



Virtual Learning for Māori Students: Examining Culturally Responsive Pedagogies and Equity

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Abstract

This article provides a comprehensive literature review examining virtual learning in the Aotearoa New Zealand schools sector, with a specific focus on understanding and addressing the needs of Māori learners in these online environments. It begins by tracing the historical development of virtual learning in Aotearoa New Zealand—from early correspondence courses to the emergence of e-learning clusters and increasing digital technology use. The authors highlight the differences between teaching and learning virtually compared with traditional face-to-face classrooms, exploring unique pedagogical approaches, challenges, and the support structures required for effective online instruction and student engagement. Emphasis is placed on the crucial role of fostering strong teacher–student relationships in virtual settings. The article then reviews culturally responsive pedagogies and strategies identified as effective for engaging and supporting Māori learners, and discusses potential frameworks for translating these approaches to online learning environments. The potential of virtual learning to provide more equitable educational opportunities for Māori students, particularly in rural areas, is examined. However, pre-existing socioeconomic inequalities and the digital divide exacerbated by COVID-19 are noted as barriers. Overall, the author underscores the scarcity of research specifically examining Māori students’ experiences and needs in virtual learning contexts. They call for further investigation to better understand and address these gaps, striving to ensure culturally responsive and equitable virtual education opportunities for Māori learners. The paper provides a valuable synthesis of literature and insights into this important issue in Aotearoa New Zealand education.

Keywords: whanaungatanga; ākonga Māori; virtual learning; online learning; school sector

Introduction

Several years ago, the Ministry of Education commissioned a significant piece of research that was undertaken by Blewden et al. (2018). The report specifically targeted virtual learning (referred to as “virtual learning” hereafter) in Aotearoa New Zealand and included ākonga Māori and Pasifika participants who were involved in the virtual learning community. This research was particularly helpful because it had involved ākonga Māori participants learning through the Virtual Learning Network (VLN), a loose collection of virtual learning providers operating throughout the country (Whalley & Barbour, 2020). Prior to this research being undertaken, other researchers had provided a comprehensive overview of the history of virtual learning in Aotearoa New Zealand, discussing the benefits and the digital tools and platforms being used to support online teaching and learning (Barbour, 2011; Barbour et al., 2016; Davis, 2011; Lai & Pratt, 2004, 2020; Lin & Bolstad, 2008, 2010; Pratt & Pullar, 2013; Pratt & Trewern, 2011; Roberts, 2009; Stevens, 2011; Tolosa et al., 2017, 2021; Walsh-Pasco, 2004; Whalley & Barbour, 2020). However, this body of research has often excluded or failed to focus on ākonga Māori students.

This article explores the literature relating to virtual learning in the Aotearoa New Zealand schools' sector, with a particular focus on ākonga Māori learners. Previous research is introduced to provide an overview of the development of virtual learning in Aotearoa New Zealand, to identify effective strategies to engage ākonga Māori, to review what works well in online and distance learning to engage ākonga Māori, and to establish whether online and distance learning provides equitable educational opportunities for ākonga Māori from rural Aotearoa New Zealand schools.

Aotearoa New Zealand virtual learning

The history of distance learning within the schools' sector in Aotearoa New Zealand begins with The Correspondence School (now called Te Aho o Te Kura Pounamu [Te Kura]), which began offering correspondence education in 1922. Later, Roberts (2009) credited Te Kura as being the first in the school sector to begin trialling telecommunications technology in the 1980s, followed in 1994 by a group of seven Canterbury schools. This was the Canterbury Area Schools Association Technology project, known as CASAtch. The network collaborated to teach classes to students throughout the seven schools using audio graphics. Funding from the Ministry of Education's *Rural Schools Pool* enabled the connected schools to begin to grow. Wenmoth (2019) reported that in 2001 Te Kura established its "e-section"—a pilot programme designed to introduce an online learning dimension into what had been a traditional print-based, correspondence institution (p. 10), although Stephens (2011) pointed out that they did not begin their journey to have their learning materials fully digitised and to move to an online model of distance education until much later.

Both Roberts (2009) and Wenmoth (2019) gave credit to Kaupapa Ara Whakawhiti Matauranga (KAWM) for being the first e-learning cluster. This was a group of Māori boarding schools, kura kaupapa, and East Coast area schools. Although they agreed that KAWM were the pioneers in providing video-conferencing learning opportunities for their students, it was OtagoNet that provided the model that subsequent e-learning clusters would follow (Roberts, 2009). Wenmoth (2019) added that the relationship with Te Kura proved invaluable for the successful development of the OtagoNet cluster . . .

. . . not only as a result of the dual enrolments taking place, but also through some of the relationships established that allowed experienced distance educators to support and advise some of the classroom teachers in the cluster schools as they became familiar with this new way of operating. (p. 11)

Blewden et al. (2018) also traced the early development of online distance education in Aotearoa New Zealand, highlighting a long history of distance education provision with Te Kura, networks of primary and secondary schools grouped in regional e-learning clusters, and a variety of tertiary institutions and private education and training providers delivering a range of forms of virtual learning. However, the authors also cautioned that these learning opportunities had no set regulation.

The development of online distance education in Aotearoa New Zealand . . . follows a long history of distance education provision and builds from the identified benefits of online learning (Alexander-Bennett, 2016; Morrison et al., 2016; Wright, 2010; Zheng et al., 2016). However, authors have identified a paucity of research on online distance education in New Zealand (Barbour, 2011; Lai, 2017; Tiakiwai & Tiakiwai, 2010) and overseas experience reinforces the need for effective regulatory control and policy support within the sector (Hasler-Waters et al., 2014; Molnar et al., 2017; Watson et al., 2014). (Blewden et al., 2018, p. 1)

Interestingly, while much of this literature refers to some of this history, there is still no comprehensive documentation of the history of distance and virtual learning in the schools' sector in Aotearoa New Zealand.

Beyond this focus on the development of virtual learning, there has also been a focus in the Aotearoa New Zealand literature on students' experience of learning in virtual classrooms. This research has often taken the form of investigating the affordances and barriers of the VLN classes by identifying students' experiences and perceptions (Bolstad & Lin, 2009; Roberts, 2009). Student voice was also used by Pullar and Brennan (2008) and Pratt and Pullar (2013) to study what students said they needed for success in an online environment.

Again, returning to Blewden et al. (2018)'s comprehensive study, those authors focused their investigation of student experiences on four areas:

1. The differences between online and face-to-face teaching and learning
2. The delivery of pastoral care, guidance and support in an online context
3. Required dispositions and competencies of online students
4. The development of online learning content and materials. (p. 1)

Their main findings focused on the first three areas and the study found nine points, which the authors summarised as follows:

1. Effective online teaching and learning is, at its core, a demonstration of effective teacher pedagogy.
2. The core difference is the willingness, ability, and intent of online teachers to develop an online pedagogy that effectively uses appropriate digital tools and distance methods to enable learner success.
3. The deliberate acts of online teaching made by online teachers inevitably impact learner success.
4. When working with diverse learners a range of pedagogical approaches were required to respond appropriately to learner expectations, needs and aspirations.
5. Online learners expected a relationship with their teachers and uninterrupted time with them.
6. Students valued authentic teacher engagement, demonstrations of teacher care, and teachers who responded to their unique needs and context.
7. Student expectations of teachers were similar to that of a face-to-face setting, teachers in turn needed a suite of online teaching skills to meet these expectations.
8. The choice of online tools, activities, and student/teacher interactions, and how these intersect, influence learner engagement, and in turn, learning outcomes.
9. Online distance education systems require the capacity and capability to be adaptive and responsive to individual student needs, preferences, and aspirations. (p. 2)

However, many of the students involved in this study were high-achieving, self-regulating learners who reported they had enjoyed and benefitted from the flexibility of online learning. Interestingly, over half of the student participants identified as being of Māori or Pasifika descent, but because they were selected by the eDeans and ePrincipals they might not represent the larger population of learners.

