5 and 6, creating a class context where they became personally aware that there were “a lot of issues in Year 6 ... [when] using digital technologies in the school, so I think for Year 3 he (the

AT) really strictly said this is what we're doing. There was just no option to go off track". Learners did discuss how they used digital technologies at home, playing Fortnite for example, but remained focused on the educational learning platform Prodigy rather than slipping into gaming mode. Learners also brought it into art and learned how to sketch, asking Abby, "Can we learn how to sketch Minecraft characters"?

In discussing the approach that the AT had taken, Abby learnt that Year 6 had access to digital technologies that allowed them to bring in their own devices and could access material such as pornography. The AT had to deal with "a student with a porn addiction in Year 6". The AT put the existence of this problem down to the learners having easy access to digital technologies, meaning they were more on to it and more likely to follow the rabbit hole and, therefore, access inappropriate material.

Learners sign a contract stating they will "use their school account for schoolwork only". Teachers also remind learners of these expectations and threaten to revoke access when the line between school and social access becomes blurred. While not seen as a dangerous threat by Abby, she suggests this approach "sort of keeps them in line". The experience of the AT was probably the most significant factor, as their experience in Year 6 meant they wanted to ground learners in the rules for using digital technologies so learners would not create another Year 6 situation.

Learner's use of digital technologies and how to respond to their use is an area where ITE could better support pre-service teachers. Abby reflected, "I don't think I would be confident in knowing... [how] to deal with that". While aspects such as cyberbullying had been engaged, "that's as far as it goes ... [there are] just so many other things. There [are] just so many other problems that children can come into contact with ... [that] I definitely don't think I would be prepared to deal with."

Summary of Abby's Practicum Narrative

Abby's narrative illustrates her complex digital identity as one shaped by personal and educational contexts. She perceives herself as adept at integrating digital technologies into her life. Central to this integration is her understanding of the dual impacts of digital technologies and how social media, in particular, impacts on identity formation. The practicum was a pivotal digital experience, enhancing her initial limited expectations regarding using digital tools across various subjects and their role in facilitating student-centred learning for diverse learners. Her account demonstrates how a supportive AT can enhance a pre-service teacher's use of digital technologies, contrasting her latest practicum with prior experiences. To advance her journey as an educator, towards digital fluency, she advocates for increased practical application throughout all course and practicum components in ITE.

Abby's View of Digital Identity

Abby views her use of digital technologies as an integral part of daily life. While she embraces the digital world, she is also aware of the negative impacts that engaging in the unfiltered digital world can bring. Abby believes in her capacity to navigate these challenges within her digital identity. As a pre-service teacher, she is confident in her digital identity. She conceptualises digital technologies as encompassing integrated practices rather than specific tools. Abby sees the traits of adaptability, critical thinking, and practical solutions as vital to the continued growth of her digital identity as a pre-service teacher. While she acknowledges her confidence, she understands that the evolution of her digital identity relies upon her participation in collaborative relationships and the use of the resources that encourage digital engagement. Additionally, she is cognisant that maintaining her confidence in her digital identity requires ongoing reflection to identify errors in her decision-making that could hinder her progress.

Camila's Narrative

Camila's aspiration to become an Early Childhood Educator stemmed from her experience as a "stay-at-home mum". Her active engagement in her children's early education meant her own "children succeeding academically at school. This led her to desire a similar influence on a broader scale. Camila saw "the only way to do that... was to be an early childhood educator."

In her reflections, Camila emphasised the significance of providing "undivided attention" to children. Undivided attention means "working with one child at a time" so that "you can solely focus on them". She aims to reduce those ratios so that teachers get to spend more quality time with fewer children". Camila believes that providing "undivided attention" to learners would see them "have more of a voice because they would be tended to sooner".

Camila sees digital technology as being an everyday part of her life:

I'm always on my phone...Checking emails, sending text messages, using it to make voice calls and video calls. I'm taking photos, taking videos. Yeah, just documenting my children when they're being silly or moments that I want to capture. Sending voice recordings as well. Taking notes. Oh gosh, what else? Pretty much everything you can do on the computer, I can do on my phone, and I have both.

If Camila did not have her phone, she would resort to her laptop, which she found less user-friendly. She employs Facebook, Instagram, and Twitter to document and disseminate playful images of her children "being silly". The phone is a crucial storage device for photos intended for physical reproduction. She uses social media platforms to add pictures to her story [Facebook, Instagram] "so you can add filters, backgrounds, text, and jazz it up a bit so it doesn't look so bland. I think that's what I like about it most." She reflected, "if you have just a standard photo when you can add text, it gives a bit more context to the photo. So, you could say, look, day out at the beach, or silly moment #silly."

Camila sees digital technology “already influencing” the world in how people take photos and share their lives online. She believes social media networks are changing the way people showcase their identity. However, she contends that these platforms may not accurately represent individual identities:

I think everyone’s incorporated technology into their lives for their own reasons . Well, I guess a lot of people have become – when it comes to photos, a lot of people are quite, dare I say, vain, you know, where they may do their hair and makeup and spend hours and take a particular angle which in real life if you were to compare that photo to them in real life, it doesn’t represent a true version of them.

Camila considered that people wanted to do this as they were:

Conscious of their own image, I feel, and they just want to put their best foot forward. Sometimes their perception of themselves is warped by media, by celebrities, you know, always upping their game, if you will, where they’ve got to do better or be at that standard where they’ve got false lashes, or they’re posing in a particular way, they’re wearing particular branded clothing.

Camila expressed concern over the superficiality fostered by an image-centric approach, exacerbated by social media’s impact on self-presentation. She emphasised learners need to “develop sound skills in using technology”, such as touch typing over mastering specific posing techniques for photographs. Camila discerned a distinction in social media between authentic and contrived self-representation. The choice to pose for a photo was influenced by the underlying purpose of the image. Through observing her children, she gained insights:

If say, it was a spontaneous moment where they’re being silly. They just want to record themselves, like my children for example, if they were being silly with a filter on Snapchat. They wanted to record themselves, I wouldn’t mind that because it’s a moment that they can look back on and say oh I remember that day and bring up good memories of spending time together. Whereas if they were posing in front of the camera doing duck lips and peace signs, I prefer they didn’t because it doesn’t – there’s no story or there’s no – yeah, there’s no story behind it.

It's just a picture of them just posing. They're not in their natural state.

When Camila considered digital technologies role in ECE, she knew she would “need to be documenting children’s learning, so being able to use the camera and use it for purposes such as taking a child’s photo for their portfolio or for documenting their learning.” Camila has learned within her course the importance of this and the ethics involved:

Through the course I learnt that there are other factors involved, you know, confidentiality clauses, there’s policies and procedures on what kind of photo should be taken, not just any – the purpose of taking photos and videos of children isn’t just to record that you’ve done an assessment. It has to pair up and it has to be authentic.

Using digital technology for authenticity was crucial due to Camila’s previous experiences where she encountered “teachers that will get a group of children together and tell the child do this, like colour in this picture, then they take a photo, and then they tell the child to go away and play.” The teachers’ decisions to create digital moments indicated the time constraints they faced and the necessity to document learning outcomes. In light of Camila’s experiences, she contemplated:

That the teachers were behind in writing up learning stories for their children that they were documenting the learning on, so taking a photo of them doing an activity was one way to sort of tick the box to say yup, I’ve done this task, it’s complete, and I don’t need Ministry of Education breathing down my neck when ERO comes and does an external review or something like that.

Camila’s most recent practicum experience reinforced for her that any use of digital technologies to capture a learning experience needed to have an intentional teaching plan behind it:

On practicum that I’ve completed, teachers would set up – they’d have an intentional teaching plan and take a photo without the child knowing that the camera was there. They’re not telling the child, look, sit here and do this so that I can take a photo. They’re engaging with the children in a small group, and then while the children are focused on the task, the teacher grabs the camera and takes some photos without the child

looking, so you can see the facial expressions on the child's face, you know, how focused they are, that they are intently say weaving paper to make a kete or otherwise.

Camila went into her last practicum with clear digital expectations. These expectations related to the use of digital technologies to capture learning stories:

I had intended to take photos of a particular child's learning to support the writing up of the story that they would complement. I already expected myself to be using the equipment, the camera that the centre have, and also understanding that they've got policies and procedures around it.

Camila confidently communicated with their AT about access to digital technologies and the support she would require, thanks to her prior knowledge of this expectation.

Throughout the practicum experience:

Communication with other teachers was vital in order to allow me to have time to use the camera because another teacher might have plans to use it as well so that communication went hand in hand with the use of the camera. Accessing the photos, I just needed my I just needed my AT to email me the photos and then sort of go over the learning stories so that she could see the photos were embedded, to destroy the photos after that so I didn't have copies of that child. Confidentiality was paramount in that task.

Camila felt her coursework prepared her well for the digital challenges practicum would present concerning the use of digital technology and privacy:

Before you go on practicum, lecturers give you information and journal articles to read about the importance of respecting children's rights to be photographed, to not be photographed. I think that's important because you think as a teacher that you have the right to photograph a child, but if they are to say no then you can't override that. You can't override their mana in that respect.

Camila's practicum started with building connections with learners and her AT. These relational connections allowed Camila and the AT to select two learners who would be the focus of the learning stories Camila had to create. These stories incorporated the use of digital tools and ethical considerations:

I had the camera, and I took photos of the child, making sure that other children weren't in the background because then I

knew that if I was to use that photo, I'd have to get permission from the other children that were in the photo. Trying to capture moments of them where I could see that they were focused or that they had a particular disposition that I wanted to write about, and knowing that both learning stories had to flow one onto the other so that it showed that the child had learnt this and then from that they—I scaffolded their learning into something else, they learnt a new skill.

So I did that and then what did I do? Oh yeah, and then I wrote my story, showed it to my AT to ask her for tips on writing and appropriation of photos. In my own personal experience with my own children, I had seen that teachers would write one to two pages worth of text and maybe include one photo at the end, and I didn't like all the writing, so I asked my AT, you know, I don't know this family quite well but what would you say they would like to see? Would they like to see more images of their child, or would they like to read more, or would they like a nice balance? So from there, she guided me and then I completed my learning stories.

One of the key learnings about digital technologies Camila was taking away from practicum was the importance of working with family:

Working with family is a key part of being a teacher because the child comes from that family and each family is unique, they're different, and understanding what they want and having those needs and aspirations met means that they are more willing to work with you as a teacher so that you both can contribute to that child's development.

Camila gave the example of:

The learning stories that I wrote on one child his parents, were multilingual. English was not their first language, so including a little bit of their home language really made them feel like them and their child were part – they were respected in the centre, that they were represented in the stories that were written about their child. It forms a closer – you form a deeper connection and understanding with other people. For myself, they come from a culture that's totally different to my own, so it was learning about the differences. Learning that even though we are different culturally in most respects, but we can also work together and not let those differences become an issue.

Digital technologies supported Camila to develop a learning relationship with the parents as:

I can touch type, so I was able to write my stories up quite fairly quickly and it was – using images helped them to understand

what was going on because they could almost read what was happening through the images rather than through the texts.

Camila observes that integrating cultural considerations in teaching digital technologies within ITE needs to be improved, yet she emphasises their importance for pre-service teachers. As a peer mentor, she aided a colleague who faced cultural restrictions in photographing a child, which was necessary for assessment purposes. This collaborative peer-to-peer problem-solving was essential in helping pre-service teachers address the complexities associated with cultural considerations.

Camila's digital proficiency developed during her practicum due to a deliberate teaching strategy. However, capturing spontaneous instances remained challenging due to the unavailability of cameras. Besides utilising an iPad with a Bluetooth speaker for audio, Camila mainly employed a digital camera to document learning experiences. Thankfully, the learner's inherent curiosity towards the camera offered her ample opportunities to hone her skills. This natural interest enhanced the learner's engagement and introduced a new dynamic to the learners-teacher learning relationship through its inspired narratives.

When I was capturing pictures of children but other children would see it, and so they became interested, or they wanted to be in front of the camera. That was intriguing to me. I tried to turn it into a learning moment where I would get them to pose and then let them look at themselves and, under my supervision, allow them to take a photo or two of the playgrounds or of their friends and allow them to look at themselves on the camera in a preview. Yeah, that was neat to be able to share that with them because I felt like some children must have that opportunity at home with their parents, you know, using the camera function on their phone even though the camera is not a phone. Slightly different, but they're still able to see that preview and really just see their smile on their face when they can see themselves, where they can laugh at how silly they look or if it looks like they've got a missing leg because their leg is bent in the photo or something like that and them being able to point it out. Yeah, I found that quite magical.

Aiming to keep building her digital fluency after practicum, ethical considerations were at the forefront of Camila's mind:

What are some of the things I need to learn? I guess I just always need to be mindful of gaining permission and knowing which children have permission from parents to be photographed or recorded because parents can change their mind at any time so always be mindful of any changes, any updates, so that I don't end up shooting myself in the foot.

Camila deemed access to digital devices as significant. She compared two practicums: one with devices for all teachers and one without. Camila noted that the practicum where teachers had personal devices allowed for immediate documentation of interactions with children. They were able to “capture those spontaneous moments with children because they've got it on their person and they're able just to touch the camera function and take a photo.”

Camila recognised the importance of learners achieving digital fluency in education, viewing it as an ordinary aspect of contemporary life and communication.

It's in everyday life, so I feel why not? Just like there's nature, there's trees, and you go on excursions, and you go for a walk to the playground. In the same way, technology should be embraced in the same way, but I don't see it used that often.

Apart from its use to capture learning moments and stories, Camila saw it only sometimes used as the learning focus. She saw the push to interact with digital technologies and learners' fascination with it as something the teacher could use, reflecting that “It could lead into other areas. “You know, maybe they want to—it might give them a moment where they feel that they could be an engineer, or it might spark some sort of passion for them.”

Camila is also aware of ECE's reluctance to embrace digital technologies “because of the harmful effects of radiation from certain devices, and I think there's still research being done on, say, the impact of too much TV time.” Despite this, they saw that “technology is everywhere, whether it's in the remote control or... Children should still have access to everyday objects.”

While Camila could see more scope for digital technology within ECE, if it inspired creativity and imagination, she would not be in favour of a digital sub-learning area within *Te Whāriki*:

I probably wouldn't be for it because it can have an I guess... I feel that it takes away children's imagination. If they had an old mobile phone, for example, that wasn't functioning, they could use their imagination to re-enact moments in their life where they can pretend that they're talking to dad at work or talking to nana who lives in a different country or different city. Having an area in *Te Whāriki* focusing on developing ICT skills. It depends on the skills as well, I would say. If it was to say gain competence in using it or understanding what the device is and what it's used for, and its intentions, then yeah, I would agree with that. But to just freely let children use the TV or use the remote, no. There has to be some sort of stipulation on what its intent is for and whether that suits the community and the learners in the centre.

Camila's experience with learners during practicum showed her that digital technology was influencing how young people presented within ECE contexts. Learners talked a lot about digital technologies. Camila reflected:

You hear about it, especially with children who have the verbal communication skills. They might say, oh, dad plays Fortnite, so you know that they've got access to PlayStation; therefore, they're tired when they come to preschool because they've been up all night. But yeah, definitely. In so many different ways, the children interacting with technology that... Yeah, it's tricky.

Camila saw that her interaction with digital technologies could support her in making quicker, learning-focused decisions that would free up time and space that she could dedicate to learners:

I guess for example, the teacher was... Let's just say they were playing a nursery rhyme with the graphics and the audio. As a kaiako, you're able to I guess, narrow your focus on, say four or five children and how they're engaging with that technology, you know, whether their interest is captured or if they become disinterested how you can – it would be faster to sort of pick up those children that are disinterested before they become sort of hard to control because you've got X amount of other children to focus on.

Camila did not see digital technologies replacing the role of the teacher:

Just for myself, I feel that when you're a teacher you need to be present, completely present, you know, in physical form, spiritually, being mindful. You're always alert. You can't replace any of your senses or anything with technology no, but you can use technology to assist you in your tasks.

Summary of Camila's Practicum Narrative

Camila's narrative illustrates the capacity of digital technologies to distract pre-service teachers from fully engaging with learners by shifting their focus from reality to screens. Her perspective as a mother influences her belief in utilising digital technology for meaningful experiences rather than trivial purposes. She advocates for learners to cultivate a thorough understanding of digital skills that will benefit them throughout their lives rather than being swayed by imagery.

During her practicum, Camila purposefully employed digital technology, particularly in ECE, using a digital camera to document authentic learning moments. These moments honoured the ethical considerations of learners and their families. The practicum underscored the importance of effectively fostering relationships with ATS and families to integrate digital technology.

Camila's digital fluency transcends mere skills, embodying a relational approach that fosters digital fluency. This fluency amplifies the voices of learners and reflects care for their development. She acknowledges digital technologies can either enhance or stifle creativity and imagination, contingent upon the accessibility and effective use of digital resources.

Camila has gained enhanced insights into integrating digital technologies within her teaching practice post-practicum. She recognises that, when effectively applied, digital technology can support educators in making constructive, learners-centred choices. Nonetheless, she concedes that digital technology cannot supplant the comprehensive reality that educators contribute to the teaching and learning process.

Camila's View of Digital Identity

Camila's maternal experience significantly shapes her digital identity. She carefully integrates digital technologies into her daily life to pursue authenticity as she documents her children's memories. She prioritises authenticity, perceiving much of people's social media identity as inauthentic and a performance. Camila aims to utilise social media to highlight her children's genuine experiences. Her quest for authenticity is reflected in her developing digital identity as a pre-service ECE educator.

Camila's digital identity in ECE is robust and strongly connected to the moral obligations concerning safety and privacy prioritised in ECE. She comprehends the ethical utilisation of digital tools for capturing authentic learning. Camila recognises that digital identity often generates conflict among ECE teachers due to the contentious nature of digital technology's application with young children. Camila is cautiously optimistic. She believes in using digital technology as long as it stimulates learners' creativity and imagination.

Conclusion

Abby and Camila's narratives reveal digital technologies' role in supporting them to make a difference in learner outcomes. While cautious about technology, their narratives show that they are increasingly confident about integrating digital tools into their practice. They realise the potential of digital tools in fostering deeper relationships with learners and their families.

Practicum is highlighted as an important factor in the development of their digital identity. They see it as a space that exposes them to the realities of the classroom and the decision-making agency that is essential for the practical and ethical integration of digital technologies. The disparity between coursework and practicum also is further highlighted, with these narratives focusing on the lack of in-depth practical application. There is an emphasis on being able to tick the box rather than demonstrate how to integrate digital technologies and implement them into everyday practice.

Abby and Camila both emphasise the importance of an ethical digital identity in which pre-service teachers know how to respect privacy, develop digital citizenship and develop culturally responsive practice. In trying to make a difference, they see that digital technology can be both beneficial and distracting. Abby sees that some digital learners are able to grasp digital technologies, and that others are being left behind because of their lower levels of digital fluency. Camila focuses on the creativity digital technologies can foster yet still remains cautious about the implications of over-reliance on technology in ECE.

Chapter Nine: Pass it on Narratives.

This chapter examines the narratives of pre-service teachers who are motivated by the desire to 'pass it on'. These narratives reflect an emotional choice to enhance future generations' educational experiences (O'Sullivan et al., 2009). They reveal a disconnect from aspects of their own education experiences that inspire them to effect change in others' lives (Wang et al., 2023). This disconnection encompasses relational, cultural, pedagogical, and social dimensions. The discussion focuses on critical relationships and intrinsic connections that foster a sense of belonging, which they aim to impart to future learners.

This chapter explores the narratives of Jane, Chester, and Ella, whose aspiration to enter ITE is partly driven by a commitment to pass on the positive impact teachers can have on the learners they will teach. For Jane, Chester, and Ella, a teacher played a positive role in developing a safe space, connecting to learning, or changing their lives, and they desire to pass this legacy on.

In her second year of a BEd Primary (onsite), Jane's narrative depicts her as an avid gamer adept at navigating digital and physical domains. Having grown up in an era when digital technology is increasingly ubiquitous, Jane cannot imagine life without digital technology. Central to Jane's motivation for entering ITE is her intention to replicate the safe space that her school provided.

