



## Virtual Learning in New Zealand Schools: Current Practice and Future Possibilities

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### Abstract

This article explores the practice of virtual learning in New Zealand schools. It reports on a study that examined how virtual learning has evolved over the last 30 years and how it is currently experienced by students and teachers, and makes recommendations for the future. Research participants were teaching principals selected from eight small rural New Zealand primary schools who were all active in Virtual Learning Network Primary School online programmes. The participants' experience of virtual learning highlighted a wide range of benefits for both themselves and their students, in providing access to a wider curriculum, developing digital fluency, reducing professional isolation and relieving workload. Recommendations are made to school communities on how they can move forward with learning online; and to government on how they can develop policy and provide resourcing to support virtual learning in schools. It is suggested that with fast reliable internet, the small school that is open, networked, and collaborative can increase its capacity to provide learning opportunities for students and teachers through virtual learning.

**Keywords:** virtual learning; online learning; blended learning; policy; schooling; professional learning; networks

### Introduction

Virtual learning, which has been taking place in New Zealand for 30 years, was pioneered in rural schools (Barbour, 2011a; Roberts, 2010; Wenmoth, 1996). Stevens (1996) highlighted the changing role of small rural schools in relation to the development of school networks and virtual learning when he wrote:

Small rural schools in New Zealand are in the forefront of changes in the application of information and communication technologies to teaching and learning. The emergence of rural school electronic networks is an important step towards the development of virtual classes in New Zealand, requiring new ways of organising teaching and learning. It is particularly appropriate to reconsider the pedagogy of the one- and two-teacher school in relation to the emerging virtual class. These small schools could have a new role in the information age and should, accordingly, be repositioned within the national educational system. (p. 93)

Ken Stevens' words from more than two decades ago challenge the field to consider how virtual learning in small New Zealand rural schools has evolved over the last 25 years.

One of the virtual learning programmes that has focused on this rural mission is the Virtual Learning Network (VLN) Primary School. The VLN Primary provided professional development for teachers, student learning support, technical support, and logistical coordination of online

classes and programmes to schools around New Zealand (VLN Primary School, 2017). Learning was tailored to meet the needs of students, and to make the most of the strengths of the schools. For example, through a reciprocal arrangement, the schools provided teachers in a subject in which they have a high level of expertise. If it wasn't possible for schools to provide a teacher themselves, another teacher was contracted to the VLN Primary, and was paid collectively by the schools. Students and teachers used a range of synchronous and asynchronous tools that enable them to communicate and learn online together. Many, but not all, of the schools who participated in the VLN Primary were small rural primary schools.

The VLN Primary School was a registered charitable trust governed by its participating schools and supported, in part, by the Ministry of Education (VLN Primary School, 2016).<sup>1</sup> The Rural and Remote Schools Project was one of the projects supported by the VLN Primary School. Originally devised by principals and supported by the VLN Primary, at the time of this study this project had been running for 8 years with the same core group of principals. This project aimed to reduce the social isolation of students and teachers in rural and remote schools through regular online collaboration (Roberts, 2014). The purpose of the study, which occurred just before the pandemic, was to explore how collaborative virtual learning could enable innovative practice and new ways of thinking about the nature of schooling.

## Literature review

Virtual learning has been accepted practice in small rural New Zealand schools for many years. In this section, we detail virtual learning in the New Zealand educational setting and its growth in the form of networked communities of schools, with a focus on the VLN Primary (Whalley & Barbour, 2020). Then we situate the virtual learning space in New Zealand within the broader field by examining the definitions for distance, online, blended, and virtual learning. We conclude by exploring the perceived benefits and challenges of virtual learning. Finally, as this research was conducted prior to the pandemic, we have purposefully limited our review of the literature to pre-2020, both to focus on the literature that informed the actual study, and because much of the pandemic-era literature focuses on emergency remote learning (or simply remote learning), and not online/virtual learning (Barbour et al., 2020; Hodges et al., 2020).

In 2019 the VLN communities of schools celebrated 25 years of learning online (NEX, 2019). From early beginnings in Canterbury Area Schools (Casatech) in 1994 (Langley, 2003; Stevens & Moffatt, 2003; Wenmoth, 1996), clusters of schools that were engaged in virtual learning spread to other parts of the country over the next decade (Ali, 2017; Powell & Barbour, 2011; Roberts, 2010; Starkey & Stevens, 2007; Stevens, 2011). By 2010, nearly 50% of New Zealand's area and secondary schools had students participating in virtual learning (Powell & Barbour, 2011), and the VLN Primary School had been formally established as a national initiative for primary-age students, (Ministry of Education, 2017; Tolosa et al., 2017; Williamson-Leadley & Pratt, 2017). All of these VLN clusters shared a common purpose to extend the curriculum for students, mostly in small rural schools, which were under pressure from declining rolls, loss of teaching staff, and dissatisfaction with Correspondence School provision (Ali, 2017; Langley, 2003; Roberts, 2009; Stevens & Moffatt, 2003).

With the advent of new technologies and improved broadband, school leaders were beginning to realise the potential of collaborating online (Langley, 2003). Initiatives funded by the Ministry of Education (such as the Information Communication Technologies Professional Development [ICTPD] clusters, the provision of a video conferencing bridge, other internet services, and leadership development) all supported the development of these VLN communities (Roberts,

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<sup>1</sup> In 2023 the VLN Primary merged with the Online Learning Community to form Kōtui Ako: Virtual Learning Network (VLN) Aotearoa.