One case study investigated the perceptions of Māori students in the VLN and effective strategies for engaging them in virtual learning (Barbour & Bennett, 2013; Bennett & Barbour, 2012). Their research noted a benefit of virtual learning—that students were able to remain in their home schools and communities to undertake their learning. The data gathered from ākonga Māori identified a variety of delivery models experienced by students in their virtual classes. A one-hour synchronous video conference was delivered once a week, with students being supported by a learning management system (LMS) and a range of Web 2.0 tools. The use of synchronous instruction was referenced by Karaka-Clarke et al. (2021) as being of particular importance when including bicultural values and practices (as that was often the only time it was present). Although the research conducted by Bennett and Barbour identified strategies being used with ākonga Māori, it did not specifically identify what worked well for them (Barbour & Bennett, 2013; Bennett & Barbour, 2012). Additionally, while the study targeted engagement by Māori students, it was undertaken with only a small pool of eStudents from only one of the 15 national e-learning clusters that existed at the time.

Beyond examining virtual learning in Aotearoa New Zealand at the student level, some have focused their efforts at the school or system level. In his examination of the process of achieving maturity in the primary and secondary e-learning environments in Aotearoa New Zealand, Barbour (2011) acknowledged that the growth of virtual learning in Aotearoa New Zealand had been developing at a grass roots level, with Roberts (2009) referring to the growth and development of the e-learning communities as organic. While Barbour (2011) identified challenges and obstacles for e-learning clusters, he did not address any challenges experienced by the students learning in this environment; nor has the *Learning Communities Online Handbook* provided any clear guidelines to clusters on how to engage their Māori learners in the online environment (Ministry of Education, 2010).

Other active researchers in this space, such as Pratt and Pullar (2013), found that as schools were challenged to meet the needs of their students, “virtual schools” became more common in Aotearoa New Zealand and internationally. These authors presented a description of “distance-learning” used in rural Otago, describing the leadership team and roles, the funding model, concept of reciprocity of schools and teaching approaches. However, once again, it did not address the specific learning needs of ākonga Māori. Barbour (2011) further noted that Pratt and Pullar (2013) did not look at how effective this mode of learning was, or whether it was suitable for all students. This has been a common issue in much of the literature related to virtual learning worldwide (Barbour, 2019).

More specifically focused on Māori learners, Tiakiwai and Tiakiwai (2010) were commissioned by the Ministry of Education to undertake a literature review to explore the use of virtual learning environments in the context of te reo Māori and kaupapa Māori education. The scope was broadened to include literature on e-learning, digital technology, and information communication technologies (ICT). A kaupapa Māori framework guided the researchers to ensure the literature could be appropriately contextualised within kaupapa Māori environments. The authors also expressed how students in e-learning environments often took greater control over or responsibility for their learning—this was similar to observations by Bennett and Barbour (2012) and Blewden et al. (2018) in their respective studies. Bolstad and Lin (2009) concluded eStudents in New Zealand virtual learning clusters were often not well supported by their schools; but more recently students in the study by Bennett and Barbour (2012)—as well as those in Blewden et al. (2018)—responded that they did feel well supported by their eDean and their schools—demonstrating an evolution of practice. This shift in perspective could indicate a change over time or it could be specific to the individual clusters.

Because rural schools are involved in virtual learning, specialist teachers can continue to teach the subject they are passionate about and share their expertise with several schools. The impact for these teachers is often significant, as stated by Alexander-Bennett (2016) when she wrote that “in the past, many teachers left smaller rural schools to teach their subjects” (p. 6). Similarly, Stevens (2011) observed Aotearoa New Zealand’s e-learning clusters provided an opportunity to bring teachers and students together in new and exciting ways to extend and enhance opportunities for students to learn and teachers to teach with technologies. Contrary to Stevens’ findings, Lin and Bolstad (2010) found little effect of ICT on the curriculum, arguing that teachers still often use traditional teaching approaches in the online environment, although they acknowledged that ICT could affect the learning and teaching significantly as an enabler for virtual teaching and learning. This is another example of kura involved with online learning evolving their practices.

The literature review unearthed a wide range of terms used in Aotearoa New Zealand and overseas to define virtual learning—some of the earlier terms describe the tools used; later terms describe the pedagogy applied. For example, video conferencing (VC) was used in the earlier stages of online teaching in Aotearoa New Zealand (Walsh-Pasco, 2004). Barbour (2019) echoed this inconsistency of the definition of virtual learning by noting that one of the difficulties with research relating to virtual learning was the terminology. The range of terms used by other researchers include “e-learning” (Tiakiwai & Tiakiwai, 2010); “virtual learning” and “online learning” (Roberts, 2009); “blended learning” (Zaka, 2013); “online and blended learning” (Davis, 2011), “flexible learning” (Brown et al., 2018)—to provide just a few illustrations; whilst “virtual schooling” (Barbour, 2019; Clark, 2000; Davis, 2011) is the term frequently used in North America. The breadth of terminology has now been expanded to include terms introduced because of COVID-19, such as “remote learning” (Greater Christchurch Schools Network, 2020); “distance learning”, “online learning”, and “emergency remote learning” (Barbour et al., 2020); and, more recently, “hybrid learning” has become a commonly used phrase (Wenmoth, 2020). All of these have some overlap in meaning and some nuances of practice. Most recently, Barbour and Wenmoth (2024) attempted to provide a common nomenclature for distance learning in the Aotearoa New Zealand school sector as a part of their first annual report entitled *Tuia Te Hononga Tāngata, Tuia Te Hononga Ao: Taking the Pulse of Distance Learning in Aotearoa New Zealand*.

As shown above, although several researchers provide examples of the general benefits of virtual learning and the need for education change in New Zealand, there is also a need to identify the benefits that relate specifically to ākonga Māori. Even though it is almost a decade and a half old, this reality was supported by Tiakiwai and Tiakiwai (2010) who, at the time, suggested the literature that specifically examined forms of virtual learning and Māori students or Māori environments was scarce, and that still rings true today (MacKenzie et al., 2022).

What’s different about teaching in a virtual learning environment?

It is well established in the literature that teaching in a virtual learning environment is quite different to teaching in a face-to-face class (Barbour, 2013). Although teacher quality is central to any effective teaching and learning, virtual teaching has its own set of skills, pedagogy, and challenges to ensure the teacher is being effective (Blewden et al. 2018). For example, Walsh-Pasco (2004) highlighted that e-teachers had a higher workload when teaching virtually because teaching during a video conferencing lesson is a more intense experience than in a traditional lesson, and so more time is needed for adequate preparation. Similarly, Roberts (2009) found a virtual class is more open and transparent than teaching inside the four walls of the classroom—suggesting teachers are open to the scrutiny of others not only in their school, but across other

schools—and there is a need to have good systems in place to support teachers to ensure the provision of quality teaching.

In contrast, Blewden et al. (2018) argued that teachers' dispositions and competencies, while often seen as different when teaching virtually, should be based on effective teaching pedagogies.