Chester completed his interview three weeks before finishing his Graduate Diploma of Teaching Secondary at the ITE provider's South Campus. He is enthusiastic about traditional hands-on artistic expressions, particularly painting and printing. Chester seeks to empower learners who feel disconnected from school by introducing them to art. Despite his lack of connection with the school he attended, Chester established a lasting bond with art, motivating him to inspire the next generation in the classroom.

Ella aspires to instil in learners' belief in their significance and value. She is dedicated to effecting positive change in young people's lives, inspired by a teacher who profoundly impacted her own life. Ella's narrative, including her immigration from South Africa to Aotearoa New Zealand, contrasts her schooling experiences in South Africa with her current preparation for teaching in Aotearoa New Zealand. She is in her third year of a BEd Primary in the mainstream onsite cohort.

Jane's Narrative

Jane wanted to teach "for a very long time", as teaching has "just got more purpose to it". Ever since school, she has identified as a teacher. Following her initial studies, she worked in fashion. An injury after five years prompted her career transition, which was "a good excuse to change career and take some time off to study". She chose primary teaching as "she is motivated to do something that has "a positive effect on the world". She is excited that her hard work is going to be "for something that's actually doing some good".

Jane's desire to impact others is influenced by her educational experiences and supportive teachers. She recognises the significance of teacher-student relationships in learning outcomes. Jane "learned that the kind of teacher that you have and the relationship [that] you have with your teacher is really important and has a big effect on your learning". Jane recalls that relational teachers fostered a "safe space" for her, in which she had a routine, knew what to expect, and could trust her teacher. She aims to establish a 'safe space' with learners characterised by relationships and trust.

Digital technologies are integral to Jane's life. She uses a laptop and cell phone for various activities. Jane is an active gamer, and she has "sunken hundreds of hours" into building communities and identities in games like Fallout 4 and the Sims on her laptop, and PlayStation and Family Island on her cell phone. Her husband works as a DJ, and she aids him with sound technology. Rather than seeing the "digital web as a space that connects people", she sees being online as a space "where it quite

becomes a solitary activity". Rather than being a space of connection or community, Jane views it as a space of isolation. Jane follows the games she builds on Twitter to "screenshot other people's ideas and stuff", as she does on YouTube to "watch a lot of tutorials and get some good ideas from other people". Jane's connection to the digital world is evident within her physical life, revealing its blurring. Jane, when asked about this connection, gave the example of, "Even when I'm driving around, I'll be like, oh that's a really cool house, I'll look that up on Google Maps and make that on Sims, because I'm just a weirdo like that, always taking inspiration."

Jane acknowledges digital technologies accelerate the dissemination and realisation of creative ideas. In her artistic endeavours, her touch screen laptop and pen have facilitated:

... "so many things that would otherwise take a long time really, really quick and accessible. I just find that painting, like being able to do that on a computer, like there's no mess, it's so easy, you can fix mistakes and stuff.

Jane uses social media to "get a range of sources from all over the world". She prefers Twitter because of its perceived authenticity, freedom, and mixed media approach. "Instagram's algorithm kind of funnels you really heavily and whatnot, and then Facebook I guess [has] kind of got a representation nowadays for being a bit for old people and what not". Twitter allows Jane, as a gamer, to connect to the most up-to-date information about a specific game. Checking Twitter became a regular habit for updates on games like:

...like Sims, the company, posts all their updates on it and it's really easy to connect to that as well. I guess because you can connect with both businesses and then people and seeing the replies to things. It's got very mixed media, like it's compared to Instagram being so visual.

Jane uses social media to share her artistic creations, using different social media platforms for various modes of sharing:

I'll post a bit on TikTok sometimes every now and then. I'll post usually probably on Twitter. Sometimes on Instagram, like if it's kind of something finished. I do have an Instagram page that is just for my photography photos that I post so that I'm not spamming on the main [page]. On Twitter I suppose it's a smaller network that I'm posting to so I feel more comfortable to post like things that are in progress and just random stuff, compared to on Instagram I'll post more like trimmed up... the finished product.

Twitter facilitates authenticity and the sharing of ideas, while Instagram prioritises polished outputs. Jane reflected, "I guess it feels like more on display, whereas on Twitter – so you know, things just get lost in the timeline, whereas [with] Instagram, it's like there on your page in your grid kind of thing".

Jane's attitude towards Twitter is shifting due to Elon Musk's acquisition of this platform, as she finds it reminiscent of Tumblr's sale and is considering migrating to Reddit. Jane perceives a shift towards commodification and control in Twitter's discussions under Musk's leadership, prompting her search for more user-driven platforms. Jane critiques Musk's views on free speech and perceives him as inauthentic, linking this to social media's trend towards superficial connections based on appearances. "I don't like him for this – a lot of reasons, I suppose, and disagree with a lot of his ideas and what-not on free speech and that kind of thing. But yeah, he's just such an awful fake person".

Jane's background in digital technologies through employment and education leads her to believe that digital technologies would significantly influence ITE:

Surely now the kids they're going to be so literate with computers and what not and going to be using it them all the time and have flash computer suites, like it was pretty flash when I was there, so it'll be even nicer now... I thought that it would be really heavily online based.

However, her practicum revealed limited active use of digital technologies by learners.

Jane's experience of learners actively using digital technologies was limited to the "one day that we got the devices out, and it was ... [on that] day that I was in full control".

Jane's initial expectations of digitally proficient teachers and classrooms were met with the reality of AT disengagement. She noted a lack of devices for learners use at school, which hindered her efforts to engage learners with technology, yet she still integrated it into her teaching. Once connected, she effectively utilised technology in her lessons, drawing on her prior experience in the fashion industry to apply her digital skills in the practicum context:

Jane highlights the disparity between her expectations and actual experiences with digital technologies amid COVID-19's impact on education. This upheaval necessitated emphasising fundamental skills like handwriting, where "digital technology was not always applicable". Students returned to school feeling exasperated and distracted by digital technology. Jane contemplated the situation when they:

... [p]layed videos off YouTube, educational videos and stuff. If they would see a little thing, they would kind of be like oh let's do this and kind of want to do whatever they do at home with devices at school.

Jane experienced learners taking self-initiated paths rather than staying on the teacher-designed learning path. "When they were doing their research, they just wanted to go on and play a game on the device or watch YouTube videos". Jane responded to these experiences by learning to negotiate:

Well, I just asked them if they had finished all their work and they could quickly tell me that they had not. Then there was when – I think it was a bit rainy and so they were inside and then they asked if they could go on the devices, and I let a few of them because I was like it's play time now so you can. They could ask me like the specific website that they could go on and it was like a maths game, so I was like, yes, appropriate.

Digital technologies proved to be essential for Jane both in preparing for learning and responding in the moment during practicum:

In quite a few of my lessons I used PowerPoints to visually show them ideas, especially when like it was a bit more complicated, which was really handy for a couple of lessons where they wanted me to show them like two different things kind of as examples for them to like guide their lessons. Yeah, there were

definitely quite a few times in class where they've asked me something and I'd be like I'm not sure, but I'll Google it and find the answer for them, especially I'm not the best speller. If I had my phone in my pocket, I'd be like I'm just going to check just to make sure I'm right because – unfortunately there weren't really like dictionaries around. The old classic way.

For Jane, digital technologies are a “real big timesaver”, significantly enhancing her efficiency when using online teaching resources. She continuously seeks methods to incorporate digital tools for time conservation. Furthermore, digital technologies aided Jane in promoting differentiated learning. She could use cast to a TV rather than use the white board using techniques learners could better understand and read. She also used Publisher to create cheat sheets for learners that included visual and written instructions.

Jane did not get access to a school learning platform such as Google Classroom to share the digital resources she created with learners:

I was just like pretty much on PowerPoint. Just copying resources from Google and like the curriculum websites and stuff. The only other thing actually that I did do digitally on practicum was [during] our first week, [which] was book week, and they compiled – they made a video of our class and a buddy class talking about the book and showing off their work, and I edited the video together for them to present it.

Jane was the digital leader in her AT relationship. “My teacher ... was really like not confident with technology. He was asking me how to like flip pages when he prints and stuff”. Jane saw this gap as being one that came from them being at an age bracket where they had grown up relying on digital technologies, while the AT had not:

He was kind of in that age of transition when computers were really blowing up. I'm not sure what his career was before he was a teacher, but he had another job and so obviously that didn't require [the use of computers]... Whereas I guess, especially when I compare like to myself, like I've relied heavily on technology for quite a while and in my past jobs I just ended up being that kind of young person who knows computers and working with older people.

The only impact this had on Jane's desire to interact with the digital world in her developing practice involved:

An initial ... reluctance of like not knowing what the setup was with their Chromebooks and what not, and then when I did the lesson it's like a bunch of the Chromebooks weren't charged so it was like just a bit of a hurdle there.

Jane did not stop using digital technologies but understood the need to be "a bit more careful with who they (the learners) paired up with so that at least one of them had a login to use". When Jane's main AT was reluctant to use digital technologies beyond showing an "instructional or educational video". Jane reflected that she used her initiative to engage with digital technologies. When explicitly asks how she did this, Jane noted that she made an effort to "observe a few other teachers' classes, and I saw they were using the digital, like the TV in the classroom, a lot more than my AT was".

Not having access to direct resources within the practicum context or teaching kete of their AT means that Jane had to rely on online resources and use these to activate digital teaching and learning. Websites provide curriculum connections, appropriate knowledge, and lesson guidance that were missing within the context itself:

I did a few lessons on Matariki, so I used some – there was some really good resources on a few different websites. I think I was using the Te Papa one and another one I can't remember what it was called, but I'd gotten directed there from the New Zealand Curriculum website. Then probably NZ Maths was a big one for my maths lessons just to like get ideas of how to present problems and what-not at that same level. Then Netsafe because I did a lesson on cyber bullying and a lesson on cyber safety, so Netsafe was like a really big one and their lesson plans were a really good guidance.

Jane is concerned about how educational websites are becoming increasingly commodified. Commodification creates a financial barrier for a pre-service teacher. "I need to subscribe to all these websites and stuff, but it's just not quite worth it just being a student teacher, I guess, to do that, just for a month practicum". The

educational paywall can potentially undermine the pre-service teacher's ability to access these resources before entering professional practice. This was saddening for Jane as it placed undue pressure on the pre-service teacher, who desired to self-initiate their development to pay for it. For those who are unable to pay, it has the potential to create a digital divide between those who could or would pay and those who did not:

Teachers pay so much, so much for everything already, like paying to get registered, paying for stationery, paying for resources. It's a bit disappointing. I'm happy that at least there are free resources provided out there, but they just don't go anywhere near into the depth that you actually need to like do teaching for a long time.

After her ITE, Jane would go behind the paywall and consider advice to share the burden with others. This was a practice that she also saw as having potential for her next practicum:

I've just been told by people to go in with a few people and share an account and stuff and that kind of thing. Maybe when next practicum comes around some people at uni might want to do that which would be cool.

After practicum, Jane perceived herself as "quite competent" in the use of digital technologies. She identified her learning needs as "just those little things". Jane characterised these little things as unforeseen contextual digital challenges that arose in the moment. She provided two examples: first, encountering a "YouTube ad" during a lesson, which she managed by skipping it and pausing the video. Second, during her initial lesson, she faced difficulties connecting to the Chromecast, leading to stress, but her teacher resolved the issue by searching online for the necessary link.

Jane's practicum experience highlighted that a pre-service teacher's confidence in their digital proficiency does not necessarily naturally foster digital engagement for learners'. Despite possessing a "reasonably advanced capability," Jane observes:

I kind of need to rewind a bit and think step-by-step of how to translate that knowledge to students because like I noticed on

practicum, I'd show them something I could do online and they were like, how do you do that? Like just amazed thinking I'm the most amazing person ever and this is like really – I'm like this only took me five minutes and they're like what? No way! So yeah, I guess just kind of breaking down those skills in a way that I can then teach them onto other people.

Jane's experience of learners' use of digital technologies shows that learners themselves had mixed levels of understanding and confidence:

They kind of had different levels of understanding of I guess how to complete the task and what-not. So because it was like a research task that they were using the devices for, like some of them understood that you click onto websites and read the whole website, whereas others were just Googling something and then just taking that one little sentence. I guess some were a lot more hesitant.

For Jane, prioritising digital technologies in the curriculum is “really important, especially just for how the world and careers are kind of progressing”. She considers basic skills such as typing to be essential with the increasing dependence on computers in her work life. However, Jane sees a digital divide within schools, observing:

It's hard in the sense of that not all students are going to have the same accessibility to [digital] technologies when they're at home and so especially when it comes into things like homework and stuff, schools kind of need to offer more support for those kind of students.

In terms of her ability to support learners to overcome this divide, Jane felt quite confident because of her prior experience with digital technologies:

I know how to use a range of software. So when it comes to like that kind of skill, I think I can definitely demonstrate I can use like audio software to like graphic software to just all your basic Offices and what not and like Adobes.

Jane believes that “[t]he biggest gap I guess in my knowledge, which is a huge thing, would be coding which is like most of the industry, really.” Here Jane makes a direct link between a key need in the workforce and how the aspirations of the digital sub learning area of the NZC. Rather than being daunted by this or allowing it to stall the growth of her confidence, Jane reflected that she is “confident in the areas that I know,

but then I realise that my gap is like really large but can always learn". For Jane, this means staying one week ahead of learners and acquiring new learning as you go.

She views what she terms as the tuakana-teina dynamic as a "valuable experience and a big ego boost for learners to be able to teach your teacher and show them something that amazes them and that [they previously] didn't understand was possible or how to do it". Jane reflects on her pre-service teaching experience, noting that learning in tandem with learners regarding digital technologies can yield positive outcomes.

Jane acknowledges digital technology challenges when creating a safe classroom environment, particularly concerning bullying and its complexities beyond physical spaces. She highlights the issues of "distraction and concealment" necessitating vigilant oversight while recognising the potential benefits for learners with fine motor difficulties, opening the door to "so many more learning experiences".

Digital technologies are transforming educational dynamics, with students learning beyond the confines of the classroom, such that "[s]tudents don't just learn from what's in the classroom, but their learning... from their whole world [experience]". Jane perceives digital technologies as an instrument that integrates the external world into the classroom, facilitating experiential learning that transcends physical boundaries, which she anticipates will increasingly converge as technology evolves, seeing it as "quite a different space for students to think".

To navigate this evolving landscape and its implications for teacher-learner interactions, Jane asserts the importance of reflecting on ways to help learners apply digital learning in tangible contexts. She emphasises the necessity for pre-service teachers to cultivate skills that guide learners in avoiding distractions associated with digital technologies, ensuring their use remains educational rather than purely recreational.

Jane posits that her ITE provider could enhance support through increased emphasis on practical knowledge and the integration of digital technologies. Jane suggested

prioritising how digital technologies could be incorporated into lessons in a way that activated connection between teachers and learners rather than left learners on their own was necessary. She expressed a desire for greater involvement in directing digital learning rather than just using it as a tool to block out time.

Summary of Jane's Practicum Narrative

Jane views herself as having a digital identity that can adapt to the digital challenges that educational contexts will provide. The digital understanding she brought into ITE sustained the growth of her digital identity as a teacher. This digital identity, in which she is an active user and creator within the digital world, gives her skills, dispositions, and knowledge that she can use and adapt when placed in contexts that lack digital engagement within her ITE. Her digital identity allows her to move quickly from the digital to the physical sphere, using inspiration from either to support her work or interests in the other. Her confidence in her digital ability has given her the confidence to adapt to the commodification of digital technologies and access to knowledge in educational spaces, as well as the variable connection to digital technologies and digital identities that learners present within the classroom. Jane sees that her professional digital identity must grow and adapt continually. Still, she believes she has the ability and adaptability to stay one step ahead of where her learners need her to be.

Jane's View of Digital Identity

Jane has a robust digital identity connected to her and her husband's online life. Jane identifies as a gamer and is actively involved in using gaming and social platforms not only for inspiration but also for sharing ideas she has developed. Jane can seamlessly shift between the online and physical, allowing for the evolution of her digital identity. Her gaming identity strongly influences her thinking within the physical world. Jane firmly believes that online spaces should be democratic and continually resist their commodification, and she chooses to shift to more democratic platforms when they are commodified.

Jane's confidence in using digital tools, her ability to self-initiate digital solutions, and her resistance to commodification strongly influenced her emerging digital identity as a pre-service teacher. Due to her prior knowledge of digital tools and experience looking online for digital solutions, she was quickly able to adapt to disconnected practicum spaces.

Chester's Narrative

On leaving school, Chester did not consider the possibility of teaching as a career.

Chester remarked that if he had known that he was going to be a teacher he "wouldn't have been a little shit as a student". His school experience lacked engagement, with art as the sole exception. Chester's love for art led to the realisation that he wanted to do something in this field when he left school. An artistic career path made the most sense.

Chester's role as an artist conducting workshops for learners was "where the yearning to become a teacher became quite profound". His artistic journey illuminated teaching to be a fulfilling role that had the potential to empower others, akin to the opportunities he received when his art teachers created time and space for Chester to foster his passion for art. The opportunity teachers created to spend extra time in the art classroom after school, at weekends and on holidays allowed Chester to develop a "real love" for art. How teachers nurtured Chester's enthusiasm for art has influenced his motivation to be a teacher, as he desires to provide similar supportive spaces for future learners.

Chester tested the boundaries at school to see how far he could "push" his teachers. At home, he was very obedient in a traditional Samoan household:

I was pretty much kept in my box at home. I knew my role, I knew that I had to fulfil a certain role with dad being a Minister, and having to play my part as the preacher's kid, but then school was a different story. I knew that I didn't have the same constraints.

Chester saw his first practicum as karma. The Year 10s that he was placed with were in his own words, “full on”. Chester saw the irony of how learners treated him as a teacher, seeing it as “payback” for his engagement with teachers at school.

Chester’s journey at school with digital technologies was “[z]ero, besides the photocopy machine”. This was because “it was all printmaking, painting. It was all hands-on”. He did, however, use the photocopier when doing research. On practicum, Chester went to a school where returning to onsite learning was a struggle. Coming out of COVID-19, he was aware that learners in lower decile schools had been provided access to digital technologies, with the Government pushing the distribution of digital technologies to support online learning during the COVID-19 pandemic-induced lockdowns in Aotearoa New Zealand. However, Chester discovered during the practicum that most of these devices distributed to families were not utilised for learning. These devices, which included laptops, Chromebooks and tablets, “either got lost or weren’t being used at school, but used for the family”. Being provided with a learning device meant that many families had access to a digital device for the first time and began to use the device for their own means rather than the learning needs of the learners that they were allocated to. In Chester’s words, this meant that many devices “just disappeared off the school radar”.

After COVID-19, Chester also observed that ATs struggled with learners’ use of phones and that the ATs were reluctant to disengage learners from inappropriate usage, as the learners’ reaction to having their devices taken off them was often strong. Chester’s AT was unwilling to engage with learners who were improperly using digital devices.

Chester reflected that:

...[She] didn’t make a battle of phones. She didn’t want to... because students can get real aggressive around phones being taken off them, so she said she doesn’t – she reminds them, put it away, put it away, put it away, but some students will put it away, as soon as she walks away, it’s back out again.

Chester sees digital technology as a “whole new can of worms” and one in which a BYOD approach can cause distractions. Chester understands the distraction that having access to digital technologies can create:

The pull of all those different doors you can go down, when they say oh, they’re doing research or they’re collecting images, you sort of know that they’re probably checking up who’s liking their TikTok account and things like that, and that’s the battle. I think for me that’s the battle.

Digital distraction is a battle that Chester would prefer not to fight, as he would “prefer not to have devices in the classroom”. Within his subject area, Chester views the emerging “digital side of it as a hindrance, especially in art”, as it is a practical subject with “all the making and doing is between the student, the artwork, and whatever they’re using, whether it’s paint or printmaking”. Digital technology outside of Design and Visual Communication (DVC) is something that Chester doesn’t believe is a priority. This is because digital technologies open up multiple distracting paths for learners to go down, which is hard for the teacher to control. During practicum experiences, Chester became increasingly aware that teachers only have a limited time to scan the class. He reflected that getting around learners to check learner research focus took 20 minutes, which allowed other learners 20 minutes to check on their Instagram accounts while the teacher was focused.