1. Effective online teachers did not necessarily require different or additional dispositions and competencies compared to face-to-face teachers.
2. There was wide agreement that effective online teachers required the ability to translate and transfer effective pedagogy online.
3. All teaching is challenging but online teachers faced specific rather than additional demands.
4. Teachers need to have a desire and passion for online teaching and learning.

The authors also found student participants described using a wide variety of learning technologies and tools although their views of those technologies' effectiveness varied—some acknowledged that the tools enhanced respective learning activities, whereas others voiced frustration about the fragmentation of learning experience across platforms.

Another factor that highlights the differences of virtual teaching is seen in the professional development needs of teachers (and anyone new to virtual teaching), who need adequate support. Waiti (2005) supported this view by discussing the importance of ongoing professional development to help teachers transition to virtual teaching and argued that pedagogical training was as important as technical training. This view was supported by Roberts (2009), who found that becoming a virtual teacher appeared to bring the same stress and workload as being a new teacher all over again, even for those teachers with years of experience. When discussing the use of technology in virtual learning, Takkunen-Lucarelli (2016) proposed that teachers might assume that students who are working virtually are engaging with technology in meaningful ways. They suggest that this false assumption can lead to poorly designed virtual learning courses that do not take full advantage of the transformative opportunities offered by technological advances.

The challenges when teaching online are described as “pedagogical barriers” by Lai and Pratt (2020) in their study that looks at affordances and barriers of the VLN classes. The authors noted secondary eTeachers found that motivating and engaging students in an online environment was their top challenge (i.e., 60%) and hence a barrier. This was followed by building online community (55%), but developing relationships in class were measured at a lower percentage (38%). In comparison, at the primary level they found support from an on-site class teacher was considered important by the eTeachers because the lack of support created a barrier to effective virtual teaching. This was similar to Bolstad and Lin's finding (2009), reported over a decade ago. Lai and Pratt also found that a student-centred approach of teaching can be adopted. Their research found another major challenge—the lack of timely communication between the eTeacher and eStudent, suggesting the need for eTeachers to use a combination of technological pedagogical solutions. The importance of open and timely communication and relationships, based on trust and mutual confidence, was also found to be paramount although one could argue that these factors should exist between any learner and their teacher.

What's different about virtual learning?

While establishing how virtual teaching is different, this literature review also sought to identify how virtual learning was different to a traditional classroom—focusing beyond the technology tools. A key difference was the type of support required for the learner and the specific dispositions needed. Beginning with Blewden et al. (2018), certain learner dispositions were identified as necessary for learning success online. These learner dispositions were largely consistent with earlier literature (Alexander-Bennett, 2016; Bennett & Barbour, 2012; Barbour & Wenmoth, 2013), in which being organised, self-managing, and keeping close communication with their teacher were seen as important.

Learning support and pastoral care for students learning online also demonstrates how online learning is different. Bennett and Barbour (2012) discussed the roles of eTeacher, eDean and ePrincipal in supporting online students and found this was paramount to student success. This aligned with what Blewden et al. (2018) found to be important. Bennett and Barbour (2012) also established a clear distinction between the role of eTeacher and the role of learning support persons within the context of both Te Kura and the VLN schools; namely, the eTeacher is responsible for delivering the curriculum, while learning support people are responsible for learners' pastoral care and non-academic support. Pratt and Trewern (2011) also interviewed students learning online to identify their experience of flexible learning options and what they needed for success. They reported the importance of support beyond just ensuring the technology worked, and included the importance of having a place such as a learning centre so they didn't feel isolated and could ask for help from their "e-learning support teacher". The eDean's significant role of providing support to the eStudents and eTeachers was further supported by Lin and Pratt (2020), who suggested that the role needed to be adequately recognised by the home schools and policy makers, and that time and resources should be allocated to provide support to the eStudents and eTeachers.

Moving on to the tools involved in online learning, Bennett and Barbour (2012) found that learners often needed to be introduced to the tools they used outside the classroom and school for them to realise their potential in an educational context. This finding was supported by Blewden et al. (2018), who also found that young people often lacked the skills and understanding necessary to purposefully use digital technologies for educational purposes. Further, Davis and Ferdig (2018) identified that not all learners were successful in these environments. However, these authors found some learners became successful when support, including an induction to virtual learning environments, was put in place to allow them to develop both technical and study skills.

The flexibility of virtual learning makes it clearly different to that of the traditional face-to-face classroom environment. For example, Zaka (2012) found increased flexibility, including the use of blended approaches, was one of the advantages in online education. This was supported by Pratt and Trewern (2011) who, after interviewing students enrolled in both traditional face-to-face courses and courses through the VLN, found that flexibility was an important benefit and advantage for students. They concluded that students have valuable learning experiences when they have more options for flexible and personalised learning. Additionally, Bolstad and Lin (2009) interviewed eTeachers and eStudents and found blended learning can increase students' independent learning skills as a result of engaging in self-directed learning. A similar finding in relation to flexible learning opportunities was identified by Tiakiwai and Tiakiwai (2010), who suggested virtual learning removed physical barriers of distance for indigenous participation in education and allowed flexible learning opportunities—indigenous students were able to stay in more familiar social and cultural environments while pursuing continued and enhanced learning. Although this study involved tertiary students, this observation is relevant to Māori learners in virtual learning because it shows online learning can also provide equitable educational

opportunities. Notably, Tiakiwai and Tiakiwai (2020) concluded students took greater control over and responsibility for their learning, and the teacher became less of a teacher and more of a facilitator in student learning—clearly showing how online learning is different from the traditional learning model.

The role of relationships to engage learners

Whanaungatanga is primarily about establishing positive relationships but, just as importantly, whanaungatanga is about maintaining those relationships (Karaka-Clarke, 2020). Relationships impact how teachers treat and interact with students, with quality teacher–student relationships strongly associated with academic achievement (Education Hub, 2020a). Research clearly indicates relationships are key to effective engagement of Māori students in education (Bishop, 2008; Bishop & Berryman, 2009); As part of their Te Kotahitanga research project, Berryman et al. (2018) exemplified the importance of relationships between teachers, their students, and their whānau. The Kotahitanga project also highlighted relationships and interactions between teachers and students in the classroom that were key to effective teaching of Māori students. However, their research also discussed the importance of having effective teachers when working with Māori students. Their findings were similar to those of Lai (2017), who found a supportive online learning environment entailed teachers using effective pedagogical practices to meet the needs of their students and developing a positive teacher–student relationship to foster learner motivation and engagement. We can conclude that effective teachers, as recognised by Bishop and Berryman (2009), take a positive, non-deficit view of Māori students, and see themselves as capable of making a difference for them.

The importance of interaction and engagement for the development of relationships in the virtual learning environment was underscored by Mahmud and Bakar (2020), who wrote “it is non-trivial that teacher–student interaction creates positive relationships in the classroom and leads to effective learning and satisfaction” (p. 82). Further, in a section outlining the foundational conditions needed for the success of ākonga Māori and Pacific students, the first of the five conditions described by Smaill et al. (2024) was “establishing and maintaining meaningful staff and student, and school and whānau, relationships” (p. 5). Similarly, recent COMPASS reports from the New Zealand Council for Educational Research have underscored the importance of relationships between students, teachers, and whānau to student success and wellbeing (Alansari et al., 2022; Tuifagalele et al., 2024). Essentially, researchers have emphasised that positive relationships between teachers, students, and whānau are crucial for effective learning and student success in virtual learning environments.