Based on prior practicum experience at a higher decile institution, Chester recognised the significance of digital technology in art subjects such as DVC, and that this use necessitates a well-structured classroom design under strict teacher supervision. When asked about how he would structure his future classroom to include digital technologies, Chester reflected that if digital technologies had to be used in his classroom, he would place all of the screens around the outside of the room so they were easier to scan and ensure that learners were on task

Chester sees that learners cannot ignore “the notification”, and their focus or lack of focus “all goes back to the addiction of the ping”. Notifications were “a shot in their

brain that states someone is paying attention to them that they can't ignore". While adults can hear, wait and get back to a notification, Chester remarks if learners don't respond to a notification immediately, it can have profound social implications:

... it's seen as a breach of the relationship or the friendship that you're not replying straightaway, that you don't care about the person that's either sent you the message or uploaded a video for you to like.

Chester observed learners being sucked into and addicted to devices and to responding to notifications. Chester sees devices like cell phones as integral to learner relevance and identity. He believes these devices are essential to learners as they facilitate access to the online social spaces they want to be in "want to be in" and give them the tools to curate the identity "they want to be". Digital devices blur the line between social and learning identities as they allow learners access to social spaces online within a time in which learning is meant to be their priority.

Chester sees device addiction in the classroom as a "rabbit hole" that has become a "a slippery slope" that educational contexts struggle to control. It has created a reality that will be hard to change. The device addiction that learners bring with them into educational spaces represents a blurring of lines where social connection trumped classroom learning. This impacted his practicum art class, causing Chester frustration. Chester remarked that dealing with distracted learners "was a battle". As soon as Chester interacted with learners on practicum, he observed that "in that 30 seconds that I turned my back, they've placed their phone, they've recorded, they've done their TikTok". Chester reflected that there would always be a group of learners who would use digital technologies for TikTok rather than learning. Chester saw that personal digital devices, especially cell phones, were distracting in the art room. Chester saw the emphasis should be on the learners painting from images the teacher had provided, so there was no learning reason learners needed digital devices.

Phones caused distraction from learning as they gave learners instant, unfiltered access to the digital world. Chester reflects, “It was so easy for them to go off task”. learners would tell Chester or the AT that they were doing research, “and then you could see they were replying either to Instagram or, you know. It was so easy for them to go off task.” Learners often began using a device for a learning purpose, “but then a notification may have slipped through”. Chester sees digital devices opening up the whole world, and this was the currency that motivated them rather than learning.

Apart from learners’ self-initiated use of digital technologies, Chester did not experience its digital technologies when teaching and learning. Learners did have computer access for their design class, but this design class got canned the year before, so while these computers were available, they all sat idle. Most of Chester’s interaction with digital technologies came through observing the AT trying to learn how to teach online during the COVID-19 lockdown. Chester saw this as a real challenge, reflecting:

I can only imagine what high school students were feeling because they could tap in and out any time because to them it was like eh, as long as they – they could turn off their video but be present in the class. I mean, just have their little logo and go off and play games in the background.

A critical practice insight for Chester was the addiction of learners to digital platforms. He noted social spaces are designed “to make you addicted to it and that idea of being responded and listened to”. Chester acknowledged his struggles with social media, indicating a tendency to scroll endlessly before sleep. His pre-sleep digital usage leaves his mind active, complicating his ability to rest. Given this experience, he finds it challenging to conceptualise its effects on learners. The use of digital devices constitutes a “battleground” that educators must consciously navigate. Chester’s metaphor evokes a dystopian narrative where educators combat technological encroachment.

Chester expressed confidence in addressing digital distractions, drawing from his personal experiences and the strategies he has applied with his learners. He

recognised the unique circumstances each learner faces regarding their relationship with digital technologies in the classroom.

Although specific digital tools like CAD software are essential in Art and Design, Chester harboured concerns relating to the influence of digital technologies on traditional skills like drawing and handwriting. He articulated his apprehensions regarding this shift.

The use of the handmade gesture, handmade mark, is slowly disappearing. My fear is that, and I think this is the way we're slowly going, is that we're spending more and more time on an online space.

Chester believes that with the increasing influence of digital technologies, "our challenge is set." He saw the push to digitise learning, combined with the growing shift by learners to interact online, transforming schools from places of connection to places of isolation. He sees that the push to provide all learners with a device means that they now spend "a lot of their time even after school, during interval, in their breaks, always just looking down at a screen". The impact of this is that the social connections that learners used to have outside and inside school are "slipping away". Chester reflected that when he walked down his practicum school's hallway, he would walk down the 30-metre corridor to go to the staffroom to have a break and "see about 10 or 12 kids dotted around the hallway just heads down just online". His reflection in the moment about the social space school was supposed to be in was "Oh man...it's becoming isolating".

Chester posits education has oversold digital technologies as a solution without considering other elements that may emerge with its embrace. He compared digital technologies to the "Trojan horse." A device used for learning has opened up "a whole new world." This Trojan horse has allowed potential negative implications of digital technologies to be hidden by the blinding lights of supposed learning advantages.

Chester reflected his belief that a technology-driven policy machine has put into motion the idea that the only way people can learn is by using digital devices.

This blind push to embrace the “Trojan Horse” of digital technology within education intersects with the prevalence of digital harm emerging with the unfiltered use of digital devices within educational contexts. Chester critiqued the use of mobile devices in the classroom, believing learners were not equipped to handle its shadow side. He recounted with the phone buzz:

... a lot of students weren't used to the implications of and the harm that was coming from it... We've all either witnessed or saw stuff in the paper that was not kind, not friendly, but having that online for people to see and how much that can affect the person that it's aimed at is a whole different ball game.

Having completed his practicum, Chester perceived himself as “quite proficient in the digital space, but then it's so easy to become outdated”. He feels assured of his current capabilities “with where I'm at and especially with the programs I need for my course.” Chester recognises the dynamic nature of digital technologies, emphasising the need for continual adaptation to avoid becoming outdated, “that I can't rest on my laurels, you know, that I need to make sure that I'm up with the play because we can be outdated in no time”. He is driven to create materials that “engages the students, motivate them, and inspire them. I think that's my role; it's trying to channel their energy into a learning space rather than a TikTok famous space”.

Chester sees his role as one of “trying to stop Cybernet from developing.” He considers it vital to counter the use of digital technologies with the idea that learner's engagement in the classroom is based on relationships that create value and engagement inside the classroom that transcends digital technologies. He wants to shift learners beyond learning just for the sake of the test and inspire them to become lifelong learners. This creates a challenge for him to “Target those students and to make sure that they land okay, that they understand that okay, it's not that school's not for you, maybe it's just that the subject's not for you”. Chester believes that

A lot of our kids get labelled dumb or inadequate or below average, and they tap out, but it's just finding and being responsible for every soul that's in our class.

The relational heart of teaching is something that Chester considers “a machine can't do”. When asked to develop this idea, Chester observed:

There's algorithms that can read faces, that can read facial expressions, but that will never replace how we engage with our students, how we build relationships, how we... technology would never, could never replace that. There's always a need for human contact and I think that's, in this profession at least, a machine could never do what we do.

At its core, professionalism in education, even in spaces where digital technologies have infiltrated, it is about relationships and the ability of a teacher to facilitate relationships with learners, between learners, and between learners and the subject. It is about humanising learners' relationships and interactions with digital technologies in the classroom so learners can be empowered in their passion rather than taking part in the blind embrace of digital technologies for their own sake or just accept the distraction that it presents as the new normal:

I'm not being arrogant, I'm not being cocky, but I don't know if we can have authentic relationships through a machine, through online. It's hard. It's a challenge. We still need that human-to-human engagement. I suppose that's my biggest fear is that we put too much emphasis on the technology at the expense of our relationship in teaching our students.

With only three weeks remaining in his course of study, Chester's final reflection on digital technologies was connected to the Māori whakatauki 'he ana te mea o nui te ao? He tangata, He tangata, He tangata.⁸ Chester believed that the most important thing in teaching was people and that in his words:

...technology will never be a real teacher to us because that's our thing, as human beings, it's that engagement and understanding each other. I think that is what should drive our passion as teachers.

⁸ This Māori whakatauki (proverb) translates into English as “What is the most important thing in the world, it is people, it is people, it is people”.

Summary of Chester's Practicum Narrative

Chester's narrative investigates the challenges posed by digital technologies in education. He describes himself as inexperienced with digital tools yet recognises their influence during his artistic research. During his practicum, he noted that digital technologies impeded learning, as devices distributed during COVID-19 lockdowns often distracted students rather than facilitated education.

Chester identified that digital technologies introduce new challenges for educators when balancing learner's technology use while needing to retain traditional skills. He observed that students often prioritised digital notifications over their educational tasks, transforming the classroom into a contentious environment influenced by varying teacher responses to technology's impact on learner's well-being.

Chester reflected on his experiences with these challenges, which aided his positive responses. He asserts that educators' engagement with digital technologies significantly affects their professional identity development. Chester perceives integrating digital technologies in education as a complex solution that demands educators' time and resources. He, furthermore, advocates for a focus on human relationships rather than the technological dominance of the educational process.

Chester's View of Digital Identity

Chester sees himself as a digital counterbalance. His own experience at school in the subject area he was passionate about, and his interactions with what he terms the "Trojan horse" of digital problems see him wanting to use the wisdom he has gathered to protect the next generation from getting sucked in by technological control. Not only does Chester want to see traditional analogue skills remain relevant in the arts, but he also desires to see learners counter the addiction to the ping that is so prevalent in their lives. He believes his struggles in putting digital technology down give him a unique insight that he can use to make a difference in learner's outcomes.

Ella's Narrative

The impact of one influential teacher inspired Ella's aspiration to teach. Her educator demonstrated support and concern for her welfare. Ella aspired "to emulate her in various aspects" as the teacher made the "classroom feel like a family... instilling a sense of belonging and helping the learners see the classroom was a safe space."

Ella explored the educator's motivations for effecting change. This educator, employed at an all-girls institution, aimed "to empower girls in their identity". For Ella, the desire to "make a difference" for the students she will instruct is a foundational aspiration that she wants to cultivate:

I want kids to realise how precious they are and I want to start there, like humans are precious so you need to treat each other as if they're precious and valuable and breakable. I think that's a big one for me.

As Ella matured, she also recognised that teaching is a viable career "as there are schools everywhere." Ella considers herself "someone who is driven to—[to] want to make a difference," and teaching is one of those careers in which one can do this.

Recognising the potential apprehension children may feel towards psychologists and counsellors, Ella concluded that her role as a teacher would allow her to be a more significant and immediate influence. Ella understands that learners "see a teacher every day" so to be in a role where they can "access an adult who is willing to listen" meant that teaching made sense as a career choice for her. ITE has intensified Ella's commitment to effecting change while highlighting additional interests. She has developed the motivation to teach mathematics and encourage students to articulate their viewpoints through writing.

Ella uses digital technology for professional growth, exploring online for new teaching ideas. She frequently uses her phone to gather teaching concepts, participate in educational Facebook groups, and attend conferences and workshops. Beyond using Facebook for professional learning, Ella primarily abstains from social media

interactions regarding the lives of others, except for family connections, particularly with relatives in South Africa.

Ella's engagement with digital tools is facilitated by her husband, who serves as the household's "tech expert", ensuring the appropriateness of their digital acquisitions. She acknowledges the increasing digitisation of her home and life due to her husband's influence. Ella has also participated in online gaming, which came about through observing her husband's gameplay of the League of Legends and her involvement with a related game, Teamfight Tactics (TFT).

Ella has joined Facebook groups focused on mathematics pedagogy, including Build Maths Minds and communities for New Zealand teachers addressing primary maths, writing, biculturalism, and specific methodologies like Kodaly. These groups offer access to downloadable information and external resources, while the biculturalism group provides insights from individuals who address her self-identified gaps in bicultural knowledge. However, access is impeded by Facebook's restriction when using the school Wi-Fi, complicating access to these Facebook groups on the physical school campus. Additionally, many Facebook resources and PLD materials are now subject to paywalls. Her ITE provider initially facilitated access to the New Zealand Teacher's Facebook page. At the same time, Ella discovered other groups by deciding to click on something shared on the New Zealand Teacher's Facebook page and "go down the rabbit hole and decide if I like it or not".

As the social media community expanded, Ella grew increasingly hesitant to engage. She regarded larger groups as valuable information sources but was apprehensive about posting inquiries. Observing interactions on the New Zealand Teachers Facebook page, she noted that "teachers can be quite opinionated and kind of attack each other". Ella reflected on the tendency of members to present their practices as universal mandates, stating, "[p]eople are just posting things as like, 'here's what I do, [and] everyone should do what I do". Instead, she preferred to seek assistance within

specific curriculum contexts and the [her ITE provider] student Facebook group, where the environment felt less intimidating since the group had a collective student identity, adding, “it’s just us students, so it’s not so scary”.

Ella perceives that the significance of digital technology will only grow in the future. In the educational realm, she envisions aiding learners who have needs and disabilities via tools like text-to-speech. Such functionalities facilitate student engagement with learning through previously inaccessible means. Globally, she observes rapid transformations, noting “a lot of things are changing. Things are becoming faster. Information’s easier to access”. Although the convenience of information access may be beneficial, Ella scrutinises its repercussions on cognitive decision-making processes. She recognises the potential for immediate information availability to hinder individuals’ motivation to seek answers independently or engage in deductive reasoning.

Reflecting on her educational experiences in South Africa, where she “didn’t use technology at all”, Ella initially anticipated minimal technological integration in classrooms, where its use was possibly limited to essential technical competencies:

I remember going into practicum thinking oh it’s just going to be the same as at my school, we’re going to teach kids how to type and that’s going to be the extent of the computer usage or maybe using it for like maths games.

Ella was unaware that teachers would possess laptops and utilise digital methods for tasks, leading to greater learner access. Initially, she anticipated merely using “a projector and using her personal computer to type up lesson plans and reports perhaps”.

Ella’s expectations evolved to prioritise a technology-focused approach to learning, with its application varying according to context, age, and the tools chosen. She expressed surprise when observing students using BeeBots for coding, which initially induced feelings of inadequacy in her. The prospect of teaching unfamiliar tools like

BeeBots was intimidating. Yet, these experiences did not deter her, as she now embraces student technological engagement, on account of recognising that prior research mitigates her initial apprehension.

The practicum introduced her to how pervasive digital technologies are in everyday educational life. Ella appreciated the support that she got from her ITE provider, who facilitated her transition from shock to confidence. She engaged with a lecturer for guidance, bolstering her willingness to experiment while relying on her informal network of tech-savvy individuals for assistance.

During her practicum, Ella employed digital tools such as a large-screen TV, her laptop, Google Slide presentations, and YouTube videos. She observed that the learners do not utilise “the devices to amazingly at this particular school”. This was because the teachers were using Chromebooks to occupy groups of learners so they could focus on a different learning priority with other learners. This situation hindered her learning experience because she often had to “go and monitor those who were on the computers, and more often than not, [she found that] they just muck around on it”. The learners were utilising the Chromebook without specific instructions and guidelines on how it should be used. As a result, the learners selected activities they found appealing rather than ones relevant to their learning.

Ella asserts that “technology can cause a bit of chaos for the teacher” due to the blurring between learners’ digital usage at home and technology usage in educational settings. This ambiguity made her question whether learners were losing sight of the fact that classrooms were designed for learning. Ella speculated that unrestricted device usage at home might hinder learners’ self-management and responsiveness to device restrictions in class. Given this observation, Ella remarked, “I probably wouldn’t use it extensively, to be honest”. Although digital technologies facilitated autonomous learning, she also noted that it often involves unregulated length and context of use. Ella noticed learners being relocated to hallways for unsupervised Chromebook

learning, which made them “more inclined to muck around”. If Ella incorporated digital technologies in her teaching, she would reconfigure the classroom to include a dedicated area for device use, allowing for constant monitoring of how the digital technologies were being used and that learners had equal access.

Online teaching during the COVID-19 lockdowns exposed educators and learners to innovative pedagogical methods. Ella humorously noted that “teachers’ kind of liked the mute button”. The lockdown served as a testing ground for new teaching and learning strategies. Innovations such as using Slides for lesson organisation or specific music and quiz applications proved beneficial for Ella. Ella was able to use the Google slides approach learnt during lockdown during her face-to-face practicum and found that it was beneficial also in this setting.

During her practicum, Ella enjoyed the autonomy to diverge from her AT’s methods. Comparing her practices to the AT’s observations fostered her reflective development. While the AT rarely utilised the screen, Ella emphasised the importance of using slides for structuring lessons while critically assessing the AT’s lack of this organisational technique. Ella also learnt to be cautious and not rush through work because it had been covered on a slide, and learners should have looked at it. Such experiences helped Ella cultivate a more balanced approach to digital technology use with learners.

Ella’s digital fluency progressed throughout the practicum. She expressed comfort with “using the programs that they are expected to use”. However, she remains apprehensive about employing digital tools that she has not had ample opportunity to explore or are introduced only in classroom settings. These programs include parent portals such as Seesaw. Ella reflected that she was not “100% sure how Seesaw works, but I know that a lot of schools use it” This meant when it came to setting passwords for learners and doing admin on the platform, she felt a bit out of her depth.

Ella lacked access to various learning sites like Epic during this practicum but had previously employed a maths program for differentiated instruction. Ella did a whole-class maths lesson, then used hand-picked groups that were emailed different worksheets to complete. “They just clicked on it [the worksheets], and it would make a copy, and they could just pull it in”. These opportunities helped her to see that “[t]hat was really cool. I quite like it... and [it’s] very handy, so I’d probably utilise it again”.

Ella felt unprepared due to limited digital technology experience and was desiring to address her nervousness. She reflected, “I don’t want to feel this way still at this point. I want to feel prepared, so anything that I’m nervous about, I want to address”. She explains that she would consult her mentor regarding programs but would refrain from using unfamiliar ones unless adequately prepared. “If it was up to me, I probably wouldn’t use any of the other ones that I’m uncomfortable with... If I wasn’t prepared, I wouldn’t use it. I’m not going to try and halfway use it”.

Learners actively engaged with digital technologies, making strategic choices concerning how they would use them. Many learners also requested that the teacher upload achievements to Seesaw. Some learners also aspired to challenge themselves academically using digital technologies by self-initiating progress in curriculum areas they were interested in. This innovative use of technology by learners inspired Ella and her AT to facilitate exploratory learning in mathematics. Seeing digital technologies used in this way motivated Ella in her maths teaching began to let learners explore specific mathematics websites, as this curiosity pushed learning growth.

Over time, Ella’s perception of digital technology evolved. While she was once sceptical about its educational value due to her traditional background, as she believed it distracted students from learning essential skills, such as handwriting, she witnessed practical applications of digital technologies, leading her to advocate for its integration into education. When asked about her developing perception of digital technologies, Ella remarked that she “thinks it’s cool that we want to use it more” but that she thinks

“more has to be done to prepare teachers to enable them to prepare children for activities”. Ella emphasised the need for better teacher preparation, particularly for resource-limited subjects like music, where digital tools can enable creative expression.

Ella believes ITE providers could do more to prepare pre-service teachers for the unpredictable digital reality of school contexts. Initially considering the question, she reflected, “I don’t remember them telling us how digital technologies get used in schools”. While coding was touched on in coursework, “it’s only on practicums when you hear about the actual programs that get used”. Ella would like more collaboration between ITE providers and schools so that ITE providers realise the programs being used with learners. This would give the pre-service teachers a chance before practicum began, to “go check it out, see how it works and know how to set it up”. It also means that when a pre-service teacher lacks specific engagement with digital technologies on practicum, they can still practice setting up activities. Ella discussed seeing Padlet for the first time:

I’m not sure what that is, but the teacher can assign the like assignments, so the kids have to go and read a book and then write the answers in this Padlet. So that’s cool, but I wouldn’t have known how to set that up.