The need for strong, positive, and effective relationships between students and their teachers in a virtual learning environment was also highlighted by researchers who found relationships were paramount to engage students. Elaborating on this body of researchers, Walsh-Pasco (2004) noted the virtual learning environment enabled both teacher and students to be learners together, to support each other and build meaningful relationships. Similarly, Bennett and Barbour (2012) noted students felt well supported by many of their teachers and acknowledged they had good relationships, which allowed them to engage in the virtual learning class. Notably, some of the literature suggests that teachers often found they had to work harder to create relationships with their students because of the lack of face-to-face contact and therefore attempted to create face-to-face opportunities (Tiakiwai & Tiakiwai, 2010), such as the e-days held by OtagoNet (Pullar & Brennan, 2008). These e-days, held at the beginning of each year by OtagoNet, enabled teachers and students from across the cluster to come together with the aim of building relationships between them.

Interestingly, Pratt and Lai (2023) found that eTeachers reported being comfortable when building relationships in the virtual learning environment. Similarly, Blewden et al. (2018)

concluded that virtual learning teachers endeavoured to find ways to develop relationships to build student engagement, reiterating the importance of relationship-building between e-learning clusters to benefit students from each cluster. Virtual learning, like any educational environment, requires careful and intentional instructional planning. It provides many opportunities to engage students in 21st century skills and in ways that were not possible before, and virtual teachers should ensure that virtual learning spaces take full advantage of those opportunities (Takkunen-Lucarelli, 2016).

Virtual pedagogies to support ākonga Māori

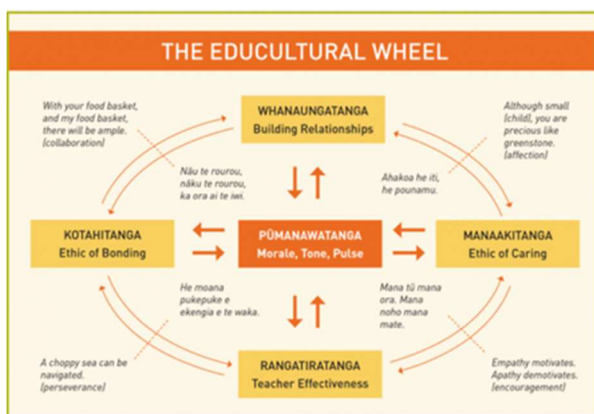
While it is important to understand effective pedagogies for ākonga Māori, understanding effective virtual learning pedagogies for ākonga Māori is essential. Alexander-Bennett (2016) found ākonga Māori were highly represented among the virtual students in FarNet, so understanding effective virtual learning pedagogies was important. A later study by Bennett and Barbour (2012) identified two main implications for practitioners:

1. eTeachers of Māori students could benefit from being abreast with research concerning engagement with Māori
2. eTeachers needed help to develop tools and skills that Māori students need to be successful in this environment.

This study recommended that cluster groups should keep up to date with what is known about effective pedagogical strategies, for Māori students to consider how best practice translates into the virtual learning environment. Because the research proposed involved ākonga Māori, it was important to review research undertaken with Māori.

One such piece of research was that of Macfarlane's (2004) educultural wheel (see Figure 1 below), which provided a useful framework to conceptualise an approach to developing a positive and supportive school climate in which team members and the wider community can work together in inclusive, collaborative, and culturally responsive ways.

Figure 1 The Educultural Wheel (Macfarlane, 2004)



Note: Reprinted from Ministry of Education (2015). Copyright 2015 by New Zealand Ministry of Education. Used with permission.

Although this approach addressed the face-to-face traditional classroom, schools, and their communities, it could be relevant in a virtual learning environment. The wheel is a visual representation of the interactions between four dimensions of whanaungatanga (building relationships), manaakitanga (ethic of caring), rangatiratanga (teacher effectiveness), and

kotahitanga (ethic of bonding); and how these ultimately contribute to inclusive practice, effective pedagogy, and pūmanawatanga (overall tone, pulse, and morale).

The Hikairo Schema for Secondary (Karaka-Clarke et al., 2021) comprised six co-existing components that (when employed in practice) foster teaching and learning strategies which are inclusive, reciprocal, and collaborative in nature. These align with Macfarlane's (2004) educultural wheel. The six dimensions include:

1. huataki: the “beginning” practices that kaiako employ to start each day, each interaction and learning experience
2. ihi: the mental and emotional presence to lead with assertiveness, calmness, and warmth
3. kotahitanga: working together respectfully, a feeling of connection and team unity across all levels of the school and out in the community
4. āwhinatia: reducing or eliminating disjointedness, employing the art of “with-it-ness”, and staying on track with connectedness, smoothness, and momentum
5. ira manaaki: building an ethos of care to support wellbeing, learning, and belonging
6. rangatiratanga: challenging and supporting rangatahi to achieve in physical, emotional, cognitive, social, spiritual, and cultural domains.

These dimensions provide insights to incorporate Māori culture and language in teaching and developing culturally responsive paradigms both for guiding learning and for supporting teacher development.

This paradigm shift would provide a solution for Ferguson (2008), whose research identified how Māori students and staff used technology to enhance their learning and teaching, using cultural values and beliefs. Ferguson outlined the provisions of Māori methods of holistic care and reciprocal teaching and learning pedagogy, which she listed as manaakitanga (caring), aroha (love), tohatoha (sharing), tauawhi (support), atuatirantanga (spiritual synergy and prayer), whakarongo (listening) and whakatenatena (encouragement). Ferguson's work was based on research conducted on adult students at a tertiary level, but it is worth considering the application of these methods in virtual learning in the school sector. Further, a subsequent list of strengths provided by Macfarlane (2019) also aligned with a kaupapa Māori approach and help to provide a better understanding when working with Māori.

- mana: the strength to act with authority
- courage: the strength to face challenges for the greater good
- knowledge/mātauranga: the strength to use new and existing information with discernment
- vision/moemoeā: the strength to see beyond the here and now
- unity/kotahitanga: the strength to engage and involve others
- humanity/manaakitanga: the strength to express kindness to others; to put others before self.

Both Forsyth (2017) and Pohatu (2005) added the philosophy of āta to this list of pedagogical approaches to teaching ākonga Māori. These authors asserted that āta is grounded in the principle of reciprocity and focuses on growing respectful relationships. More than that, āta in practice becomes a way of being rather than a way of doing. Forsyth (2017) even created a set of phrases specifically for an educational context.

These were:

- āta-haere: to be intentional and approach reflectively
- āta-whakarongo: to listen with reflective deliberation

- āta-noho: to give quality time to be with people and their issues
- āta-whakaaro: to think with deliberation, considering possibilities
- āta-korero: to communicate and speak with clarity”. (p. 1730)

Pohatu (2005) created a longer list of phrases incorporating āta to help guide what and how we do things, with each āta phrase considered to be a unique body of knowledge; offering options of how to enter, engage, and exit relationships. While not necessarily designed to use in an educational context, it is very relevant to how teachers can “engage with people who have been marginalised and dis-empowered in a range of their relationships” (p. 2), such as for ākongā Māori.