A key element often missing in coursework was observing how curriculum can be taught using a digital pedagogy. Aspects such as maths manipulations were discussed on paper, but the digital component was omitted. Ella saw that practical digital technologies and pedagogies could be better integrated across existing ITE course papers, showcasing how they can be used in practically in curriculum areas for classroom management and teaching learners about digital safety. Digital safety was the one area that Ella’s ITE coursework focused on. Ella saw it was important to teach learners to be safe in social spaces online and to be aware of “what’s fake news and that sort of thing”. Increased engagement in coursework would support pre-service teachers in navigating the potential shadow sides of social media like TikTok. The

shadow sides make it tricky to utilise the positive traits of digital technologies to develop age-appropriate learning and teaching opportunities for learners. Ella shared her apprehension about these shadow sides, remarking, “I’m not quite sure what’s happening. I’m not in it myself, so I don’t know what the trends are or if they are fads or sayings or what the bad things are at the moment”.

Ella believes it is crucial for ITE providers to better support pre-service teachers in using basic digital platforms. Ella suggested ITE could support pre-service teachers in everyday classroom use of digital technologies:

...Like how to cast to a screen, to a class screen, and if they are aware, like it would be cool to have a crash course on shortcut keys, tips for saving time when you’re creating resources using the digital technologies.

Ella also considered that post-practicum reflective discussions that take place within ITE could be more deliberately engaging in digital technologies. She saw her practicum debriefs were “like open book which sometimes means that we forget, or it’s not focused”. She wants to see more intentional focus in practicum debriefs on digital technologies. If this happened, it would help the sharing of different ideas that pre-service teachers learn about digital technologies across different practicum contexts. Ella reflected that practicum debriefs that intentionally focused on the question of “What were the digital technologies you saw on practicum?” would support pre-service teachers to share the cool things that they saw but other pre-service teachers may not have seen happen in their practicum.

Thinking back to her previous self during her practicum and the conversations she had with herself about digital technologies, When asks about what she would tell herself about digital technologies, Ella responded, “[t]hat it can be done, don’t worry, you can still use it, because at that time I was just like throw them all away, I don’t want Chromebooks in my classroom.”

Ella's understanding of digital technologies has changed over time from being just about computers and computer skills to:

Anything to do with technology, so there's like the coding, knowing how to log in, knowing how to Google search, use digital tools like uploading videos or making videos, designing a house in CAD, sort of thing, digital tools to connect with parents. Then the digital tools that make it easier or more efficient, like learning how to use platforms and websites and self-management and that sort of thing.

Summary of Ella's Practicum Narrative

Ella's account indicates an increasing awareness of the digitalisation of her identity.

This digitalisation is connected to her personal and contextual relationships. The digital realm is an essential informational resource for her professional development as an educator. It provides access to formal and informal online learning communities supporting her growth in core curricular and educational interests. Nonetheless, Ella encounters obstacles such as school firewalls, reluctance to engage in public forums, and the monetisation of information behind paywalls. Despite these challenges, Ella's narrative illustrates a progressive digitalisation of the practicum spaces she experienced. Initially surprising, she now regards this digital integration as a standard aspect of practice. Ella's digital engagement primarily involved tools utilised by educators and learners alike. Unfortunately, these tools were frequently underutilised, with teachers employing them to occupy learners while focusing on other groups. This lack of structure contributed to learners' disengagement and disorganisation in the classroom. The significance of provider support emerged as a central theme, and in its absence, informal networks became essential for her adaptation to digital challenges.

The role of the AT is another key theme, with Ella noting the importance of the AT's digital fluency and encouragement to experiment, which was crucial for her reflective growth and engagement with digital technologies. The influence of ITE providers on preparing pre-service teachers is also a prominent focus. The potential contributions of

ITE providers in equipping pre-service teachers for the uncertainties of classroom practice, collaboration, and the use of digital tools and applications should involve significant discussions. To achieve this, Ella advocates for intentional integration of digital technologies in coursework, early introductions of classroom programs before practicum, and a greater emphasis on student reflection post-practicum. Ultimately, Ella's lived experience narrative reflects a transition from undervaluing digital technologies to recognising their efficacy when utilised appropriately.

Ella's view of Digital Identity

Ella sees herself as an increasingly aware user of digital technologies. Her strong support network, prior engagement with digital technologies, and willingness to search for insight via online communities characterise her digital identity as involving a cautious yet growing embrace. The emphasis on relationships being a critical part of digital identity growth also came through strongly in her practicum experiences. Informal relationships enabled her to make growth-oriented decisions when contextual resources and relationships were disconnected. Her identity is one of growth in that the more she has used digital technologies in her personal and now professional life, the more she has seen digital technologies becoming a relevant and vital part of her ongoing identity.

Conclusion

The pass-it-on narratives of Jane, Chester, and Ella show how pre-service teachers have a distinct relationship with digital technologies due to their personal experience of digital technologies in the everyday. Jane is an adapter, Chester is sceptical and Ella is a cautious adopter. While Jane wishes to pass on digital opportunity, Chester wants to pass on traditional artistic skills rather than see them replaced by digital technologies. Ella seeks to maintain a balance between teacher-led learning and the use of digital technologies.

All three narratives highlight the disparity between practicum expectations and reality in supporting or undermining their ability to pass it on. The digital fluency of the AT, addiction of learners to digital devices and use of digital technologies to occupy learners rather than enhance learning experiences, are significant disparities. The challenge of digital distraction also appears, with personal devices seen as a key challenge that educators face. Learners' addiction to the ping, inability to self-regulate use and lack of learning literacy as opposed to proficient social literacy, all emerge as significant distractions.

As presented in chapters 6 to 9, the participants' voices can be arranged in clusters of connection. While each participant has a unique and distinct relationship with digital technologies, the common elements of their experience are grouped around the four categories of 'born to teach', 'career changers', 'making a difference', and 'passing it on'. These clusters of connection tell a similar story from multiple contexts, relationships, and perspectives. The participants' stories show the diversity and variability in the process of forming digital identities. When these narratives are overlapped and thematically analysed, the narrative threads contribute to the discourse about digital identities within ITE and how they are positioned. The coherence that emerges from the connected narratives is discussed in Chapter Ten.

Chapter Ten: Discussion

Introduction

“Just the fact that you even want to listen to what I’m saying is awesome,”

Teej

Teej communicates that pre-service teachers want to be heard and furthermore believe that their narratives of personal lived experience are valuable. The purpose of this chapter is to discuss what was heard when the participant narratives were listened to. The discussion chapter focuses on five key threads that address the significance of practicum in the formation of pre-service teacher digital identities. These five overlapping threads emerged from a thematic analysis of the participant narratives. These threads build on Arante’s and Buchanan’s (2024) theorisation of an intimate post-digital connection between digital technologies and everyday life. [See chapter three section on the postdigital for further articulation of this connection and its implications]. The threads represent how personal journeys, relationships, contexts, emotions, and challenges all intersect to produce a snapshot of how pre-service teachers navigate a complex and changing reality. By using these threads, ITE and education policymakers can gain valuable insight into pre-service teacher lived experiences, ensuring participant voices are heard. Bringing the voice of pre-service teacher lived experience back to its place around the metaphorical Ahi Kaa [see introduction chapter] of digital identity might broaden the discourse and allow a humanising perspective to emerge.

The aforementioned threads broaden the educational policy-making discourse, challenging magical beliefs (Jandric & Knox, 2022) and blind faith in technosolutionism (Loveless & Williamson, 2013a; Selwyn, 2017). In this way, these threads represent the obstinate attitude that insists on asking questions from the perspective of pre-service

teachers (Biesta, 2020c). As such, these threads represent an inside-out perspective that shows pre-service teacher significance during practicum both when developing their digital identities and in relation to the importance of allowing their inner dialogue to be heard. The threads also reveal the importance of continually engaging with, as Biesta (2013; 2017) argues, the subjectification of the learner, by exploring the nuances and messiness of pre-service teachers' everyday relationships with digital technologies. Not only do the threads discussed show the need for ITE to approach digital identity differently, but they also reveal where ITE might adapt its model when preparing pre-service teachers for the postdigital world, rather than the merely digital world.

The first thread resonates with Loveless and Williamson's socio-technical (2013a) understanding of the relationship between digital technologies and users, as well as Biesta's (2021b) worlded view that digital identities cannot be understood without considering how humans give sense to the world they experience. This thread reveals the ways in which the participant digital technologies and identities are grounded in their world and the ways in which the participant responds to techno-centrism. The second thread explores the COVID-19 pandemic and what participants learned about their digital identity during this event. The third discussion thread examines the ways in which pre-service teachers adapt, tinker and develop their digital identities within the lived experience of practicum. It focuses on the experiences that pre-service teachers highlight as crucial in the formation of the everyday knowledge, skills and dispositions they see through the experience they need. The fourth thread explores the ways in which participant understand and respond to the variability of practicum spaces. The fifth thread focuses on the participant observations, collaborations and engagement with learners, emphasising the relational and postdigital capabilities they need to develop as their digital identities emerge.

Narrative Thread One: The Lived Stories of Postdigital and Socio-Technical worlds.

The narratives reveal the ways in which participants see their digital identities as already embedded in the world around them. The narratives also reveal the ways in which participants develop the capability to tinker within these relationships to navigate complex contextual change. For example, Jane is influenced by her self-positioning as a gamer and her use of specific digital technologies in her previous career when as a young person, expected to be the person to show others how to use digital technologies. Hannah is influenced by her use of social media and her online experiences as a young woman when dealing with unfiltered information. Her role as a nanny also influenced her perspective. In observing the engagement of the children under her care, including a child with specific learning needs, she recognised a need to develop a unique relationship with digital technologies. Lucy and Sally's children's social media use and self-identification as mature students impact them. Chester's passion for a traditional use of hand-processes in art became a powerful influence on his understanding of digital identity. Toloake's and Camila's narratives reveal how their perceptions as mothers and their desire to create authentic connections with their children influence the relationship they wish to shape with digital technologies and how they wish to support learners in being able to do the same. This is seen very clearly in Camila's belief that ECE learning stories should capture authentic moments, rather than choreographed ones, to share with parents; an approach that is also reflected in how she curates the online sharing of her family life.

Each narrative reveals how the participant relationship with digital technologies contributes to a unique worlded lens through which they understand, interpret, and choose to approach digital technologies (Biesta, 2021b). This lens also includes a personal and contextualised understanding of digital identities and participant expectations of ITE's capacity to support their development during the practicum. Sally's initial engagement with digital technologies supports her transition into digital

learning and leaves a very positive imprint. On the other hand, because of his experience in the IT world, Robbie is very critical of the haphazard planning and processes that he sees with respect to ITE's integration of digital technologies into coursework and practicum decision-making.

The postdigital and socio-technical understanding of digital identity broadens our understanding beyond its narrow policy-determined definition, revealing the existence of multiple and ongoing lived perspectives. Perspectives that are already part of everyday life (Reader, 2021; Savin-Baden, 2023). More than a concept defined by digital technology, digital identity is a human and social concept that is lived out within multiple complex and changing contexts. For example, on entry into ITE, all participants have a prior relationship with digital technologies that is grounded in broader social connections, relationships and experiences. Teej's confidence when using digital technologies is supported by how her family, which, as a tech-savvy family, integrated digital technologies into their everyday lives. In contrast, both Sally and Lucy reveal that their reluctance to engage with social platforms has partly been driven by their observation of how their children use social platforms. Jane, meanwhile, reveals that she does not distinguish between her online and offline identity. The narratives build on post-digital theory by revealing the ways in which digital identity is a journey rather than a destination (Akerman & Meijer, 2011; Bauman, 2007; Blackshaw, 2016; Brandenburg & Gervasoni, 2016; Loveless & Williamson, 2013a). The narratives also reveal the decisions teachers make that impact on that journey.

Seeing digital identity as a postdigital capability places decision-making agency in the hands of the pre-service teacher rather than a pre-determined technocentric position. This creates a broader understanding of digital identity as a distributed, relational capability, continually developing while the participant engages in unique contextual digital practices, challenges and connections. The shift is highlighted in Toloake's narrative. Toloake initially sees her digital identity and ability to be a quality teacher as

being tied to the quality of her laptop. During her practicum, Toloake's engagement with digital technologies evolves her understanding of digital technologies and digital identity. While she still sees the need for quality digital tools, her understanding of digital identity evolves to include both her prior perception of herself as a Pasifika learner and her awareness of how digital technologies are embraced in her community. Toloake's digital identity also continues to develop through the relationships she builds with others who are also learning to use digital technologies in education. Toloake's collaborative relationship with her AT, who remains only one step ahead of her, becomes a crucial factor in the ongoing emergence of Toloake's confidence in her own digital identity.

The narratives revealed the ways in which participants saw themselves as tinkerers in practicum (Dicks, 2013). Being a tinkerer means using reflexive agency (Arantes, 2024; Arantes & Buchanan, 2023) to adapt and develop within each specific socio-technical context (Loveless & Williamson, 2013a). Robbie's narrative highlights the speed of technological change that is occurring and that it is important to participate in this change hands on, rather than just understand the theory behind it. Robbie suggests that ITE needs to facilitate learning discussions about how digital technologies can be practically integrated into everyday actions like lesson planning or how specific applications found in practicum contexts can facilitate the development of teaching and learning. This reflects his belief that ITE needs to embrace getting pre-service teachers down and dirty in what he describes as the "practical-ness" of everyday lived experiences of digital technologies during practicum. Practical-ness is an example of "subject-ness" (Biesta's 2021b, p. 44) which emerges through a learner's chance to observe, participate and lead learning experiences. This subject-ness is also seen in Abby's narrative. Abby believes that it is important for pre-service teachers to practice adaptation and hands-on problem-solving so that they can respond to the contextual

nuances, relationships, and the continual technological developments that they experience in practicum.

Jane believes that her ITE provider could have done more to enhance and support practical knowledge and integrate digital technologies into classroom practice. Jane's question for her provider shows the importance that pre-service teachers place on being able to experience connections when using digital technologies that already exist in practicum contexts, with respect to being able to practice integrating theory for the purpose of generating practical outcomes.

The question for ITE is how to weave digital identity as a postdigital capability into their experience of ITE, so as to ensure that pre-service teachers can connect to and develop the "practical-ness" that postdigital identities require. This supports the postdigital theorisation that digital identity does not come out of the pages of policy but is found in what Jandric et al. (2018, p. 20) describe as the "complex entanglement" between the digital and human. This complex entanglement emerges in the intimate way in which the pre-service teacher co-constructively engages and interprets the relationships between digital technologies, others and contexts around them.

Seeing digital identity as a postdigital capability challenges a narrow technocentric and solutionist focus that orients the discourses concerning quality education, the future of education and future-focused educational outcomes (Lanier, 2011; Biesta, 2020a; Selwyn, 2017). Multiple papers have been written concerning the development of digital technology policy in Aotearoa New Zealand, emphasising the value of digital technologies while arguing that teachers have a narrow view of digital technologies as an ICT tool, despite efforts by the MOE since 2010 to support teachers recognising the social and cultural contexts of technology (Fox-Turnbull et al, 2021; Fox-Turnbull, 2019; Jones, 2016; Reinsfield, 2018a, 2018b). There is minimal research that deals specifically with challenging technocentric policy assumptions that predominate in ECE, primary and secondary education contexts in Aotearoa New Zealand. The participant

narratives emphasise the importance that ITE, as Biesta and Selwyn have suggested, should take a position of doubt and question the assumption that digital technologies represent a simple mechanism for educational progress.

Narrative Thread Two: COVID-19 and Responding to The Pandemic

The COVID-19 pandemic became a significant thread of connection when participants began to recount how they made sense of their lived experience with digital technologies in practicum. For many, COVID-19 produced an epistemological shudder in which the participants not only came to see their relationships with digital technologies in a new light but in which the space of education also fundamentally changed, bringing with it a new reality in which participants had to develop identities that would enable them to respond and adjust (Charteris, 2014). The COVID-19 pandemic emerged as both a social and biological phenomenon. COVID-19 influenced participant understandings of education systems, teaching and learning, and the formation of relationships. COVID-19 also impacted the participant views of education. The ways in which digital technologies were used, and new digital identities that learners brought into the classroom, all challenged the digital assumptions and approaches pre-service teachers had expected to develop before the pandemic. The increasing availability of digital technologies moved the goalposts, further blurring the boundary between social and educational identities (Arantes & Vickers, 2024; Loveless & Williamson, 2013a).

In the words of Chester, the availability and unfiltered use of digital technologies opened up “a whole new can of worms”. The pandemic further accelerated the digital transformation of education, changing the shape of educational realities (Brianza et al., 2023; Crawford, 2023; Hulburt et al., 2023a; 2023b; McCarthy et al., 2023; O’Keefe, 2023). This transformation is evident in the participant responses to major shifts in the parameters of digital identity that emerged when the country went into lockdown and learning was shifted online. For many pre-service teachers, the pandemic proved to be

a threshold moment in which digital identity was no longer aspirational or escapable, as it had become foundational to everyday practice, communication, and connection.

The ways in which the pandemic influenced digital technology in education highlight Loveless and Williamson's (2013a) argument that the relationship between digital technology and society is mutually constitutive. Because of the pandemic, change was enforced, and participants who were hesitant to use digital tech saw its benefits. The pandemic became a catalyst for pre-service teachers to learn new skills, knowledge, and dispositions, to participate actively in virtual, online, or hybrid learning, to identify the creative and innovative uses of digital pedagogy, and to facilitate new ways to network. The pandemic becomes a case study of identity tension. For pre-service teachers on practicum, this tension occurs between the identity they assume they will need and the one that emerges out of lived experience (Beijaard & Meijer, 2017; Loveless & Williamson, 2013a).

For Ella being on practicum during the pandemic lockdown meant learning new ways to develop and present plans for lessons, and the use of apps and websites they had not used before. For Hannah, it provided the opportunity to experience a new way of learning in which they did not physically meet their AT or students. This led to insights about how some students prefer doing learning online, according to their own plan rather than by following a structured timetable. Other students struggled with the flexibility and could not wait to return to more structured learning. Teej discussed her excitement with learning about EPIC (a reading program) during COVID-19. Getting to use this app allowed her to cater for different learning styles and develop independent learning pathways that were responsive to learner needs. Toloake also identified how COVID-19 forced teachers to develop new digital ways to communicate and stay in touch with each other and their students. When Toloake's AT was unwell with COVID-19, Toloake had to lead the class. Knowing that that teacher was in the background, and could still communicate via chat, was crucial to her ongoing success. Sally

discusses how COVID-19 proved to be a catalyst for her to develop an informal online network of peers that checked in on each other and provided the support to sustain each other through the challenges they faced.

For other participants, their experience of interacting with digital technologies during COVID-19 practicums reinforced their anxiety and doubt about digital technologies. Hannah reflected on how the emphasis on digital technologies for new learners, especially, had created issues with many returning to school without the literacy and numeracy skills that would be expected.

The change in learners' digital identities because of the shift to online learning highlighted for participants the dangers of technology and the implications of learners' unfiltered and unrestricted use of digital technologies. Teej reflected on how the return to face-to-face learning after the lockdowns had seen learners return to the classroom with increased social anxiety and symptoms of depression. Of concern for Teej was the "super, super, super young age" of some of the learners struggling. She observed young learners were struggling because they had not been able to "converse without a screen" and because of their digital access they had been impacted by cyber bullying. Abby commented on how being able to bring devices from home had led to younger students bringing or looking up digital material that they should not have access to. She experienced in one Year 6 class a learner who had a porn addiction. She reflected that schools have to be much clearer and earlier in tackling these issues before they can take a hold.

For other learners, the use of digital technologies during COVID-19 reinforced the lack of control that some teachers exhibited. Not only did this stimulate unproductive engagement, but the development of what participants saw as distracting digital habits that learners brought back with them into the classroom. This is reflected in Chester's concern that teachers were losing their presence in the classroom because of digital technologies. His experience of learning online during COVID-19 showed him the

power that learners had to “tap in and out at any time” of learning by hiding behind the screen which showed they were present in class, but they were playing games. This led to the reflection that digital technologies created the space “for learning to go astray”.