An important example of this research was undertaken by McRae et al. (2010), who examined teachers’ and children’s attitudes, knowledge, and values regarding Māori students who showed exceptional qualities at secondary school in New Zealand. The study sought to find factors that contributed to Māori students succeeding at school and aimed to define, quantify, and show the experience of successful Māori students in their final year of state schooling at one Rotorua secondary school. The eight influential factors identified were: identity, diligence, relationships, creativity, well-being, scholarship, humility, and values. The lenses through which these eight qualities were defined were located from within indigenous epistemologies (McFarlane & McFarlane, 2014) and, although this research was undertaken with a small group of high achieving and successful students who identified as being of Māori descent, the students were all involved in a traditional schooling setting and attended face-to-face classes. Whānau involvement was found to play a significant role by supporting their success as Māori. The pilot research project was significant in that it actively shifted the emphasis from deficit thinking to affirmative repositioning of Māori student success, but it was undertaken without virtual learning in mind and in just one Rotorua secondary school with students who demonstrated exceptional qualities at secondary school.

More recently, in their report on culturally responsive pedagogies, the Education Hub (2020b) highlighted seven principles to support Māori students effectively as Māori, and suggested the most important actions on the part of the teachers when developing cultural responsiveness was adopting them.

They are:

1. accepting professional responsibility for, and making a commitment to, improving Māori students’ educational achievement
2. caring for Māori students as Māori
3. developing relationships with whānau and iwi
4. transforming power relations in the classroom
5. developing discursive and co-constructive pedagogies
6. managing classrooms to promote learning
7. having high expectations of Māori students and reflecting on learning outcomes and goals with students and whānau.

Similarly, Card et al. (2022) published advice for teachers in the form of *Bicultural principles of teaching and learning online* | *Ngā mātāpono kākano rua o te mahi ako tuihono*. However, like many of the suggestions provided above, this advice is either conceptual in nature or extrapolated from effective practice in a face-to-face setting.

This reality is probably why scholars such as MacKenzie et al. (2022) noted that “none of these explicitly refer to culturally responsive pedagogy online” (p. 308). This is also true of much of the guidance we have provided to support ākongā Māori in virtual learning environments.

Basically, there is a growing body of research undertaken by both Māori and non-Māori that has identified what works well for ākongā Māori in our traditional classrooms, with the goal of closing the academic gaps and to help kaiako learn and develop strategies to be effective teachers of ākongā Māori. This research could be used as a foundation for looking at what can work for ākongā Māori in the virtual learning space.

Equitable educational opportunities for ākongā Māori

Equity focuses on taking the opportunities presented to students and infusing them with support and resources to turn the education system into a level playing field. This means that disadvantaged and marginalised students get the support they need to become equal to students who are not disadvantaged. According to Macfarlane et al. (2014), achieving equity of outcomes in education is a global challenge with disparities reflected in various ways. Relative to the context and in Aotearoa New Zealand, educational disparities exist between indigenous Māori and New Zealand Europeans, where the culture of the latter dominates the education system. The role of education is to nurture every child's potential and to support their educational success and achievement. *Ka Hikitia: Accelerating Success 2013–2017* was a Ministry of Education (2013) strategic plan that called for action from everyone who had a role in education to work towards realising the vision of “Māori students enjoying and achieving educational success as Māori” (p. 2). *Ka Hikitia* remained the framework for teachers and schools to guide and focus on key actions for achieving equitable outcomes for ākongā Māori.

The *Ka Hikitia* vision would be realised when all Māori:

1. have their identity, language, and culture valued and included in teaching and learning in ways that support them to engage and achieve success
2. know their potential and feel supported to set goals and take action to enjoy success
3. experience teaching and learning that is relevant, engaging, rewarding, and positive
4. gain the skills, knowledge, and qualifications they need to achieve success in te ao Māori, Aotearoa New Zealand, and the wider world.

However, Nanai (2018) suggested that disparity of educational achievement has been a longstanding problem for Māori and Pasifika learners compared with Pākehā (non-Māori) and non-Pasifika learners in Aotearoa New Zealand, and pointed to the ongoing legislative and policy development attempts of the Government (which she acknowledged have produced some gains, albeit slowly). Nanai questioned whether the two decades of strategies and initiatives (e.g., *Ka Hikitia*, *Tātaiako: Cultural Competencies for Teachers of Māori Learners*, *Te Kotahitanga: Improving the educational achievement of Māori students in mainstream schools*, *He Kāhano, Kia Eke Panuku: Building on Success*, and the *Pasifika Education Plan*, to name just a few) developed to improve educational experiences and outcomes for Māori and Pasifika learners had any effect on teachers' pedagogy. Nanai found that many of these initiatives and strategies had not been successful in their intent, and her thesis argued that there was a disconnect between the guiding documents and engaging ākongā Māori.

But the use of virtual learning can provide a mechanism to level the playing field for ākongā Māori communities within the schools' sector. For example, Ham and Wenmoth (2007) found e-learning was a “leveller” that enabled learning for learners in remote areas, which is a significant proportion of Māori students. Similarly, Alexander-Bennett (2016) acknowledged that virtual learning provided equity for ākongā Māori from rural communities by allowing for the choice of living and learning where and when those students wanted, and with whom. In her presentation she stressed that the introduction and implementation of the government's ultra-fast roll-out plan provided a lifeline to many rural areas because it increased students' ability to use devices and digital tools effectively when accessing virtual learning opportunities. This reality

was particularly true for rural schools in the Far North, where virtual learning allowed them the opportunity to maintain a sustainable school population without threat of closure.

During 2020 in Aotearoa New Zealand, the Government moved swiftly to eliminate the COVID-19 virus from our shores through an aggressive “go early, go hard” strategy. Tight border controls in 2020, and a significant lockdown period imposed throughout the country, meant that Aotearoa New Zealand was relatively unscathed by the serious direct health impacts of COVID-19 seen elsewhere in the world. But as stressed by Hunia et al. (2020), the social and economic aftershocks of the pandemic and consequential lockdown will continue through the recovery period, which will have a long tail estimated to last for at least the next 10 years. Their study identified that in Aotearoa New Zealand there were significant pre-existing inequalities across the digital divides that were exacerbated and highlighted by the lockdowns imposed in the earlier part of 2020. During the weeks spent at Level 3 and 4, the authors found many parents were working remotely where possible and, at the same time, most school students had to adjust swiftly to remote learning. Hunia and their colleagues found the education system showed variable preparedness for such a swift change to virtual teaching and remote learning, with several challenges and inequalities identified.

Similarly, Wenmoth (2020) supported the view that lockdown exposed a range of existing inequalities, disparities, and divides within the Aotearoa New Zealand education system and, in some cases, exacerbated them. The two things that he noted that stood out from the reports he analysed were:

1. a growing digital divide as a consequence of a lack of access to internet connectivity, lack of access to digital devices and/or a lack of digital literacy
2. disparities in the experience of learners in the home environment, including variable levels of support from parents/whānau, lack of suitable places to study and demands from family to contribute to the running of the home, including in some cases, seeking employment to maintain an income where a family breadwinner had lost their job.

The reality of inequity underscores the importance of achieving equity in educational opportunities for Māori learners in Aotearoa New Zealand. Despite all of the government initiatives aimed at addressing these gaps, there are still long-standing disparities between Māori and non-Māori students. Even the promise of virtual learning to level the playing field by providing access to educational resources can only be achieved if the challenges posed by the digital divide and socioeconomic inequalities are overcome.