Lucy also reflected on observing learners accessing Netflix, games, messaging and pornography during learning. When asked how the school expected her to respond to these issues, she noted that she was not permitted to take away the device and expected to engage with the student about their use. The school did not actively seek to block the pornographic sites, Netflix or social media platforms. She believed that this type of approach failed the learners as they did not have the capability to self-manage their digital device usage. Lucy’s school was a low decile school, and she felt that there was a lower expectation of behaviour and achievement and that teachers had learned to “just let them do it”.

These distracting digital habits reflected learner access and use of digital technologies after the pandemic, and how this challenge challenged the traditional learning and teaching relationship, where focus on the teacher was a priority. Participants experienced a reality in which learners returned to the classroom increasingly aware of their digital agency and, rather than meeting the expectations of the learning system, their use of digital technologies allowed them to prioritise if, when and how they learned.

It also highlighted the struggle many participants found in building effective learning and pastoral relationships that supported their own wellbeing as pre-service teachers. Hannah reflects on the “awkwardness” of being on a video call with 20 learners and trying to develop relational connections with them. While some learners reached out straight away others struggled with communication via email and not being able to talk directly to their teacher. Toloake reflected how COVID-19 interrupted mentoring relationships as the AT could be out of the classroom and communication because of

COVID-19. This was also reinforced by Sally who experienced a school context where because the AT was away, they were expected by the school to take over full control of the classroom learning. Chester reflected how because of COVID-19 learners at a much younger age were connected to digital technologies. Using the example of an older daughter and younger son, Chester noted before the COVID-19 lockdowns it had been easier to delay his daughters access to digital spaces, but COVID-19 had also forced his hand to allow his son to access digital spaces for educational and with this social use at a much younger age. Robbie talks about the toxic nature of digital spaces and how aspects like body image and bullying are a real concern with people able to spread misinformation.

Participant practicum relationships with digital technology highlight the importance of including rather than excluding the contextual, relational interplay between phenomena in definitions of professional knowledge (Loveless & Williamson, 2013a; Markuskaite et al., 2023). The reality that ITE had to prepare pre-service teachers for practicum experiences which were online rather than onsite changed the way pre-service teachers engaged with digital technologies. Participant narrative shows that not only did they have to learn online at home, but they also had to undertake practicum from home alongside ATs and learners who were also at home. The increase of online, virtual and hybrid education during and after the COVID-19 pandemic accelerated the infiltration of digital technologies into Higher Education (Markuskaite et al., 2023). ITE was at the forefront of this infiltration as courses had to shift to learning online.

Participants had to connect, relate, teach, assess and be observed as professionals while using digital technologies rather than in person. McCarthy et al. (2023) posit that responding to the pandemic saw the digital revolution accelerate, with governments replacing face-to-face learning with online, virtual, or hybrid teaching and learning. The education system, which aspired to incorporate digital technologies, was now entirely dependent on digital platforms. The COVID-19 lockdowns in Aotearoa New Zealand,

and their extended reality in the Auckland region, the area in which the participants in this project undertook their practicum experiences, forced ECE, primary and secondary education contexts to go online. Rather than being out-of-the-box experiences, the Government's policy of providing digital technologies proved to be contextually dependent, and instead of being straightforward for many groups, proved to be variable, inconsistent and often disconnecting (ERO, 2022, 2023; Royal Commission, 2024; Wenmoth, 2021). This reinforces the post-digital understanding of digital identity being intimately connected to the contexts in which people relate to digital technologies (Knox, 2019; MacGilchrist et al., 2021). Participant navigation of the pandemic reinforces the argument that ITE needs to explore the complex, messy realities of practicum for the role pre-service teachers play in everyday digital decision-making.

Crawford (2023) suggests that education had to respond to four distinct phases during the pandemic. These phases of rapid adaptation, improvement, consolidation and restoration presented a dynamic conceptualisation and experience of digital identity. The phase of rapid adaptation saw the participants have to tinker in the moment with the tools and relationships they had on hand and at home, an online digital identity for education (Hulburt et al., 2023a, 2023b). New digital technologies, platforms and apps had to be learned, new pedagogies developed, timetables had to work around family routines rather than school life, and ways of connecting and caring for learners behind a screen often needed to be developed from scratch (Hulburt et al., 2023a, 2023b; McCarthy et al., 2023). Not only was the workability of digital technologies brought front and centre, but the limits of digital technology when it came to maintaining pastoral relationships, preventing distraction, and avoiding the loss of attendance were highlighted (Briabza et al., 2023; Kennedy & Gill, 2022; McCarthy et al., 2023). Chester and Toloake's experience of the Government's provision of digital devices reveals that an approach focused on simply providing devices and access to the internet cannot meet the needs of all learners in all communities. This seemed to revert to the idea that

if tools were provided digital identities would emerge that would bridge that gaps that COVID-19 online learning had created. These narratives are evidence of what Loveless and Williamson (2013a) critique as the sweeping techno-solutionist narratives that offer universal solutions to educational challenges. Both Chester and Toloake's narratives reveal the importance that needs to be placed on communities being able to both identify their digital needs and how these digital needs can be best supported. This highlights that people, context and relationships are as much if not more significant to consider when it comes to developing approaches to support digital identities. This is important learning for both the MoE and ITE in Aotearoa New Zealand, in that the MoE's definition of digital technologies cannot be a uniform definition in a framework that ensures the Mana Ōrite⁹ of all indigenous learners is upheld. The narratives of Chester and Toloake reveal that communities who were already disadvantaged in terms of income and resources had those disadvantages exacerbated (Education Review Office, 2022; Wenmoth, 2021).

The phases of improvement and consolidation saw participants experience a change in their relationship with digital technologies in which they, in conjunction with their AT and school, sought to refine the new elements of digital identity which were facilitated by learning at home. Participant lived experience of the rapid transition into online learning reveals insight into their experiences of the new modes of rapid adaptation and best practices that emerged, as well as the new protocols for using Zoom, Microsoft Teams, or Google Classroom being developed. The participants reveal in their narratives the ways they embraced and developed creative and innovative online teaching and pastoral approaches, a reality that is supported by broader research into how educators responded to the digital challenges that the pandemic brought (Harshbarger

⁹ Mana-Ōrite is a Te Aō Māori metaphor used to describe the relationship between the Crown and Māori as defined in Tiriti O Waitangi in which both would seek to support each other and allow each other to stand in their own identity. The implication of this is that by allowing and supporting each other to stand all parties would be able to flourish in their own identity (Berryman et al., 2018).

& Vu, 2020; O’Keefe, 2023; Kennedy & Gill, 2022). This highlights the importance of subjectification in supporting the pre-service teacher to emerge with an understanding of digital identity that emerges from their own agency (Biesta, 2013a, 2017, 2020a, 2020c, 2021b, 2023b). Ella reflected that teaching online during the COVID-19 lockdowns encouraged her to create activities that used websites and apps that supported learner creativity. She was able to use music websites to let learners create their own music and used other apps like Kahoot! to create engaging activities and recognised that novelty increased engagement and confidence. Learners built digital confidence, skills, and were increasingly engaged and active when working with new digital tools. Ella also experienced additional benefits for her practice during the COVID-19 practicum. She used digital tools to create step-by-step approaches for gradually revealing information to learners, an innovation she aimed to feed forward into her face-to-face practicum experiences.

Most of the participant practicum experiences referred to in this research project took place within what Crawford (2023) calls the restoration phase. This was the phase when education was returning to onsite delivery. During this phase, the participant narratives reveal that they wrestled with the challenges of adapting back into the physical space, and this challenge extended to the challenge of supporting learners to do the same. The narratives highlight the importance of the pandemic on their thinking as this event emerged as a significant relational factor in shaping their understanding of the importance of digital technologies and the digital identities they would need as pre-service teachers.

Narrative Thread Three: Variability

Variability represents the fluidity and multi-faceted nature of a postdigital understanding of the relationship between digital technology and humanity (Ball & Savin-Baden, 2022; Ball, 2019). Variability reinforces that pre-service teacher digital identity emerges from the relationships between pre-service teachers and digital technology within the

contextual complexity of practicum (Arantes, 2024). During her practicum, Teej highlights how variable practicum and digital opportunities were in describing them as hit-and-miss. While she was lucky to be placed in a digitally well-resourced school with a digitally confident AT, she realised this was an exception rather than the rule.

As noted in the first thread above, the first aspect of variability that emerged in this research is pre-service teacher prior knowledge and experience of digital technologies. This personal variability is reiterated here because it intersects with the variability of practicum placements and relationships. The participants revealed that their placement decisions did not take into account their digital fluency. This means that participants saw access to digital technologies and expertise within the practicum as something of a lottery.

The variability of practicum was revealed in the multiple narratives of school and centre approaches relating to the use of digital technologies, and their access and availability. The variability was evident within ATs and learner philosophies, different attitudes and levels of confidence when using digital technologies, and the influence of factors like the school's decile rating. This reflects what postdigital theorists suggest is the importance of the interplay of non-digital socio-economic and cultural factors in the formation of digital identity (Arantes & Buchanan, 2023; Arantes & Vicars, 2024; Fawns, 2023). This evidence of variability brings into question the importance given to predetermined notions of 'teacher quality' and the need to create teacher readiness in the form of uniform standards and competencies [see Chapters 2 & 3]. Variability reinforces the recognition that "being a person is not a pat formula, but a quest, mystery, [a] leap of faith" (Lanier, 2011, p.5). The narratives highlight how participant abilities to access and use of digital technologies are being held back by factors within the system that are out of participant control, and by their own limitations.

While the late Hon Nikki Kaye (2017, June 28) highlighted the importance of teacher quality as being vital to the activation of the digital curriculum, the participants suggest

that its success is not so much dependent on them as teachers as on the quality of the system, in that the latter must take into account and be responsive to the variability that exists. Toloake reflected that her experience of variability was due to her practicum context being a low-decile school. In these circumstances her school did not have access to digital technologies, not to mention that learners had limited access to digital connectivity in their home environments.¹⁰ Toloake and Lucy highlighted the connectivity issues that many pre-service teachers had when connecting their digital equipment to practicum networks. Lucy highlighted the variability of digital technologies that are available in each classroom, meaning she would ask in every new room she entered, “What’s the story here?” In turn, Camila’s narrative highlights the disparity between ECE contexts where some teachers had their own cameras, and other centres where one camera was provided by the centre for teachers to share. This variability meant that pre-service teachers were unsure what they would find at each practicum. This created an extra layer of stress and tension.

Sally, Toloake and Jane highlighted how both variability of resource quality and availability limited their ability to engage learners. Their narratives highlight how being unable to access digital technologies prevented them from developing trust in digital technologies in the practicum context. This lack of trust was highlighted by Toloake’s disconnection in her ability to lead teaching and learning if digital technologies failed. Jane’s constant thoughts when preparing a digital activity also centred on the question: “Would the Chromebooks be charged?” While she was a savvy user of digital technologies, she was initially reluctant to use digital technologies if she did not know the setup. Robbie also refers to the lack of planning in how digital technologies are set up in education in comparison to his former career experience in corporate IT. Robbie saw that Ed-Tech solutions were not well-resourced and that teachers were not well

¹⁰ The COVID-19 pandemic highlighted this lack of connectivity, reflected in the government's rush to provide 80,000 learners in 45,000 households with internet connectivity and 36,000 students with digital learning devices (Dowden, 2022).

supported when needing to upskill. He found that many teachers were becoming increasingly reluctant to use digital technologies, as the digital technologies that learning was being prepared for were often in “various states of functionality and destruction”.

A key sub-thread that emerged in participant understanding of variability of accessing resources was found in participant discussions around the commodification of educational resources. The online platforms that many participants use to develop teaching resources and PLD are becoming increasingly hidden from participants. Participants revealed this in their experience of specific educational platforms like Padlet, which allows limited free access but then requires a subscription to access premium features. The participants also noted that, in their experience of open social network forums, the advice that other educators once gave freely now is hidden behind paywalls. Jane expressed concern that educational websites were becoming increasingly commodified. Commodification places an extra cost burden on the pre-service teacher. Paywalls were disconnecting, with participants not having the financial resources to pay for multiple platforms and apps. Jane was looking at ways around the paywall that would work for her as a pre-service teacher. She was considering the advice of other pre-service teachers to share login details so one account can be accessed and used by more than one user. While this was recognised as being illegal, the pre-service teachers felt they could share the burden of moving beyond the paywall to access premium content or features.

Not only do pre-service teachers have to pay to access premium content when signing up for what is initially understood to be free content and usage, but they also provide a range of data about themselves and permission to gather data on how they use the platform or the knowledge found within. This data provides EdTech companies with baseline data analytics that support their continued marketing and product design.

Peters et al. (2023) critiques this data gathering as unpaid digital labour, in which the

information teachers provide, and the development of resources that are used by the EdTech company go without payment for further product refinement, design and marketing.

The teacher influencer is also a significant teacher identity, which reflects the increasing commodification of online spaces. Many teachers are now paid to monetise or promote specific EdTech products because of their following and reach, rather than engaging in robust, practical discussions. These teacher influencers are being paid to support specific brands, platforms, and pedagogies within social platforms, which, as Jane reflected in her critique of Twitter, are becoming increasingly controlled and commodified (Arantes, 2022; Arantes & Buchanan, 2023).

Learners are also an important influence when considering variability and digital identity. Learners come with variable understandings of the teacher's digital identity and of their own confidence. This variability is impacted by access and use of digital technologies at home. Toloake's discussion around 'haves and have-nots' and the emergence of practicum contexts with stable technology environments or learners who can access brand digital technologies with status is evidence that there is an uneven playing field. For many participants, their engagement with digital technologies is not focused on curriculum learning objectives but rather it is focused on ensuring that learners have access to adequate digital technologies and that a Plan B is in motion. Toloake also highlights the importance of developing teaching and learning approaches that include the learners' culture. Using a case study of Pasifika learners, Toloake advocates for an understanding of digital identity that can be adapted to different ways of being and learning. This case study highlights that an out-of-the-box, one-size technocentric understanding of identity fails to include a sense of the learner's culture and how this experience shapes the participant's knowledge of digital technologies (Arndt et al., 2019; Savin-Baden, 2023; Sinclair & Hayes, 2019). Abby reveals that practicum highlights the fact that all learners use digital technologies variability and

learn how to use digital technologies at variable speeds. Abby experienced this in the variable quality of digital outputs that learners were able to produce. Jane's narrative supports this reality in that her narrative emphasises the emergence of digital 'haves and have-nots' in the classroom, and that this is due to the learner's ability to access digital technologies and move behind the paywalls of increasingly commodified online educational knowledge spaces. She believes schools must do more to bridge the at-home gap that undermines the learner's ability to continue digital learning at home.

Another element of variability that emerged from participant narratives was the AT. The AT is critical to the participant's ability to be hands-on in a way that facilitates the continued emergence of their digital identity. Assistant teachers could inhibit or support the emergence of pre-service teacher's digital identity. When an AT dislikes digital technologies or uses them to occupy distracted learners, as was Ella's case, this behaviour reinforced how the digital box could be ticked while continuing to strengthen traditional modes of teaching and learning. AT variability can also be seen in Lucy's experience. Lucy had an AT who did not discuss digital technologies, assuming that Lucy knew how to use digital technologies and who yet was unable to provide any help when this was asked for. Sally's AT was a digital gatekeeper who did not allow her to log on to any of the digital platforms that the school used. While Sally was open to new things, she was only able to observe them from a distance, meaning that she was not able to make the hands-on connection that she desired.

The participant narratives reveal that ATs seemed to be suspicious of Edtech solutionism (Andrejevic & Selwyn, 2023; Selwyn, 2017, 2020, 2023). Often, this is because the implementation of Edtech solutions has been time-consuming for ATs to learn. This in turn creates time pressure on classroom learning. Some participants, such as Robbie and Jane, had to self-initiate their PLD when their ATs showed no interest or confidence in developing this aspect of their practice. Both Robbie and Chester also observed digital technologies as either being used for traditional purposes

or being mothballed. Robbie discussed interactive Smartboards being used simply as whiteboards, while Chester observed a suite of computers that were not being used. Provision alone does not result in a digitally cogent pedagogy.

Associate teacher variability is seen more clearly in the contrast of Hannah's and Abby's experiences. Hannah's narrative highlights how the AT is the key to disconnection. Hannah did not have an AT who role-modelled the capacity to use digital technologies, which influenced Hannah's mindset not to use digital technologies. She also experienced ATs using digital technologies to outsource important teaching and learning moments. This outsourcing impacted her ability to develop knowledge, skills, and dispositions that she believed were important to her teaching identity, such as that of a storyteller. This reveals that ATs were not using digital technologies to enhance their teaching and learning, but that they were instead using digital technologies to replace their agency.

On the other hand, Abby was immersed in a practicum experience that she noted would have been different from the experiences of most participants in that both the context was engaging and the AT was digitally confident. Not only did she have access to Chromebooks and a range of apps, but she was also mentored by an AT who encouraged her to grasp opportunities to include digital technologies in her teaching, and not just follow the AT's example. This allowed Abby to see digital identity as more than a curriculum tick-box exercise. Compared to Hannah, Abby's experience encouraged her to overcome her initial apprehension and recognise her ability to activate digital technologies as a strength in teaching and learning.

The participants want ITE decision makers to be aware of both the variability they bring to ITE, and the variability that exists across and within practicum contexts. Participants see digital identity as more than just knowing how to use digital technology but having hands-on experiences in which they are challenged to navigate wider issues such as the ethical use of digital technology, data privacy, cultural sensitivity, and the fostering

of safe learning space (Swenson, 2023). Initial teacher education can take a more intentional role in placing pre-service teachers in positive digital contexts. One way that ITE can do this is through the PLD it provides ATs, which supports them in mentoring pre-service teachers. PLD like this is significant in supporting increased practicum access to AT relationships that sustain rather than undermine the growth of the pre-service teachers' digital identity.

If the future of education in Aotearoa New Zealand is increasingly reliant upon digital technologies, it is hard for pre-service teachers to develop confident digital identities when educational policymakers and ITE providers do not take variability into account. Following Selwyn (2021) on the role of digital technologies in the future of education, the participant conversations in this PhD reveal a future for education that is responsive to the variable, complex and messy socio-technical relationships pre-service teachers live (Biesta, 2013a, Loveless & Williamson, 2013a). Variability suggests that digital identities in education cannot simply be reimagined in the pages of policy, as they are in a constant state of re-imagination and take the form of multiple overlapping re-imaginings [see Chapter 3]. The participant narratives provide insight into the challenges that variability presents. Participant narratives reveal that the quality of the system and its support frameworks, rather than the pre-service teacher, are the key determinants when developing the pre-service teacher's digital identity. Rather than seeing themselves as scapegoats without the requisite digital identity, the participants positioned themselves as able to adapt if adequately resourced and supported. The participants want the MoE and ITE to better manage the variability to ensure that while the playing field may never be level, intentional planning and support are created to foster balance. The participants narratives reveal that the provision of tools and wording of policy cannot achieve this balance. Insight from these voices of lived experience can support the MoE and ITE when fostering the support pre-service teachers need to develop the capacity to adapt.

Narrative Thread Four: The Capacity to Adapt

The capacity to adapt is crucial to how participants interpret and understand their digital identities. The participant narratives indicate that their capacity to adapt is a critical marker of the digital identity that they needed to develop (Markuskaite et al., 2023).

This capacity reflects the confidence that participants have when creating responsive solutions, using prior knowledge, and the resources and relationships they build in a specific context. The capacity adapt builds on the concept of the tinkerer introduced in the first thread and again amplifies the importance of subjectification in understanding pre-service teacher digital identity (Biesta 2013a, 2017).

The capacity to adapt is a capability grounded in the growth of their agency to act and make wise decisions rather than just applying a uniform set of externally pre-determined competencies. In this way, pre-service teacher digital identity is grounded in the agency that emerges from their subjectification (Biesta 2013a, 2017). Teej's explains that pre-service teachers are "super adaptable" and can thrive in the demanding environment of practicum as they develop their digital identity. This idea is further developed in Abby's narrative when she suggests that "digital adaptability" was vital for developing her emerging digital identity.