Summary

In this article we have attempted to provide a comprehensive literature review that examines virtual learning in the Aotearoa New Zealand schools sector, with a specific emphasis on understanding and addressing the needs of Māori learners in these environments. We have traced the historical development of virtual learning in New Zealand from the early correspondence education offered by Te Aho o Te Kura Pounamu to the emergence of regional e-learning clusters and the increasing use of digital technologies. We highlighted the differences between teaching and learning in virtual settings compared with traditional face-to-face classrooms, particularly through an exploration of the unique pedagogical approaches, challenges, and support structures required for effective virtual instruction and student engagement. Our goal was to emphasise the crucial role of fostering strong, positive relationships between teachers and students in these online environments.

We then transitioned to a discussion of culturally responsive pedagogies and strategies that have been identified as effective for engaging and supporting ākonga Māori in educational contexts.

We reviewed several frameworks and principles that have been offered as potential guides for translating these approaches to virtual learning spaces. We discussed the potential of virtual learning to provide more equitable educational opportunities for ākongā Māori, particularly those in rural or remote communities. However, based on the literature we also acknowledge the pre-existing digital divide and socioeconomic inequalities that were exacerbated by the COVID-19 pandemic, demonstrating the need for accessible and inclusive virtual learning options.

Overall, we wish to underscore the scarcity of research specifically examining the experiences and needs of ākongā Māori in virtual learning environments. As such, we call for further research to better understand and address these gaps, ultimately striving to ensure culturally responsive and equitable educational opportunities for Māori learners through virtual learning platforms.

References

- Alansari, M., Webber, M., Overbye, S., Tuifagalele, R., & Edge, K. (2022). *Conceptualising Māori and Pasifika aspirations and striving for success (COMPASS)*. New Zealand Council for Educational Research. <https://doi.org/10.18296/rep.0019>
- Alexander-Bennett, C. (2016). Keynote: FarNet ten years on—The past, present, and future for distance learners. *Journal of Open, Flexible and Distance Learning*, 20(2), 24–31. <https://doi.org/10.61468/jofdl.v20i2.303>
- Barbour, M. K. (2011). *Primary and secondary e-learning: Examining the process of achieving maturity*. Distance Education Association of New Zealand. <https://flanz.org.nz/wp-content/uploads/2024/06/DEANZ-2011-Barbour-Report.pdf>
- Barbour, M. K. (2013). Wayne State University. In K. Kennedy & L. Archambault (Eds.), *Partnering for success: A 21st century model for teacher preparation* (pp. 22–25). International Association for K–12 Online Learning. <https://aurora-institute.org/resource/partnering-for-success-a-21st-century-model-for-teacher-preparation/>
- Barbour, M. K. (2019). The landscape of K–12 online learning: Examining the state of the field. In M. G. Moore & W. C. Diehl (Eds.), *Handbook of distance education* (4th ed., pp. 521–542). Routledge.
- Barbour, M. K., & Bennett, C. (2013). The FarNet journey: Effective teaching strategies for engaging Māori students on the Virtual Learning Network. *Journal of Open, Flexible and Distance Learning*, 17(1), 12–23. <https://doi.org/10.61468/jofdl.v17i1.195>
- Barbour, M. K., Davis, N., & Wenmoth, D. (2016). Primary and secondary virtual learning in New Zealand: Examining barriers to achieving maturity. *International Journal on e-Learning*, 15(1), 27–45.
- Barbour, M. K., & LaBonte, R. (2023). *State of the nation study: K–12 e-learning in Canada*. Canadian E-Learning Network. <https://k12sotn.ca/wp-content/uploads/2024/01/StateNation23.pdf>
- Barbour, M. K., LaBonte, R., Kelly, K., Hodges, C., Moore, S., Lockee, B., Trust, T., Bond, A., & Hill, P. (2020). *Understanding pandemic pedagogy: Differences between emergency remote, remote, and online teaching*. Canadian eLearning Network. <https://k12sotn.ca/wp-content/uploads/2020/12/understanding-pandemic-pedagogy.pdf>
- Barbour, M. K., McLaren, A., & Zhang, L. (2012). It's not that tough: Students speak about their online learning experiences. *Turkish Online Journal of Distance Education*, 13(2), 226–241. <https://dergipark.org.tr/en/pub/tojde/issue/16900/176156>

- Barbour, M., & Wenmoth, D. (2013). *Virtual learning as an impetus for educational change: Charting a way forward for learning in New Zealand*. CORE Education.
- Barbour, M. K., & Wenmoth, D. (2024). *Tuia te hononga tāngata, tuia te hononga ao: Taking the pulse of distance learning in Aotearoa*. New Zealand Flexible Learning Association of New Zealand. <https://flanz.org.nz/dl-pulse/>
- Bennett, C., & Barbour, M. K. (2012). The FarNet journey: Perceptions of Māori students engaged in secondary online learning. *Journal of Open, Flexible & Distance Learning*, 16(1). <https://doi.org/10.61468/jofdl.v16i1.105>
- Berryman, M., Lawrence, D., & Lamont, R. (2018). Cultural relationships for responsive pedagogy: A bicultural mana ōrite perspective. *Research Information for Teachers*, 2018(1), 3–10. New Zealand Council for Educational Research. <https://doi.org/10.18296/set.0096>
- Bishop, R. (2008). Te Kotahitanga: Kaupapa Māori in mainstream classrooms. In N. K. Denzin, Y. S. Lincoln, & L. T. Smith (Eds.). *Handbook of critical and indigenous methodologies* (pp. 439–458). Sage. <https://dx.doi.org/10.4135/9781483385686.n21>
- Bishop, R., & Berryman, M. (2009). The Te Kotahitanga effective teaching profile. *Research Information for Teachers*, (2), 27–33. New Zealand Council for Educational Research. <https://doi.org/10.18296/set.0461>
- Blewden, M., Henderson, C., Tuwhangai R., Baldwin, K., & Butler, R. (2018). *On-line distance education research final report*. Cognition Education.
- Bolstad, R., & Lin, M. (2009). *Students' experiences of learning in virtual classrooms*. New Zealand Centre of Educational Research. <https://www.nzcer.org.nz/system/files/students-experiences-learning-virtual-classrooms.pdf>
- Brown C., Davis N., Eulatth-Vidal W. (2019). Student engagement in flexible and distance learning in Aotearoa New Zealand. In A. Kamp (Ed.), *Education Studies in Aotearoa: Key Disciplines and Emerging Directions*. New Zealand Council for Educational Research. <https://hdl.handle.net/10092/100171>
- Brown, C., Davis, N., Sotardi, V., & Vidal, W. (2018). Towards understanding of student engagement in blended learning: A conceptualization of learning without borders. In M. Campbell, J. Willems, C. Adachi, D. Blake, I. Doherty, S. Krishnan, ... J. Tai (Eds), *Conference Proceedings of ASCILITE 2018 – Open Oceans: Learning without borders* (pp. 318–323). Australasian Society for Computers in Learning in Tertiary Education. <http://2018conference.ascilite.org/wp-content/uploads/2018/12/ASCILITE-2018-Proceedings-Final.pdf>
- Bryans-Bongey, S., & Graziano, K. J. (2016). *Online teaching in K–12. Models, methods, and best practices for teachers and administrators*. <https://eric.ed.gov/?id=ED573521>
- Card, A., Merry, R., & Carroll-Lind, J. (2022). *Bicultural principles of teaching and learning online | Ngā mātāpono kākano rua o te mahi ako tuihono*. New Zealand Council for Educational Research.
- Clark, T. (2000). *Virtual high schools: State of the states – A study of virtual high school planning and preparation in the United States*. Centre for the Application of Information Technologies.

- Davis, N. (2011). Online and blended learning rolling into New Zealand schools. *Computers in New Zealand Schools: Learning, Teaching, Technology*, 23(1) 101–107. <https://www.otago.ac.nz/cdel/otago064432.pdf>
- Davis N. E., & Ferdig R. (2018). Virtual schools: A global perspective. In J. Voogt, G. Knezek, R. Christensen & K.W. Lai (Eds.), *Second handbook of information technology in primary and secondary education* (pp. 701–718). http://doi.org/10.1007/978-3-319-71054-9_46
- Davis N. E., Mackey J., & Dabner, N. (2018). Understanding changes in school culture. In K. Kennedy & R. Ferdig (Eds.), *Handbook on research in K–12 online and blended learning* (2nd ed., pp. 133–145). ETC Press. <http://doi.org/10.1184/R1/6686813>
- Education Hub. (2020a). *Culturally responsive pedagogies. Overview. Seven principles to effectively support Māori students as Māori*. <https://theeducationhub.org.nz/category/school-resources/culturally-responsive-pedagogy/>
- Education Hub. (2020b). *Seven principles to effectively support Māori students as Māori*. <https://theeducationhub.org.nz/seven-principles-to-effectively-support-maori-students-as-maori/>
- Ferguson, S. L. (2008). Key elements for a Māori e-learning framework. *Mai Review*, 3(3), 1–7.
- Forsyth, H. (2017). *Āta: An indigenous knowledge based pedagogical approach to teaching*. <https://files.eric.ed.gov/fulltext/EJ1155578.pdf>
- Greater Christchurch Schools' Network. (2020). *Closing the digital divide during the COVID-19 lockdown: Student, whānau and staff perspectives*. <https://www.gcsn.school.nz/post/report-closing-the-digital-divide-during-the-covid-19-lockdown>
- Ham, V., & Wenmoth, D. (2007). *Evaluation of the e-learning collaborative development fund*. CORE Education.
- Hasler Waters, L., Barbour, M. K., Menchaca, M. P. (2014). The nature of online charter schools: Evolution and emerging concerns. *Journal of Educational Technology & Society*, 17(4), 379–389. <https://drive.google.com/file/d/17njlrPXLUROnTMtFtNoCBoHMnUYrs-jV/view>
- Hunia, R., Salim, S., McNaughton, S., Menzies, R., Gluckman, P., & Bardsley, A. (2020). *Addressing rangatahi education: Challenges after COVID-19*. <https://informedfutures.org/wp-content/uploads/Addressing-rangatahi-education.pdf>
- Karaka-Clark T. H. (2020). *Ngā whenu ranga tahi: Drawing from Māori principles of wellbeing: transforming online synchronous teaching and learning of te reo Māori*. Unpublished Doctoral thesis, University of Canterbury. Christchurch, New Zealand. <https://ir.canterbury.ac.nz/handle/10092/100072>
- Karaka-Clarke T. H., Fletcher, J., Macfarlane, A., & Bell, B. (2021). Kōrero mai: Kaiako experiences of synchronous online teaching and learning in New Zealand. *Journal of Open, Flexible and Distance Learning*, 25(2), 4–22. <https://doi.org/10.61468/jofdl.v25i2.491>
- Lai, K. W. (2017) Pedagogical practices of NetNZ teachers for supporting online distance learners. *Distance Education*, 38(3), 321–335. <https://doi.org/10.1080/01587919.2017.1371830>

- Lai, K. W., & Pratt, K. (2004). *E-learning initiative: Evaluation of OtagoNet project*. <https://www.otago.ac.nz/cdelt/research/>
- Lai, K. W., & Pratt, K. (2009). Technological constraints and implementation barriers of using videoconferencing for virtual teaching in New Zealand secondary schools. *Journal of Technology and Teacher Education*, 17(4), 505–522. <https://eric.ed.gov/?id=EJ880564>
- Lai, K. W., & Pratt, K. (2020). *Affordances and barriers of the VLN classes user experience and perception*. Ministry of Education. <https://bit.ly/2T9zERY>
- Lin, M., & Bolstad, R. (2008). *Students' experiences of learning in virtual classrooms: Findings from the online student survey*. New Zealand Council for Educational Research. <https://www.nzcer.org.nz/system/files/students-experiences-learning-virtual-classrooms.pdf>
- Lin, M., & Bolstad, R. (2010). Virtual classrooms: Lessons for teaching and learning in the 21st century. *SET: Research Information for Teachers*, (1), 2–9. <https://doi.org/10.18296/set.0446>
- Macfarlane, A. H. (2004). *Kia hiwa ra: Listen to culture: Māori students' plea to educators*. New Zealand Council for Educational Research.
- Macfarlane, A. H., & Macfarlane, S. L. (2014). Māori epistemology. *The SAGE encyclopaedia of action research*.
- Macfarlane, A. H., Webber, M., Cookson-Cox, C., & McRae, H. (2014). *Ka awatea: An iwi case study of Māori students' success*. University of Canterbury.
- Macfarlane, S. (2019). *Kaupapa Māori theory and research: Decolonising the methodologies*. Presentation to RSCH600: Special Topic: Research Methodology and Ethics in Education and Health Sciences. University of Canterbury, Christchurch, New Zealand.
- MacKenzie, A., Bacalja, A., Annamali, D., Panaretou, A., Girme, P., Cutajar, M., Abegglen, S., Evens, M., Neuhaus, F., Wilson, K., Psarikidou, K., Koole, M., Hrastinski, S., Sturm, S., Adachi, C., Schnaider, K., Bozkurt, A., Rapanta, C., Themelis, C., . . . Gourlay, L. (2022). Dissolving the dichotomies between online and campus-based teaching: A collective response to the manifesto for teaching online (Bayne et al., 2020). *Postdigital Science and Education*, 4(2), 271–329. <https://doi.org/10.1007/s42438-021-00259-z>
- Mahmud, M. M., & Bakar, M. S. A. (2020). E-learn: An online platform for teaching and learning. *International Journal of Academic Research in Progressive Education and Development*, 9(4), 7892. <http://dx.doi.org/10.6007/IJARPED/v9-i4/8265>
- McRae, H., Macfarlane, A., Webber, M., & Cookson-Cox, C. (2010). *Māori students experiencing success: A pilot research project*. <https://natlib.govt.nz/records/33018283?tab=cart&text=Ihenga>
- Ministry of Education. (2010). *Learning Communities Online Handbook*. Government of New Zealand.
- Ministry of Education. (2013). *Ka Hikitia: Accelerating success 2013–2017*. Government of New Zealand. <https://www.education.govt.nz/assets/Documents/Ministry/Strategies-and-policies/Ka-Hikitia/KaHikitiaAcceleratingSuccessEnglish.pdf>
- Ministry of Education. (2015). *Working as a community*. Government of New Zealand. <https://nzcurriculum.tki.org.nz/Inclusive-practices/Implementing-an-inclusive-curriculum/Working-together/Working-as-a-community>