The participants valued practicum experiences that helped them develop an adaptive capacity that supported them when making decisions that were in the best interests of themselves and learners. The pre-service teachers built this adaptive capacity through the amount of reflexive agency they were able to develop through hands-on experience (Arantes & Buchanan, 2023; Selwyn, 2016a, 2016b; Williamson, 2017). The participant voice revealed that pre-service teachers wanted more practical application of technologies during practicum. Teej calls this "being given the opportunity to play". According to Lucy, ITE provided sessions in which they were given an idea about what digital technologies are used for and how to navigate the practicum context. This aspect of ITE was either done too quickly or not at all for most participants, and this

practice left them to stumble across digital technologies and have to work out what to do when they began practicum. In the case of Ella, this is reflected in the extra tension she felt about not knowing how to use digital technologies. Ella thought this tension could have been minimised if coursework included practical preparation. Ella explained that ITE could address this lack of preparation in collaboration with schools. This would enable ITE to create space for pre-service teachers to tinker with relevant digital technologies before practicum, to see how they work, and to practice planning on how they might integrate these digital technologies into their practice. The participants also suggested that there would be value in incorporating situational and contextual scenarios during coursework discussions on digital technologies during ITE—for example, brainstorming how they would adapt when faced with practical realities, such as having 20 students when only 10 Chromebooks work.

In contrast with the other participants, Camila provided an example of exploring the ethics of using digital cameras before her ECE practicum prepared her to ask the right questions of her AT and, therefore, to begin this aspect of her practice with confidence. It also gave her the confidence to support a practicum colleague who had to adapt her approach to work with a family that did not allow digital photos to be taken of their child for cultural reasons.

The participant narratives revealed the ways in which pre-service teachers led their own learning when the expected support during practicum experience was unavailable. The participants stepped into other classrooms to observe teachers who were using digital technologies, joined in staffroom conversations, attended school PLD discussions, and used online forums for support.

Jane used her initiative to follow other teachers who were not her ATs, while Robbie listened in on staffroom conversations about digital technologies. Following this approach, he learned about Kahoot! and Helperbird. Robbie then explored these digital technologies and reflected on how he would incorporate them into his practice. He also

walked around the school and went into classrooms where other teachers used apps of interest to him. These experiences were initiated by Robbie's play with digital technologies and enriched by his reflection on how they could be used in his practice. This self-initiation of support represents an adaptation of the traditional AT-student relationship. These relationships between the participants and self-selected mentors highlight that sustaining digital change is not so much about upskilling the existing teaching workforce, but prioritising ITE approaches that develop more opportunities to engage in and reflect on these non-traditional learning relationships.

The participants also showed the capacity to adapt by undertaking self-initiated research. The participants had a natural drive to progress and navigate the challenges they encountered. Finding new digital apps to support teaching and learning became a critical activity for many participants. This is seen in Abby's approach. Abby continually researched new digital technologies, guided by her awareness of the ever-changing nature of digital technologies and a desire not to become 'out of date'. Jane shared that, no matter how experienced or confident you perceive yourself to be in your digital identity, you are always at risk of being out of date due to the rate of digital change. Jane constantly searched online to find apps that would help her save time in the classroom. She was pushed by a lack of AT-provided resources and had to rely on online resources to create curriculum connections, appropriate knowledge and lesson guidance.

The participants also created a range of informal relational networks to support and sustain the growth of their digital identities. For many, like Ella and Sally, these connections started off within the ITE provider page, which created an initial sense of safety as the ITE provider page had been specifically set up to support them and their peers. This allowed pre-service teachers to post links they thought other teachers would find helpful. This approach prompted Ella to determine the specific areas of digital technology she wished to explore further in her research. The provider page also

presented Ella with a safe space to ask questions of her peers without the feedback anxiety that posting on larger, unregulated and unfiltered pages presents. External social networks became an essential source of support. Abby, for example, argues for the importance of Teacher Facebook Communities in Aotearoa New Zealand. She viewed these webpages as a vital source of insight outside her teaching practice. Abby used the everyday practical experiences that other teachers recounted in these online social media communities to bridge the gap between coursework and practicum. Ella joined various online communities for the same reason. These online communities were related to the Aotearoa New Zealand context and the specific educational approaches, philosophies, and pedagogies that she was interested in. These communities provided resources, and both helped address her lack of knowledge and access to resources during practicum.

In addition to providing a safe space to ask questions and navigate digital technologies, these informal social networks had a broader impact on wellbeing. During the COVID-19 pandemic, the social network used by the mature students whom Sally interacted with became a space where participants checked in on each other. Being able to share online in a safe space meant that a shared experience could develop. Rather than being simply a digital support space, the social network platform was a socio-technical support space that allowed her to keep growing rather than stall during practicum. A vital element of this was how it allowed participants to have informal team-talks to check in on each other and to ask and answer questions. This highlights the importance of broader relational factors and digital technologies when developing a pre-service teacher's digital identity (Loveless & Williamson, 2013).

Narrative Thread Five: Learners

The participant engagement with learners further reveals the ways in which pre-service teachers see their digital identity as unfinished, incomplete, and constantly emerging (Jandric et al., 2018). This leads to an understanding of digital identity that is not simply

tied to technology but to one that is tied to themselves, others, and the context in which they and digital technologies interact (Jandric et al., 2018; Kamenarac, 2024; Mikulan, 2024).

The participant insights revealed that they believe it is essential for learners to engage with digital technologies. The participants, however, question the positioning of digital identities within the NZC and highlight that digital identity is not the same for all learners. The participant digital identities represent a post-digital mashup of blurred, educational, social, offline and online identities and spaces (Arantes, 2024; Boyd, 2013; Hayes, 2023a, 2023b; Mikulan, 2024, Turkle, 1995). This mash-up was particularly evident when learners returned from the pandemic lockdowns. The pandemic had initiated a form of digital context collapse in which educational, home, learning and social identities blurred (boyd, 2013 Dec 8; Mikulan, 2024). Teachers and learners brought multiple perspectives of agency and the re-imagination of their adapted digital identities back with them when returning to onsite learning. Traditional educational hierarchies [see chapter two] were challenged.

Participants see themselves as a humanising force, balancing the digitisation of education and its influence on learner identities. This perspective reinforces Selwyn's (2014) argument that digital technologies in education are not neutral and need to be critiqued for their political and ideological embedding, emphasis on datatification of education, and bias towards non educational decision-making priorities. For example, Teej views herself in her relationship with her learners as one of a role model and critical thinker as being foundational. The importance of humanising teacher-learner relationships is also reflected in the narrative of Chester, who sees his role as preventing 'Skynet' from happening. He did not want to see the digital control of learners and believed teachers could support learners in developing their agency in this relationship. While the participants saw that digital technologies were increasingly integrated into everyday educational life, they saw their role as one that could not be

replaced. At the heart of this relationship was the growing understanding articulated by Chester that “[m]achines cannot reproduce the relational heart of teaching”.

Participants see learners as a vital informal support network for participants in their developing digital identity. Learners often had an advanced understanding of and connection to digital technologies. Participants saw learners as being both more digitally savvy and active as users of digital technologies than their ATs. For example, Lucy “felt like the students probably knew more than the teachers”.

Jane saw these moments of knowing less than the learners as opportunities. She considered it “[a] valuable experience and a big ego boost for students to be able to teach your teacher”. Toloake recounted saying to a student, “I have no idea what this is, do you? If not, we can learn it together”. Initially, she felt the tension when asking learners for support as she expected that in her role as a teacher, she should know what was being learnt. This undermined her digital identity, making her feel that they did not know what she was doing and, as such, out of date. Reaching out to learners, Toloake realised she did not have to know everything and could develop a co-learning relationship with learners. This was significant as she saw those learners were “very, very open to helping” and that collaboration led to a more connected relationship with learners, allowing both to grow.

The decision to reach out to learners supported digital identity as the collective sharing of knowledge, skills, and dispositions. As noted above, the participants were impacted by the learners’ digital behaviours. Lucy’s narrative highlights that inappropriate use of devices was a real challenge. This challenge was presented in the form of learners actively choosing distraction, being unable to self-manage and having access to mobile phones. The participant narratives highlight how distracted learners are increasingly distracted, and disadvantaged learners are further disconnected when educators use digital technologies to babysit rather than educate.

Responding has become more important to learners than learning. The social connection dimension of their digital identities is prioritised in the classroom over their education. Chester suggests that learners are addicted to the ping, and that while they will begin by focusing on classwork, notifications will distract them. This lack of learner control represents a challenge to the authority of the teacher. Learner use of digital technologies is challenged by the autonomy and instant access to information that digital technologies provide. For example, Toloake experienced learners jumping ahead in the learning and completing tasks before they could be taught, and relying on cut and paste answers, without using critical thought to engage their potential bias or consideration of the ethics involved.

Learners' harmful and inappropriate use of digital technologies means that pre-service teachers need a digital identity that can adapt to a reality where learners are pushing the boundaries of traditional learning ethics. This reality is increasingly important with the emergence of generative AI. Learners' unfiltered and uncontrolled use of these new digital technologies significantly impacts approaches such as digitising national assessment practices.

Learners' addiction to mobile digital devices was seen as an important concern¹¹.

Participant narratives revealed that mobile phones were conduits for uncontrolled and unfiltered access, which facilitated the sharing of harmful images, instigated cyberbullying and supported the blurring of identities. For Abby, this represents a scary context for learners.

The participants believe there is a lack of emphasis in ITE on creating a safe space for learners and dealing with inappropriate digital technology use. Learners must learn to evaluate information, discern credible sources, and identify biases and misinformation

¹¹ This aspect of the research was undertaken before the National Government banned the use of smart phones in schools on April 29th, 2024. This decision was made to support learner achievement and help students focus and connect to their learning (Clent, 30 April 2024).

online (Mikulan, 2024). The narratives reveal while learners are flexible and adaptable, they lack resilience within rapidly changing digital environments. This means that while they are quick to pick up new skills and technologies, they have a surface-level engagement with digital advances and trends, and this does not necessarily translate into the wisdom required to “equip them with valuable skills for lifelong learning and future career success and can, in addition, contribute to toxic modes of being a child in a postdigital world” (p. 3). Chester reflects on the danger of this when discussing how mobile digital technologies are turning schools into places of isolation rather than connection. Hannah’s narrative prioritises that safety and citizenship should be the foundational element of any educational approach that focuses on the development of digital identity. This reflects the concern that emerges from the participant prior experiences and some broader issues that the NZC does not directly address, such as security, addiction, fake news, consent, and privacy.

Conclusion

This discussion highlights the significance of practicum in supporting pre-service teachers in developing the capabilities and capacity required to adapt to navigate the challenges and opportunities digital technologies present. Participant narratives challenge the notion that understanding digital technologies and identities can be fixed or simply followed by international policy directives (Loveless & Williamson, 2013a). The discussion highlights the digital variability of the Aotearoa New Zealand educational contexts that pre-service teachers experience and have to adapt and respond to. The importance of being able to tinker with social and technological factors to navigate digital change is crucial. Not only is the significance of digital technologies important to digital identities highlighted, but also the relationships, contexts, experiences and spaces in which the relationship between digital technologies, the pre-service teacher and broader factors continually grow and play out (Jandric et al., 2018). This highlights the importance of ITE including pre-service teacher’s voice and lessons

from their lived experience in its decision-making process (Biesta 2013a, 2017). The insight from the participant discussion reveals the importance of listening to what pre-service teachers experience, as ITE's ability to provide and sustain these experiences, is crucial in allowing the pre-service teacher to develop the capability and capability to navigate and adapt to the postdigital classroom environment in a way where they hold the plug rather than are plugged into the system.

Chapter 11: Conclusion

Introduction

This PhD research project pursued an exploration of how pre-service teachers experience and interpret digital technologies during their practicum. This study reveals that pre-service teachers see digital identity not just as a fixed, policy-defined construct but understanding it to be part of a developing, socio-technical journey interwoven within their everyday experiences (Loveless & Williamson, 2013a). By foregrounding the voices of pre-service teachers through narrative inquiry, this study challenges the dominant data-driven approaches used in the education system and highlights the critical role of practicum lived experiences in shaping digital identity. This research project brings the voices of pre-service teachers to the ahi kaa conversation concerning ITE, practicum and digital identities through the application of a human-centred, experience-driven analysis. ITE can use the insight from the voices of the eleven pre-service teachers who took part in this PhD research to develop relational spaces that support pre-service teachers in navigating digital change and developing adaptive, relational digital identities.

Revisiting the Purpose and Rationale for Conducting This Research.

This study explored how pre-service teachers experience digital technologies during practicum and how these experiences shape their understanding of digital identity. Their narratives represent the personalised journey of each pre-service teacher and what they have learned during their practicum. In other words, this research project highlights personalised learning about digital identities as an emergent narrative-driven phenomenon driven by the pre-service teachers' unique hands-on experiences with digital technologies. This contrasts with traditional understandings of personalised learning, which consider digital technologies to be essential in facilitating personalised learning (Ministry of Education, 2025). The inside-out view of the personalisation that the participant narratives present suggests ITE might foster a more flexible and

relational approach to supporting pre-service teachers' navigation of digital identity. Such a strategy would consider rather than exclude the pre-service teacher's unique digital identity and the variability of practicum contexts, relationships, and experiences that they encounter.

This research project amplifies the voice of pre-service teachers by offering an inside-out perspective on digital identity formation in ITE. This is done in opposition to the coding of an externally predetermined definition designed to standardise and control teachers and students from the top down. It contributes to the *ahi kaa* conversation within Aotearoa New Zealand's wider ambit of both educational policymaking and ITE by emphasising a socio-technical, post-digital and relational understanding of digital identity (Jandric et al., 2018; Loveless & Williamson, 2013a). It was discovered that pre-service teachers during practicum, have to navigate variable experiences with digital technologies, while experiencing identity tension, and developing personalised understandings of their externally required digital identities.

This study challenges the prioritisation and blind embrace of technology-first solutions that do not consider the insights that arise from participant lived experiences (Biesta, 2013a, 2017; Andrejevic & Selwyn, 2023). It calls for storytelling spaces within ITE that foster authentic engagement with digital identity formation rather than narrowing it to a fixed, measurable set of competencies locked in by an accidental narrative (Lanier, 2011). The research project highlights the importance of giving voice to pre-service teachers. Each inside-out narrative allows pre-service teachers to have a say in their digital identity formation instead of pre-service teachers having to accept being passively coded by policy and data-driven decision-making (Arantes & Buchanan 2023, Gibbons, 2007). By questioning the dominance of data, standardisation and measurement, the research project challenges digital essentialism while allowing pre-service teacher to explore how digital identities are understood, applied and used in education (Biesta 2020c; Gibbons, 2007; Selwyn, 2021). The participant narratives

emphasise that their stories and lived experiences offer a richer, more meaningful perspective that is intimately as Savin-Badin (2023) suggests is already interwoven within the every day.

The participant narratives also present a broader and more detailed postdigital understanding of the role that practicum plays in pre-service teacher digital identity formation in Aotearoa New Zealand. Practicum is a postdigital (Jandric et.al; 2018) and socio-technical space (Loveless & Williamson, 2013a) where pre-service teachers navigate complexities and change caused by digital technologies, while often dealing with tensions, variability, and disconnection. In recognising the fluid rather than fixed nature of digital identity, the narratives captured by this research project reveal pre-service teachers see their experiences as a developing journey characterised by socio-technical experiences and continuous adaptation (Loveless & Williamson, 2013a; Jandric et al., 2018; Jandric & Knox, 2022; Ralston, 2023a, 2023b; Savin-Baden, 2012a, 2021b, 2023; Sinclair & Hayes, 2018). The conceptualisation of digital identity as a constantly evolving relational journey rather than a fixed technological position encourages an understanding of digital identities that includes narrative personalisation alongside the traditional technological understanding. Vital to this human-centred understanding of digital identity is the grounding of the pre-service teacher in their own story (Hayes, 2023a, 2023b; Jandric, 2021; Jandric & Knox, 2022; Reader, 2021, 2023, Savin-Baden, 2021, 2023).

The research narratives suggest that ITE can better support pre-service teachers experiencing digital identity tension by fostering storytelling spaces, mentoring relationships, and adaptive learning experiences. These approaches help bridge gaps between theory and practice, coursework and practicum, as well as digital and analogue learning. This research project also contributes significantly to the ahi kaa conversation within education and ITE as it advocates for a relational approach to digital identity formation that uses the participant's own words with the intention that

policy be more human-centred. This approach aims to support an emancipatory shift in the discourse on digital identity, moving from a rigid, policy-driven model to one that integrates and includes the postdigital and socio-technical lived experiences of pre-service teachers. The purpose of the latter is to ensure that their voices shape the future, purpose and outcomes of education. The concept of ahi kaa woven throughout this PhD is a call for action within educational research about the importance of listening to pre-service teacher narratives about digital identities and the obstinate questions these raise. The Māori whakatauki “Ahi kā, ahi mātao, he kāinga ora, he kāinga mate” translates as “Burning fires, dying embers, a thriving home, a dying home”. This whakatauki represents both a warning and a call to action for ITE to keep the messy fires that support pre-service teacher conversation and agency burning. If these fires that empower conversations of obstinate agency are put out it could leave the system holding the plug and simply producing teachers for its own purpose. This research seeks to keep the fires burning so pre-service teachers can continue to participate in shaping conversations about how their digital identity is formed in educational practice and policy.

Revisiting an Obstinate Approach to Research

This research project involved the study of eleven pre-service teachers from ECE, primary and secondary education programmes in an ITE provider with multiple campuses across one of Aotearoa New Zealand’s primary metropolitan cities. These participants were selected during Semester One, 2023 after they had volunteered to participate and recount their practicum experiences with digital technologies. The number of available research participants was affected by COVID-19 pandemic restrictions. Despite this, participant contributions provided diverse perspectives.

The research design was narrative-based, aiming to emphasise the lived experiences of pre-service teachers in their own words. It emphasises that storytelling can be emancipatory and provide valuable insight when analysed. Semi-structured interviews

were used to allow participants to control the direction of the narrative and express an in-depth understanding and interpretation of their practicum experience, digital technologies, and the formation of their identities. Rather than imposing a theoretical framework over the data collection, the research allowed participant narratives and insights to emerge authentically. This meant that the research analysis prioritised authenticity rather than standardisation in the development of the emergent themes and threads. Teej reflected at the conclusion of her narrative the importance of having her voice heard. She remarked, “Honestly, I’ve thoroughly enjoyed this conversation. I think that the fluidity of ideas and just the fact that you want to listen to what I’m saying is awesome”.

Each narrative was explored using a narrative analysis approach that focused on individual and collective thematic analysis. Rather than forcing theoretical interpretations onto the narratives, the research design enabled themes to emerge from each narrative and, subsequently, from the collective narratives through their overlap. The collective threads from the narratives represent common connections from multiple perspectives and contexts. These findings represent an unfinished, messy, continually growing understanding that highlights the postdigital and socio-technical world in which pre-service teachers’ digital identities emerge. The threads contribute to the challenge that this research presents to those who hold technocentric perspectives on the formation of digital identity and, in doing so, advocate for a more human-centred, experience-driven understanding (Biesta, 2013a, 2017; Loveless & Williamson, 2013a.)

A key aspect of this research is the emancipatory potential of storytelling. The participant narratives empower pre-service teachers by highlighting the insight and agency that they themselves are able to bring to the ahi kaa conversation about digital identities, practicum and ITE. The narratives also expand the conversation on digital

technologies and digital identity beyond the technological policy jargon that is currently used, by incorporating lived experiences as a rich and detailed source of insight.

Within this research, four prompts emerge from the pre-service teachers' narratives and the threads that emerged then these individual narratives where overlapped.¹²

Initial teacher education could begin to use these prompts to start the pre-service teacher's ability to tell their stories within ITE, not only to emancipate their own agency but also to provide ITE with a rich continuing source of relational conversations. These relational conversations will continually enrich ITE with this renewal of human insight.

Pre-service teachers in ITE require spaces to navigate their developing digital identities, and the narratives that emerged in this study will challenge data-driven assumptions about digital identity.

Prompt One: Digital Identities Are Dynamic

This research highlights that digital identities are constantly developing within a socio-technical, post-digital world (Loveless & Williamson, 2013a, Jandric et al., 2018). With digital technologies deeply integrated into pre-service teacher lives, ITE should focus on fostering experiences that expand their digital capabilities and capacities. Becoming digital is not an add-on but an inherent part of the evolution of identity. The COVID-19 pandemic and participants' experiences underscore the interconnected nature of digital, analogue, human, and non-human relationships. These relationships require continuous adaptation to navigate change, disruption, and shifting contexts.

This prompt also challenges the idea that pre-service teacher digital identities should be standardised or uniformly produced. Practicum is often a messy and dynamic space of connection, disconnection and identity tension. Pre-service teacher risk having their narratives shaped externally rather than developing them on their terms. By recognising and responding to voices shaped by a post-digital and socio-technical

reality, ITE can better support pre-service teachers in establishing, sustaining, and adapting their digital identities within the complexities of Aotearoa New Zealand classrooms.

Prompt Two: Digital Identities Are Always incomplete

This research highlights that digital identities are fluid and ever-evolving concepts rather than being fixed concepts. Digital identities are not simply technological constructs defined by game-changing innovations or packaged solutions. Instead, digital identity formation is an inherently human process, shaped by social connections and lived experiences across multiple socio-technological narratives (Loveless & Williamson, 2013a; Stocchetti, 2020).

While policymakers often attempt to position digital identities as fixed curriculum concepts, in reality the narratives of the pre-service teachers show that they are messy, incoherent, and constantly transforming (Jandric et al., 2018). These narratives remind us that digital identities cannot be captured in a single moment; they shift with each new experience. However, by retaining the insights gained from past experiences, pre-service teachers build their adaptability and cultivate new skills.

Practicum narratives reveal that pre-service teachers see their digital identities as works in progress, requiring ongoing tinkering with knowledge, skills, and dispositions in practical spaces. This iterative process strengthens their agency, enabling them to make informed decisions and refine their tinkering toolkit. The idea that digital identities remain unfinished aligns with the desire for practicum to be an emancipatory space where pre-service teachers contribute to an evolving discourse rather than being programmed to replicate predefined competencies in their professional behaviours.

Prompt Three: Lived Experience Is Essential to Understanding Digital Identity

This research project emphasises that lived experience must be central to discussions on digital technologies and identity formation. By prioritising real-world experiences,

educational research can challenge dominant narratives and create space for alternative perspectives. This prompt highlights authenticity over performance, positioning education as a transformative force that sustains humanity rather than as a system that is designed to reproduce predetermined ideologies (Stocchetti, 2021).

Pre-service teacher narratives remind us that research should focus on human-centred learning, supporting individuals to flourish rather than reducing them to checklists and assessments. Any vision for a digital future must include the voices of those expected to implement it. The success of digital technology integration depends, in part, on pre-service teachers sharing how they experiment, adapt, and tinker with these technologies in practice.

This prompt also reflects the research design, which used semi-structured interviews to explore pre-service teacher practicum experiences and digital identity formation. By creating space for participants to share their stories, the study captured common narrative threads, deepening discussions within ITE. It underscored the need for ITE to focus on teachers' real needs rather than just aligning with system-driven outputs.

Prompt Four: The Answer Lies In Navigation, Not Solutions

This research does not seek to replace existing theories with a new “common sense” approach or to propose an alternative form of technological solutionism. Visions for future solutions created in the present are incapable of knowing how future digital technological change or events like a Pandemic that influence digital technologies will change the shape of the future. Instead, this study highlights the importance of helping pre-service teachers navigate their evolving socio-technical relationships with digital technologies in a post-digital world (Loveless & Williamson, 2013a).

Rather than providing rigid solutions, the pre-service teacher human stories bring a sense of balance to the existing discourse. These narratives illustrate the middle ground between theory and experience, revealing that the interplay between both is necessary for a better understanding of a definition that is always incomplete (Arantes

& Vicars, 2024). By illuminating the next step rather than prescribing an endpoint, this research fosters a sense of creative tension, positioning pre-service teachers as active agents in their own subjectification who participate in the shaping their own digital experiences within specific professional contexts (Biesta, 2013a, 2017).

Contribution to Knowledge

This research project contributes to education's ahi kaa conversation on digital technologies by exploring how pre-service teacher digital identities are formed and supported. Through the voices of eleven pre-service teachers, this study provides unique, detailed and personal perspectives on how pre-service teacher beliefs about digital technologies and digital identities emerge during practicum. These narratives emphasise the importance of post-digital and socio-technical perspectives in discussions about digital identity, shifting the conversation from government-defined jargon to an understanding rooted in lived experience.

When contrasted with a data-driven, technology-first perspective, these narratives highlight the need to balance the desire for risk-free certainty with the complex and evolving nature of human experience. They reveal that digital technologies and digital identities as Knox (2019) suggests are no longer separate from but already deeply intertwined with the broader world. Rather than reinforcing the primacy of data, this research amplifies the human voice, demonstrating that digital identity is postdigital because it is relational, fluid, and shaped by ongoing experiences (Jandric et al., 2018). By examining individual narratives and their common threads, this study offers human-centred insights that can help ITE navigate the pressure to standardise approaches while also addressing the needs of pre-service teachers.

This study is particularly significant in Aotearoa New Zealand, where our understanding of the concept of digital identity formation varies across ECE, primary, and secondary education. My research introduces a missing voice of contextual variability while challenging those approaches that seek to assimilate learners into a globally uniform

and economically driven digital model. It also reinforces the importance of practical experience in shaping digital identity, cautioning that risk-averse, performance-driven ITE approaches may unintentionally undermine policymakers' educational aspirations.

The eleven narratives and their interwoven themes demonstrate that pre-service teacher voices offer a valuable source of knowledge. When continuously included in the policy making discourse, these voices enhance understanding of both digital technologies and digital identities in ways that both support policy objectives and empower pre-service teachers to shape their own digital capabilities and capacities.

Within the ahi kaa, these four prompts resemble embers that can relight the voice of human experience within the ahi kaa conversation with Māna Ōrite (Berryman et al., 2018). The word prompt is significant in conversations about digital technologies, especially concerning the use of AI in higher education (Lee & Palmer, 2025). The term prompt engineering has emerged in conversations about how interaction with generative AI can improve educational outcomes (Lee & Palmer, 2025). Researchers suggest that prompt engineering steers generative AI toward generating more optimum outcomes (Cain, 2023; Park & Choo, 2024). A problem identified in this research project has been how the embrace of digital technologies as one that is prompting educational policy and ITE outcomes to narrow our understanding of digital identity. This tendency optimises a vision for education that excludes the voice of the pre-service teacher in forming their own digital identity. The prompts from the pre-service teacher narratives and the threads they contain represent a human rather than a digital and prompt engineering. These prompts, if engaged, will support ITE's questioning of how digital technologies and digital identities are positioned in education policy and, furthermore, how these prompts will lead to outcomes that optimise human flourishing. As embers on the ahi kaa, these four prompts represent the potential to add to the fire, by not only making the fire larger but also supporting it to better illuminate the ever-changing understanding of digital identities that it is seeking to shape policy

approaches within. The term Mana Ōrite is significant as it recognises this research project is not merely about replacing a particular perspective on digital identity but it is also allowing the perspective of the pre-service teacher lived experiences to sit around the ahi kaa (Berryman et al., 2018). If allowed to sit around the ahi kaa these pre-service teacher perspectives will be recognised for the insight they provide and contribute to ITE supporting pre-service teachers to flourish by positioning their agency and ability to question, challenge, and tinker with how others assume their digital identity should be coded.

Human prompt engineering, rather than narrowing the field of optimisation, broadens this field by introducing multiple prompts. This is because pre-service teacher narratives do not dictate a single story but initiate storytelling, allowing multiple narratives around a concept like digital identity to emerge based on individual experiences and contexts. They serve as a persistent reminder that pre-service teachers should have agency in shaping their digital identities and the spaces in which these identities evolve. The term “prompt” is also significant in that it acknowledges that these narratives are ongoing. This PhD research is not an endpoint but a catalyst for continued storytelling in ITE, much like Star Wars, which, at the end of its story, emphasises that it will be continued.

Implications for ITE, Digital Technologies, and Pre-Service Teacher Digital Identities

This research project underscores the ongoing need for critical engagement with both digital identities and digital technologies in education. It highlights the pivotal role of practicum in shaping pre-service teacher digital identities, while offering valuable insights into the ahi kaa conversation on the role of digital identity in education. These findings can inform ITE programs, and in so doing help them cultivate experiences, relationships, and learning spaces that will enable pre-service teachers to navigate, adapt, and refine their digital identities.

A post-digital and socio-technical approach to digital identity formation offers ITE a pathway to move beyond digital identity as an afterthought in coursework and practicum. Recognising that digital identities are fluid, developing, and deeply relational, ITE should support the creation of intentional spaces where pre-service teachers can meaningfully engage with digital technologies in authentic teaching contexts. Curriculum designers can strengthen the bridge between theory and practice, ensuring pre-service teachers develop practical digital fluency that aligns with their professional realities.

Creating Safe Spaces For Exploration and Growth

Killen (2015) describes the importance of metaphorical walled gardens which are scaffolded spaces where pre-service teachers can experiment, fail, learn, and refine their practice before assuming greater responsibilities. However, practicum should not be an isolated, unstructured environment where pre-service teachers are left to navigate digital challenges alone. Instead, practicum must be one of several structured spaces where pre-service teachers gain confidence through practical experiences and relational mentoring. One way that ITE can do this is by integrating safe spaces for digital tinkering into coursework. By intentionally scaffolding spaces for hands-on practical use of digital technologies, ITE can equip pre-service teachers to traverse the boundary between theory and practice, helping them become day-one-ready teachers with the skills to adapt to rapidly changing digital landscapes.

Supporting a “Tinkering Identity”

Initial teacher education’s role is not to impose a digital identity upon pre-service teachers but to support them as they shape their own identities through engagement with digital technologies (Biesta, 2013a, 2017). As noted, while policy frameworks attempt to define digital identity in rigid terms, pre-service teacher narratives show that digital identities are not a static phenomenon but that, instead, they are emerging through relationships, trial and error, and hands-on engagement with technologies.

By embracing a “tinkering identity”, pre-service teachers will develop the confidence and adaptability needed to engage with digital tools in practical and pedagogically meaningful ways. Initial teacher education will facilitate this process by ensuring pre-service teachers have access to mentorship, collaborative learning opportunities, and reflective spaces that encourage creative problem-solving rather than rigid compliance with digital policies.

Developing Digital Obstinance and Agency

Initial teacher education must also adopt scepticism rather than certainty with regard to the value of digital technologies. Instead of assuming that digital identities can be standardised or measured, ITE as Loveless and Williamson (2013a) argue should continually question how digital technologies shape education. More importantly, ITE should empower pre-service teachers to engage in this critical questioning themselves.

When pre-service teachers recognise their role in balancing human-centred teaching with technological priorities, they develop the agency to push back against technological determinism. This ability to say “no” as Biesta (2019a, 2018b, 2021a) suggests, in his theorisation of the Eichmann-Parks Paradox, can be seen in the pre-service teacher ability to resist digital essentialism if digital essentialism does not serve their needs or the needs of their learners. Such an approach would support ITE when resisting the assimilation of pre-service teacher identities, as the pre-service teacher themselves would develop agency and autonomy in asking questions about how the relationship they are being expected to form with digital technologies.

Limitations of the Study

A limitation of this study is that it only represents a snapshot in time. While this limitation reinforces the changing nature of digital technologies, identities and relationships, the narratives can only speak for this time. This study captures pre-service teacher perspectives during Semester One of 2023. Since then, policies and technologies have evolved, for instance, the 2024 school-wide cell phone ban and the

rise of generative AI in education. Future research could explore how these changes shape pre-service teacher digital identities over time. Research over time could provide deeper and richer insights into how digital identity continues to evolve in practice over time. This longitudinal approach would also allow the longer-term implications of contextual variability on pre-service teachers to be examined over a number of practicum experiences.

A second limitation of this research is its geographical scope. This study focuses on a single regional context in Aotearoa New Zealand, meaning findings will not fully represent nationwide experiences. Future research could include multiple ITE providers across different regions for comparative insights.

A third limitation of this research is that while narrative inquiry provides rich, in-depth perspectives, this study includes only eleven participants. COVID-19 limited participation, preventing a broader range of voices from being included. Further research should seek greater diversity, particularly Māori and Pasifika voices, and more participation from ECE, which was underrepresented in the participant cohort. Māori and Pasifika voices could be prioritised as they provide a unique indigenous perspective that is postdigital and socio-technical. Little research has been done into how these indigenous cultures, and their ways of knowing and being produce their unique understanding of digital identities, and the purposes and outputs they are designed to serve. In an age where commodified digital culture acts as a new form of colonisation of digital identity, the voices of Māori and Pasifika would provide unique insight into how Aotearoa New Zealand could contest this development.

Final Reflections

*He fixed things—
clocks, refrigerators,
vidsenders and
destinies. But he
had no business in*

*the future, where the
calculators could not
handle him. He was
Earth's only hope—
and its sure failure!*

P.K. Dick (2013)

This quote from *The Variable Man* has remained as a constant thought throughout this PhD research process. The Variable Man whom Dicks (2013) novella is named after became a metaphor for the pre-service teacher and power that their coming into an understanding of their subjectivity can have within education. In a world where educational policy is increasingly fixed, measured, standardized and calculated by digital technologies to produce risk free outcomes, the variability of pre-service teacher subjectivity remains a beautiful risk. This beautiful risk is needed more than ever. If our education system is going to support learners to flourish and thrive in their own subjectivity, then we need pre-service teachers with the agency and courage to tinker with what is a variable system and challenge attempts to code rather than emancipate learners. The unique narratives of each of the participants represent this variability. Narratives that identities which, if allowed to flourish, represent human-centred hope for our education system and, if allowed, have a voice that can challenge its dehumanisation. This PhD is for Teej, Hannah, Ella, Robbie, Sally, Chester, Abby, Ella, Lucy, Camila and Toloake in the hope that it will support them to keep tinkering, keep being themselves and keep bringing and creating hope for their learners.

My journey with this PhD research and the participants narratives has deepened my understanding of the formation of digital identity in education. It has reinforced the need to question policy directives, particularly those that assume digital technologies

automatically enhance learning. By amplifying the digital journeys of pre-service teachers, this study demonstrates that the voices of pre-service teachers can contribute to conversations on how digital identities are understood and shaped during ITE.

In a policy landscape that is increasingly focused on economic productivity and measurable outcomes, this research highlights that human connection, adaptability, and agency are more critical than technological efficiency in producing the teachers we need to drive a future where learners can connect and flourish.

As part of the ahi kaa conversation, this research has renewed my commitment to ensure that pre-service teacher voices are not marginalised. Their lived experiences provide essential insights that should be allowed to inform how ITE supports digital identity formation in an ever-changing world.

Just as Chester concluded with a whakataukī, I will do the same:

“Ruia taitea, kia tū ko taikākā.”
“Strip away the sapwood, the heartwood remains.”

At the heart of a pre-service teacher’s digital identity is their own story, the story of their lived relationship with digital technologies. By empowering pre-service teachers to stand firm in their narratives, the heart from which their digital identities emerge, we also equip them to thrive and flourish to continue navigating their journey with digital technologies.

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Appendix One: Ethics Approval



Auckland University of Technology Ethics Committee (AUTEC)

Auckland University of Technology
D-88, Private Bag 92006, Auckland 1142, NZ
T: +64 9 921 9999 ext. 8316
E: ethics@aut.ac.nz
www.aut.ac.nz/researchethics



14 January 2021

Andrew Gibbons
Faculty of Culture and Society

Dear Andrew

Re Ethics Application: **20/384 Developing digital identities: Initial Teacher Education and the significance of pre-service lived experience during practicum**

Thank you for providing evidence as requested, which satisfies the points raised by the Auckland University of Technology Ethics Committee (AUTEC).

Your ethics application has been approved for three years until 14 January 2024.

Non-Standard Conditions of Approval

1. Removal of bullet point 6 in the 'how will these discomforts and risks be alleviated' section of the Information Sheet.

Non-standard conditions must be completed before commencing your study. Non-standard conditions do not need to be submitted to or reviewed by AUTEC before commencing your study.

Standard Conditions of Approval

1. The research is to be undertaken in accordance with the [Auckland University of Technology Code of Conduct for Research](#) and as approved by AUTEC in this application.
2. A progress report is due annually on the anniversary of the approval date, using the EA2 form.
3. A final report is due at the expiration of the approval period, or, upon completion of project, using the EA3 form.
4. Any amendments to the project must be approved by AUTEC prior to being implemented. Amendments can be requested using the EA2 form.
5. Any serious or unexpected adverse events must be reported to AUTEC Secretariat as a matter of priority.
6. Any unforeseen events that might affect continued ethical acceptability of the project should also be reported to the AUTEC Secretariat as a matter of priority.
7. It is your responsibility to ensure that the spelling and grammar of documents being provided to participants or external organisations is of a high standard and that all the dates on the documents are updated.

AUTEC grants ethical approval only. You are responsible for obtaining management approval for access for your research from any institution or organisation at which your research is being conducted and you need to meet all ethical, legal, public health, and locality obligations or requirements for the jurisdictions in which the research is being undertaken.

Please quote the application number and title on all future correspondence related to this project.

For any [enquiries](#) please contact ethics@aut.ac.nz. The forms mentioned above are available online through <http://www.aut.ac.nz/research/researchethics>

(This is a computer-generated letter for which no signature is required)

The AUTEC Secretariat
Auckland University of Technology Ethics Committee

Cc: p.maslin@btl.ac.nz; Stanley Frielick

Appendix Two: Tools

Permission Letter

Copy new permission letter for Head of School

Auckland University of Technology

Head of School: Education

Dear Lyn Lewis,

My name is Peter Maslin, I am currently enrolled in a PhD within the School of Education, with a focus on how pre-service teacher experience of practicum influences the formation of their digital identity. This letter is to inform you of a change in research approach, application for ethics amendment and to ask re ask for permission to approach student teachers in the School of Education to participate in this research project.

The research has been delayed by the COVID-19 Lockdowns of 2021 that caused both a delay in being able to approach students and also a reluctance for participants to commit to the initial study design.

This research has taken on increased significance in COVID-19 as it will potentially provide feedback on how student teachers have experienced the contextual changes caused by the shift to digital education during lockdowns and how ITE can better support student-teachers to navigate the development of this aspect of their professional identity.

I would like to approach the School of Education for permission to conduct research at Auckland University of Technology, with student-teachers after a practicum experience in Semester One 2022. With this permission I would like to invite student teachers using the Auckland University of Technology online and public notice boards at the beginning of 2022 to consider participating in my PhD research.

In the completion of my research the Auckland University of Technology, practicum schools and participants will all be anonymized to protect their privacy.

Nga Mihi Nui



Peter Maslin

PhD Candidate

Auckland University of Technology

Your digital experiences of practicum

Are you interested in contributing to our knowledge of student teacher experiences of digital technologies? This PhD research explores your digital experiences while you are on practicum. The purpose of the research is to ensure your perspectives contribute to professional knowledge.

What's involved

This study will interview you after the completion of a practicum experience in Semester One 2022. The interview of approximately 1 hr will take place via your choice of ZOOM or in person at a time and date chosen by you after your practicum. The semi-structured interview will be conversation share your perceptions and experiences of how Practicum has influenced your understanding of the 'digital' and contributes to your sense of professional identity as a student-teacher.

Eligibility Criteria

To participate in this study, you must:

- Be enrolled as a pre-service teacher in ECE, Primary or Secondary at AUT in Semester One 2022.
- Undertaking a practicum experience as part of your course in Semester One 2022.