- Molnar, A., Miron, G., Gulosino, C., Shank, C., Davidson, C., Barbour, M. K., Huerta, L., Shafter, S. R., Rice, J. K., & Nitkin, D. (2017). *Virtual schools in the U.S. 2017*. National Education Policy Centre. <https://nepc.colorado.edu/publication/virtual-schools-annual-2017>
- Morrison, G., Morrison, J., & Ross, S. (2016). *A review of the research literature on the infusion of technology into the school curriculum*. Center for Research and Reform in Education, Johns Hopkins University.
- Nanai, L. A. M. (2018). Teachers' perspectives of the impact of government initiatives and strategies on their teaching of Māori and Pasifika learners. [Master's thesis, University of Canterbury]. UC Research Repository. <http://dx.doi.org/10.26021/9452>
- Pohatu, T. W. (2005). *Āta: Growing respectful relationships*. Rangahau. <http://www.rangahau.co.nz/assets/Pohatu/Pohatu%20T.pdf>
- Pratt, K., & Lai, K. W. (2023). High school students' and teachers' experiences of online learning using the community of inquiry framework. *Journal of Online Learning Research*, 9(3), 247–270. <https://www.learntechlib.org/primary/p/222418/>
- Pratt, K., & Pullar, K. (2013). OtagoNet: One region's model for virtual schooling. *Journal of Open, Flexible and Distance Learning*, 17(1), 1–11. <https://doi.org/10.61468/jofdl.v17i1.192>
- Pratt, K. & Trewern, A. (2011). New Zealand students' perceptions of blended learning. In M. Koehler & P. Mishra (Eds.), *Proceedings of SITE 2011—Society for Information Technology & Teacher Education International Conference* (pp. 663–668). Association for the Advancement of Computing in Education. <https://www.learntechlib.org/primary/p/36348/>
- Pullar, K., & Brennan C. (2008). Personalising learning for secondary students working in a blended (distance/face to face/vocational) learning environment. *Computers in New Zealand Schools*, 20(2), 6–16.
- Roberts, R. (2009). Video conferencing in distance learning: A New Zealand schools' perspective. *Journal of Distance Learning*, 13(1), 91–107. <https://www.learntechlib.org/p/148006/>
- Smaill, E., Boyd, S., Palmer, G., Tuifagalele, R., Denzler, M., & Spiller, L. (2024). *Poipoia kia puāwai: How schools support ākonga Māori and Pacific students to attain University Entrance*. New Zealand Council for Educational Research. <https://doi.org/10.18296/rep.0048>
- Stevens, K. (2011). *The distribution of instructional leadership in e-learning clusters: An ecological perspective*. Unpublished Master's thesis, University of Canterbury. https://ir.canterbury.ac.nz/bitstream/handle/10092/5446/thesis_fulltext.pdf;sequence=1
- Takkunen-Lucarelli, C. (2016). Captivating the online learner: Frameworks and standards for effective technology integration. In S. Bryans-Bongey & K. J. Graziano (Eds.), *Online teaching in K–12: Models, methods, and best practices for teachers and administrators* (pp. 91–107). Information Today.
- Tiakiwai, S. J., & Tiakiwai, H. (2010). *A literature review focused on virtual learning environments (VLEs) and e-learning in the context of te reo Māori and kaupapa Māori education*. Education Counts. <https://www.educationcounts.govt.nz/publications/maori/105966/a-literature-review-focused-on-virtual-learning-environments>

- Tolosa, C., East, M., Barbour, M., & Owen, H. (2017). CoOL or not CoOL? Learning an Asian language online in the context of communities of online learning. *The New Zealand Language Teacher*, 43, 51–62.
- Tolosa, C., East, M., & Barbour, M. K. (2021). Online language learning in New Zealand's primary schools: Exploring the impact of one initiative. In U. Lanvers, A. S. Thompson, & M. East (Eds.), *Language learning in Anglophone countries: Challenges, practices, ways forward* (pp. 311–329). Palgrave Macmillan.
- Tuifagalele, R. Uasike Allen, J. M., Meinders, R., Webber, M. (2024). *COMPASS: Whānau Pasifika navigating schooling in Aotearoa New Zealand*. New Zealand Council for Educational Research. <https://doi.org/10.18296/rep.0052>
- Waiti, P. (2005). Evaluation of Kaupapa Ara Whakawhiti Matauranga (KAWM). Ministry of Education. www.educationcounts.govt.nz/publications/Māori_education/5087
- Walsh-Pasco, L. (2004). *From teletubbies to teleteacher: effective practices in video conference teaching*. Ministry of Education 2004 eFellow report. <https://goo.gl/6huVPG>
- Watson, J., Pape, L., Murin, A., Gemin, B., & Vashaw, L. (2014). *Keeping pace with K–12 digital learning: An annual review of policy and practice*. Evergreen Education. <https://www.kpk12.com/>
- Wenmoth, D. (2019). *The virtual learning network in New Zealand: History and future thoughts*. Futuremakers. <https://futuremakers.nz/wp-content/uploads/2021/03/The-VLN-in-New-Zealand-compressed.pdf>
- Wenmoth, D. (2020). *Lessons from lockdown*. Futuremakers. <https://futuremakers.nz/2020/08/20/lessons-from-lockdown/>
- Whalley, R., & Barbour, M. K. (2020). Collaboration and virtual learning in New Zealand rural primary schools: A review of the literature. *Turkish Online Journal of Distance Education*, 21(2), 102–125. <https://dergipark.org.tr/en/pub/tojde/issue/53991/727983>
- Wright, N. (2010). *E-learning and implications for New Zealand schools: A literature review*. Ministry of Education. <https://www.educationcounts.govt.nz/publications/schooling/e-learning-and-implications-for-new-zealand-schools>
- Zaka, P. A. (2012). *Blended teaching and learning in a New Zealand rural secondary school: Using an ecological framework*. Unpublished Master's thesis, University of Canterbury. <https://ir.canterbury.ac.nz/items/22c79055-227e-4e7d-ae26-08e4592f6705>
- Zaka, P. (2013). A case study of blended teaching and learning in a New Zealand secondary school, using an ecological framework. *Journal of Open, Flexible and Distance Learning*, 17(1), 24–40. <https://doi.org/10.61468/jofdl.v17i1.193>
- Zheng, B., Warschauer, M., & Chi Chang, C. (2016). Learning in one-to-one laptop environments. *Review of Educational Research*, 86(4), 1052–1084. <https://doi.org/10.3102/0034654316628645>

Biographical notes

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Carolyn retired after more than 40 years of experience in New Zealand secondary education and 20 years in senior leadership roles. She became the ePrincipal of FarNet in 2006 following her role as Deputy Principal at Northland College, Kaikohe. She was an experienced online teacher, specialising in NCEA Accounting. She was also a member of the NZ Virtual Learning Network Community, a member of the Network for Learning (N4L) Advisory Group, a member of the Primary Principals and Teachers Association ICT Committee (PPTA), and a member and former President of the Northland Secondary School Principals' Association (NSSPA). She is now happily retired, but still interested in virtual learning in the Aotearoa New Zealand school sector.

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Michael is the Director of Faculty Development and a Professor of Instruction for the College of Education and Health Sciences at Touro University California. He has been involved in K–12 distance, online, and blended learning as a researcher, evaluator, teacher, course designer, and administrator for over two decades. Michael's research has spanned the globe with a particular focus on the effective design, delivery, and support necessary for students to be successful in these flexible learning environments. His involvement in distance and virtual learning in Aotearoa New Zealand began in 2008 and has included presenting keynotes and other papers at Flexible Learning of New Zealand conferences, several national reports, and serving on the boards of multiple Virtual Learning Network programmes.

Rood, C., Barbour, M. (2024). Virtual learning for Māori students: Examining culturally responsive pedagogies and equity. *Journal of Open, Flexible and Distance Learning*, 28(1), [8–27.]. <https://10.61468/jofdl.v28i1.643>



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