Contact

For further information, please read the attached participant information sheet and contact

Peter Maslin

PhD Candidate, School of Education

Email: p.maslin@bti.ac.nz

Consent Form

Section One: Consent



Section One: Consent to Participate in Semi-structured Research Interview

Project Title: Developing digital identities: Initial Teacher Education and the significance of pre-service lived experience during practicum

Project Supervisor: Associate Professor Andrew Gibbons

Researcher: Peter Maslin

I have read and understood the information provided about this research project in the Information Sheet dated dd mmmm yyyy. [Date will be inserted with confirmation of ethics amendment]

☐ Yes

☐ No

I have had an opportunity to ask questions and to have them answered

☐ Yes

☐ No

I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way

☐ Yes

☐ No

https://aut.au1.qualtrics.com/Q/EditSection/Blocks/Ajax/GetSurveyPrintPreview?ContextSurveyID=SV_3jS2YiU69hckNcG&ContextLibraryID=UR... 1/4

I understand that if I withdraw from the study then, while it may not be possible to destroy all records of the online focus group discussion of which I was part, I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.

- ☐ Yes
☐ No

I understand that as a participant in this study, that if I choose to have an online interview I will comply with Zoom use and privacy guidelines that are outlined in the information sheet for phase three in order to protect my digital identity and the digital identity of other participants.

- ☐ Yes
☐ No

I understand that the data from this research will be stored at the Auckland University of Technology and that the data generated in this research will be used in the completion of a PhD thesis by the researcher. It may also be utilised to inform Initial Teacher Education and in future related research publications and presentation.

- ☐ Yes
☐ No

I have been informed that the confidentiality of the information I provide will be safeguarded subject to any legal requirements; my data will be password-protected and accessible only by the named researchers.

- ☐ Yes
☐ No

I agree to take part in this research and that by clicking on consent that "I consent" to participate in am semi-structured interview.

- ☐ Yes

☐ No

I understand that if I wish to view a summary of the research findings that at the conclusion of phase one, these will be posted online using Auckland University of Technology notice boards.

☐ Yes

☐ No

Consent Signature

×

SIGN HERE

clear

Participants Pseudonym

Participants Contact Email

In choosing to participate in an interview I would like to make the following cultural and/or social considerations known.

Powered by Qualtrics

Participant Information Sheet

Participant Information Sheet

This participant information sheet relates to **the interview phase** of the research project.

Date Information Sheet Produced:

21 September 2021

Project Title

Developing digital identities: Initial Teacher Education and the significance of pre-service lived experience during practicum

Invitation

Tena Kotou Katoa,

My name is Peter Maslin, I am undertaking my PhD in Education through Auckland University of Technology. As part of my PhD qualification, I would like to invite you to participate in a research project that explores how your experiences pre-service teacher on practicum contribute to the development of your digital identity.

This invitation invites you to participate in this research project by sharing your 'digital' story of practicum in a semi-structured interview that will take place at a time of your choosing at the conclusion of a practicum in Semester One 2022. In this interview you will be invited to share your narrative of how your experiences during practicum have contributed to your understanding, perception and interpretation of what it means to be a 'digital' teaching professional. The interview will take a time commitment of one hour.

Nga Mihi Nui

A handwritten signature in black ink, appearing to read 'Peter Maslin', with a stylized, flowing script.

Peter Maslin

PhD Candidate

School of Education

Auckland University of Technology

What is the purpose of this research?

The purpose of this research is to find out how practicum contributes to the formation of student teacher digital identity at Auckland University of Technology and how insight from this can inform Initial Teacher Education providers about how the formation of this identity can be better supported.

The research seeks to involve pre-service teachers from ECE, Primary and Secondary Initial Teacher Education three-year undergraduate degrees and one-year graduate diplomas at Auckland University of Technology.

How was I identified, and why am I being invited to participate in this research?

You have been identified and invited to participate in this research project because you are enrolled in an Auckland University of Technology ECE, Primary or Secondary Education three-year undergraduate degree or graduate diploma.

If you have previously been a student at Bethlehem Tertiary Institute, the place of work of the researcher or will be in a course facilitated by the either Associate Professor Andrew Gibbons or Dr Stanley Frielick during semester one 2022 you are excluded from being able to participate in this research. The reason for this is to minimise the risk of a conflict of interest or coercion within the research process.

How do I agree to participate in this research?

Your participation in this research is voluntary (it is your choice) and your choice to participate or not, will neither advantage nor disadvantage you in the completion of your study. You are able to withdraw from the study at any time. If you choose to withdraw from the study, then you will be offered the choice between having any data that is identifiable as belonging to you removed or allowing it to continue to be used. However, once the findings have been produced, the removal of your data may not be possible.

Your choice to participate in the interview will be given by indicating interest via email to the address provided in the research add. Further information and consent forms will be sent to you via the email address you provide if you are chosen for the interview process.

If there is an oversubscription to the interviews, participants will be chosen as random by an independent member of the School of Education in a blind process. You will be informed of your selection to participate a week before your PPE starts. This will give you time to confirm your participating and begin to think about when you would like to be interviewed at the conclusion of your practicum. Those who are not selected will be informed and asked if they wish to remain on a waiting list. If a participant who has selected to participate chooses to

withdraw before the scheduled online focus group. A random member of this waiting list will be selected and approached to see if they wish to participate.

The interview will be semi-structured in that it will provide the topic areas to be discussed and the interviewer may engage probes to deepen understanding. The aim of the interview is allow you as the participant to share your experiences, understanding, observations and interpretation. The interview will take 1 hr of your time to participate in, at a time or location of your choice, after a Semester One practicum.

What will happen in this research?

Integral to this research is the story of the student-teacher and how their perception of the 'digital' is being shaped by the reality in which they experience 'digital' interaction.

The interview will focus on exploring your perception, as a student-teacher, of practicum as a context in which you have to mediate the multiple, messy realities and perceptions of what it means to become 'digital' and engage with technology (Selwyn, 2021). Your response will be guided by the question of

“what can we learn from the narratives of student-teachers to inform the discourse in Initial Teacher Education about becoming a 'digital' teacher.” This being a student-teacher in Aotearoa New Zealand that has not only negotiate life in a digitally connected age, but also how to teach with and in digital technology and how to teach to a new digital curriculum.

Potential areas of focus for the interview that participants will be invited to discuss their experience, perception, and observations of include the following,

1. What is the 'digital'?
2. How is it defined?
3. Who defines it?
4. Has your definition changed over the course of your practicum experience or course of study?
5. Why is this the case?
6. What events or experiences were pivotal to this?
7. How does the 'digital' shape your perception of what it means to be a student-teacher?
 1. in Initial Teacher Education
 2. In Educational Contexts in Aotearoa New Zealand.
8. What 'digital' expectations are you aware of in Initial Teacher Education or the profession?
9. How has your practicum experience changed your understanding or perception of these?
10. Based on these expectations what 'digital' skills and dispositions do you believe are essential in becoming a 'professional teacher.'
11. If these have changed, what experiences or events have influenced this change?
How has practicum changed or influenced your perception of the skills and dispositions essential to being 'digital' and professional.

The aim of this participant driven approach is to bracket all assumptions outside of those of yours as the participant and allow your narrative perception and interpretation to emerge and be explored. These narratives once collected will then be analysed in their own resonance and then alongside others for narrative coherence.

The data that has been gathered in this research will,

1. Be used in the submission of a thesis towards a PhD qualification at Auckland University of Technology.
2. Be used in subsequent publications in research books and journals and presentations at conferences related to the topic researched.

What are the discomforts and risks?

There should be minimal potential for discomfort and risk in the interview phase of the research. However, there is the potential for discomfort or risk if your identity is accidentally acknowledged. The level of discomfort and embarrassment is deemed to be minimal. This could include;

1. The unintended disclosure of your identity,
2. Comments being made that could be deemed as negative, offensive or bullying.
3. Feeling that you have lost control of the information that you have provided

You will be provided with a list of external contacts, including counselling support that you can access for free if this happens

How will these discomforts and risks be alleviated?

In the interview phase of the research, this potential discomfort and risk has been alleviated with,

This research aims to both prevent and then respond to participants having a negative consequence of choosing to participate in phase three of this research. These potential discomforts and risks will be alleviated by;

1. The choice to participate in the interview will be your choice as the participant alone.
2. If you choose to participate you will be asked to identify yourself only by your chosen pseudonym and if you wish to use audio only to communicate.
3. Using audio recording only for the interviews.
4. All information provided in the research will be only accessed by the researcher and stored in an offline password-protected hard drive after the interview is conducted.
5. All information stored online will be deleted after the interview process concludes.
6. In line with Auckland University of Technology data storage protocol after six years of storage all data on the external hard drives will be deleted.
7. Providing you as the participant with a fixed point of contact throughout the process via email to address concerns and ask questions. This email address will be for the primary supervisor of the research project Assoc Professor Andrew Gibbons, andrew.gibbons@aut.ac.nz
8. In the case of risk and discomfort counselling and wellbeing support through Auckland University of Technology will be provided at the request of the participant.

9. Allowing you as the participant at any stage of the research until the final data is published to control their participation and how their data is used.
10. providing you as the participant with clear access to counselling and other support using independent AUT facilities if this is needed

What are the benefits?

The benefit to the participant

- It opens a door for participant voice to contribute to the design of digital identity formation within Initial Teacher Education.
- It gives the participant the chance to share how COVID-19 and the shift to digital practicum has contributed to Initial Teacher Education.
- Initial Teacher Education providers could use insight from this research in the design of teaching and learning spaces that are better positioned to support the emergence of student- teacher autonomy, knowledge and responsibility.
- Participants will potentially be encouraged to keep reflecting on and sharing their lived experiences.

The benefit to the researcher

- the researcher will grow their research capability in an educational field about which they are passionate. This will contribute directly to the growth of their academic profile both within the Educational Philosophy and Digital Educational research communities and as an educator of pre-service teachers.
- The researcher will develop their research skills in methodologies that use social media and digital approaches in exploring how identity is formed.
- The research contributes toward the gaining of a PHD qualification.
- It will assist in the development of digital policy and pedagogy at the Initial Teacher Education provider where the researcher is employed.
- The literature review for this research is contributing toward the Graduate Diploma of Secondary Approval process at the tertiary provider the researcher works.

The benefit to the community

- This research potentially adds benefit to the educational community in Aotearoa/ New Zealand by adding a new source of insight to the discourse that already exists. In particular it will contain specific new insight on how contexts such as COVID-19 in educational contexts can be better navigated in ITE.
- By potentially assisting Initial Teacher Education providers to support better the development of the digital identity of pre-service teacher's, it is more likely they will enter the profession with the ability to meet the digital aspirations of the New Zealand Curriculum.
- This research has the potential to add to the continued development of research methodologies that allow missing voices to be explored and contribute to educational discourse.
- This research could add new insight to the existing body of knowledge on how narrative interviews can be used as a research tool to capture qualitative data.

In particular, it will add a focus from the New Zealand/Aotearoa educational community as it has sought to navigate education during a pandemic.

How will my privacy be protected?

Your involvement in the research interview is confidential, your identity will only be known by the researcher, and the open-ended nature of the questions is designed to protect your identity.

The level of privacy within this phase of the research is confidential. No participant identifying information is being gathered and the questions are designed to maintain a participant's anonymity. Confidentiality will be assured through participant choice of communication and pseudonym. It will be further assured by only the researcher having access to contact information via an encrypted, password protected file, stored in a secure data facility.

It is the intention of this research not to involve the collection of personally identifiable and sensitive data. However, because this research involves an interview face to face in person or using ZOOM, specific ethical requirements around the ownership of data, privacy, and sensitive data are significant to the research design. While this research does not seek to gather sensitive data, you as a participant may unintentionally reveal sensitive information as part of your contribution. The research design and protocols are designed to prevent this from happening.

The privacy is at the level of confidential for this phase of the research. This means that minimal identifiers of the participant will be known in the research and the data provided will be strongly protected. The researcher will be able to identify the participant through the email address they provide, pseudonym they choose and their participation in the closed online focus group. Other participants will also be able to identify the participant by their participation in the online focus group.

The confidentiality of the participant in the online focus group will be assured by providing clear guidelines to participants on the provision of data and the protection of identity. The online focus

group chosen will be closed. After the conclusion of the research this group will be deleted and one the recording of the focus group will only be able to be accessed by the researcher via a password protected file within secure data storage facilities at Bethlehem Tertiary Institute and Auckland University of Technology. Participants will also be provided clear guidelines on the privacy policy of the online platform being used for the focus groups.

The confidentiality of the data provided by participants will be assured by;

1. Using research design that only collects minimum necessary participant identifiers.
2. The removal of identifiers when they are no longer needed.
3. Limiting access to electronic and physical sources of data.
4. The storage of online data in an encrypted form in secure data storage facilities at Bethlehem Tertiary Institute and Auckland University of Technology.
5. The removal of any identifiers in shared data.
6. The immediate reporting of any inadvertent potential data breach to AUTECH.

Protection of your Identity.

To protect your identity, any sensitive data, and limit the likelihood that a breach in data will occur or data be used in a way that allows you to be identified a specific three-stage protocol will be used.

1. Firstly, all potential you as the participant will be transparently be informed of the potential risks of sharing data on Zoom, and how the data they provide will be specifically collected, analysed and presented.
2. Secondly, as the participant, you will receive clear instructions on how can protect their own privacy and identity and respect the rights of other participants and organisations at
3. the same time. This will involve you as part of the consent process for phase three, signing specific guidelines for participation. Part of this process will involve you as the participant having the right to check your transcript and the use of your data in the final presentation, to ensure it is accurate or if you wish for it to be included.
4. Thirdly, in the publishing of the thesis, all participants and organisations will be referred to using aliases to protect their identity, and any direct quote that could lead to your identification will be paraphrased in order to prevent the likelihood of this happening.

The safe use of Zoom as a data collection tool for online focus groups.

With the use of Zoom as a data collection tool, this raises a number of important issues regarding the control of the information and ownership of the content that you provide. This is due to the fact that Zoom their terms of use has specific policies about ownership of uploaded data, content and information which has implications for your right to have complete control over sensitive information that you may provide.

Zoom also has the potential to the blur of public and private spaces and the ability of participants to manage this both in respect to protecting their own privacy and also the privacy of others.

In order to manage these issues,

- Firstly, Zoom have its terms of use presented to you as a participant as part of the consent process. This will clearly allow you to make an informed and transparent choice to participate. It will allow you to understand Zoom's terms of use in relation to ownership of identity and context and also the public vs private context in making your decision to participate.

-Zooms updated [privacy policy](#) states:

Zoom not sell your personal data. Whether you are a business or a school or an individual user, we do not sell your data.

- Your meetings are yours. We do not monitor them or even store them after your meeting is done unless we are requested to record and store them by the meeting host. We alert participants via both audio and video when they join meetings if the host is recording a meeting, and participants have the option to leave the meeting.
- When the meeting is recorded, it is, at the host's choice, stored either locally on the host's machine or in our Zoom cloud. We have robust and validated access controls to prevent unauthorised access to meeting recordings saved to the Zoom

cloud. In the case of this research the recording will be stored locally on the host's machine and then transferred to a password protected external hard drive.

- Zoom collects only the user data that is required to provide you Zoom services. This includes technical and operational support and service improvement. For example, we collect information such as a user's IP address and OS and device details to deliver the best possible Zoom experience to you regardless of how and from where you join.
- We do not use the data we obtain from your use of our services, including your meetings, for any advertising. We do use data we obtain from you when you visit our marketing websites, such as zoom.us and zoom.com. You have control over your own cookie settings when visiting our marketing websites.

Despite these protections, users should use common sense and avoid sharing more information when necessary when using Zoom, especially when discussing confidential matters

Additionally, as a user of Zoom, if you give Zoom access to any files or programs you need to manage cookies through your browser settings in the way you do with other applications.

-Secondly, at all phases of the research, clear guidelines will be presented in the information sheet outlining how you as the participant can manage your identity and

-content; and allow others to also do the same. For the use of Zoom, this includes the following guidelines.

- Protection of your remote location
 - Use an appropriate virtual background to protect your remote location
 - Be mindful of others in your remote location who may not want to be recorded or visible in the background
 - Ensure that the conversation cannot be heard by unauthorised people. Please use headphones as part of this.
 - Screen sharing privacy
 - Do not have potentially sensitive data open that could be accidentally shared during the online focus group.
 - Managing participant privacy
 - Don't post-meeting ID's and passwords
 - Each interview will have a separate access code and password
 - Each meeting will be monitored for unwanted attendees through the use of,
 - A waiting room
 - Password protection
 - Locking the online focus group once it starts

- Muting participants who are not sharing
- Removal of unwanted participants by the host, who will be the researcher.
- Private chat will be disabled.
- Recording of the interview
 - Only the host will have permission to record the interview
 - Verbal and visual indications being given when recording will start and has stopped
 - Recordings of the meeting, chat and transcripts will be recorded to the remote computer of the host and then transferred to a password-protected external hard drive.
 - Thirdly, as a participant, you at any stage will be able to communicate via email directly with the researcher or the primary research supervisor, if you have
 - concerns about your privacy, safety and ownership of their content.
 - Fourthly, participants at any stage if you feel unsafe or unable to participate further will be able to withdraw from the research with no negative implication.

What are the costs of participating in this research?

The time that you are being asked to commitment to this phase of the research is 1 hour after the conclusion of your practicum in Semester One 2022.

What opportunity do I have to consider this invitation?

You will have a minimum of two weeks to between the invitation being posted and the start of practicum experiences to consider the invitation to participate.

Will I receive feedback on the results of this research?

At the conclusion of the interviews, a summary of the findings will be emailed directly to the email address you have provided. At the conclusion of the research, you will be sent a link to a website in which the final findings of the research will be summarised and uploaded.

What do I do if I have concerns about this research?

Any concerns regarding the nature of this project should be notified in the first instance to the Project Supervisor,

Associate Professor Andrew Gibbons

andrew.gibbons@aut.ac.nz

Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTECH, ethics@aut.ac.nz , (+649) 921 9999 ext 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet and a copy of the Consent Form for your future reference. You are also able to contact the research team as follows:

Lead Researcher

Peter Maslin

p.maslin@bti.ac.nz

07 562 2913

Lead Supervisor

Associate Professor Andrew Gibbons

andrew.gibbons@aut.ac.nz

Co Supervisor

Dr Stanley Frielick

stanley.frielick@aut.ac.nz

Researcher Contact Details:

Peter Maslin

p.maslin@bti.ac.nz

07 562 2913

Bethlehem Tertiary Institute

24 Elder Lane

Bethlehem, Tauranga, 3110

Project Supervisor Contact Details:

Associate Professor Andrew Gibbons

a.gibbons@aut.ac.nz

Auckland University of Technology

School of Education, North Campus.

Approved by the Auckland University of Technology Ethics Committee on 14 January 2021, ATEC Reference number 20/384.

Sample Key Questions and areas for narrative focus in the interview.

These will be presented to the participant in the information sheet and form the basis of potential probes the researcher will engage.

Integral to this research is the story of the student-teacher and how their perception of the 'digital' is being shaped by the reality in which they experience 'digital' interaction.

The interview will focus on exploring your perception, as a student-teacher, of practicum as a context in which you have to mediate the multiple, messy realities and perceptions of what it means to become 'digital' and engage with technology (Selwyn, 2021). Your response will be guided by the question of "what can we learn from the narratives of student-teachers to inform the discourse in Initial Teacher Education about becoming a 'digital' teacher." This being a student-teacher in Aotearoa New Zealand that has not only negotiated life in a digitally connected age, but also how to teach with and in digital technology and how to teach to a new digital curriculum.

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7. How does the 'digital' shape your perception of what it means to be student-teacher?
 - a. in Initial Teacher Education?
 - b. In Educational Contexts in Aotearoa New Zealand.
8. What 'digital' expectations are you aware of in Initial Teacher Education or the profession?
9. How has your practicum experience changed your understanding or perception of these?
10. Based on these expectations what 'digital skills and dispositions do you believe are essential in becoming a 'professional teacher.'
11. If these have changed, what experiences or events have influenced this change?

How has practicum changed or influenced your perception of the skills and dispositions essential to being 'digital' and professional