2010). However, the last decade has seen a decline in the number of VLN communities operating, coupled with decreased support in funding from the Ministry of Education and a policy vacuum for virtual learning (Ali, 2017). The exception is the VLN Primary, which has increased its roll markedly in the last 5 years to 1253 enrolments (Whalley, 2019). It has also maintained funding support from the Ministry (Barbour, 2014; 2015).

When virtual learning in the New Zealand context is examined within the broader field, the issue of defining virtual learning becomes problematic because there are so many associated terms and variants of practice (Barbour, 2014; Barbour & Wenmoth, 2023; Cavanaugh et al., 2015; Whalley, 2016). This confusion and inconsistency of language clouds perceptions of what virtual learning is like in New Zealand schools, and policy-making is difficult for the uninitiated (Guri-Rosenblit, 2005). Common terms and practice are “distance learning”, where students learn in different locations and at different times (Lai et al., 2003); “e-learning”, which denotes the use of technology to support learning, most often using online platforms or tools; and “blended learning”, where students learn partly online and partly face to face (Barbour, 2015; Staker & Horn, 2012). All provide flexible opportunities for students to access learning. “Virtual learning”, at least in the New Zealand context, encompasses all these terms and has been defined by Bolstad and Lin (2009), as learners and teachers being in different places and connected through online technologies in what is essentially a “virtual school” environment. Barbour et al. (2017) argued that in the research literature “virtual schooling generally refers to supplemental online learning” (p. 3), which is also the case in the New Zealand setting. Based on the dominant themes in the literature, and the historic use of the term in New Zealand, “virtual learning” is most closely aligned to what is happening in practice throughout the country.

Regardless of the specific terms used to describe it, virtual learning in New Zealand schools has provided a platform for change and innovative practice in schools. With a focus on personalised learning and student agency, virtual learning disrupts traditional structures of school organisation (such as timetabling and resourcing) and requires changes to teacher roles and practices that necessitate collaboration and sharing across schools (Barbour, 2011b; Barbour et al., 2013). When they collaborate to extend their curriculum, schools that are open and networked gain increased capacity that contributes to sustainable education outcomes for small rural communities (Stevens, 1998; 2010; Stevens & Stewart, 2005). Virtual learning opportunities provide more flexibility for students. They can make connections and have social interaction with a wider learning community, access curricula that are relevant to their interests, needs, or skill levels, and develop key competencies of self-management. They can participate, contribute, and improve their digital fluency (Ministry of Education, 2011a, 2011b, 2017; Thomson, 2011). Schools benefit from participation in VLN communities through access to shared resources and professional learning, and retention of specialist staff and students (Ministry of Education, 2011a; Whalley & Barbour, 2024).

Despite these benefits of virtual learning, a range of challenges persist that, in the main, relate to reliability and access to technology, and the provision of adequate student learning support. Unreliable technical infrastructure, the digital divide in communities, time and support to maintain independent study skills, lack of timely and effective feedback, and a disconnect between virtual learning and classroom learning were all cited as challenges for the online learner (Parkes et al., 2015; Ministry of Education, 2017; Tolosa et al., 2017). For example, Whalley (2016) found that school-based support for learners was critical to their success in virtual learning environments, and they advocated a range of strategies to enable them to be more resilient to the challenges of learning online.

## Methodology

The purpose of this study was to explore how collaborative virtual learning could enable innovative practice and new ways of thinking about the nature of schooling.

This study examined the research question:

### **How can collaborating online provide benefits to learners, teachers and principals?**

The question was designed to understand participants' views of their virtual learning experience; therefore, interview research methods were the most appropriate to use. A case-study methodology guided the design of the study. Shank (2002) described the main purpose of a case study as gaining an understanding of a unique case, while Yin (2003) discussed how a case study is appropriate for addressing questions of how and why; such as, "How do students learn in this environment?" or "Why do students select one form of assistance over another in this environment?" In this instance the case was the VLN Primary.

Research participants in this study were selected through purposive sampling, a process that is common in qualitative research. This sampling ensures that participants have the necessary characteristics to provide rich and relevant information on the topic of study (Palys, 2008; Ritchie et al., 2014). For the purposes of this study, it was important for participants to have some experience of virtual learning in schools. Principals from schools in the VLN Primary, which had approximately 50 schools with students learning online, were invited to take part. Participants were sole-charge and teaching principals of small rural primary schools from many locations across New Zealand. A sole-charge and teaching principal spends a portion of their working time teaching, as well as on administration and running the school.

Data was collected before emergency remote learning was employed during the pandemic (see Barbour et al., 2020; Hodges et al., 2020) and was generated through a series of semi-structured interviews with participant groups—and then with individuals. Group interviews enabled multiple perspectives and personal experience from a range of participants to be heard and explored (Borko et al., 2007). An active exchange of viewpoints between a group of people was also useful for exploring topics in greater detail (Cohen et al., 2007; Menter et al., 2011), and enabled participants to convey their ideas and feelings, giving them a voice in the research process (Wellington, 2000). Interviews were scheduled and took place using the Zoom web-conferencing platform, which enabled communication with research participants who were in remote locations across the country. Transcriptions made with Transcribe were available to each group of interviewees to allow an opportunity to comment on the document and check the accuracy of the recorded transcription.

A grounded theory method of inductive analysis was used to extract findings from the data. Grounded theory is a flexible, iterative process of working from descriptive data to develop themes and theoretical understanding. Data was coded and categorised into themes and sub-themes through cycles of analysis that compare and question the data, looking for commonalities and differences until saturation point is reached (Charmaz, 2014; Corbin & Strauss, 2015; Menter et al., 2011). Typing transcripts was the first step of analysis. Listening carefully and repeatedly enabled the researcher to become very familiar with the data. Highlighted words and statements from the transcripts were transferred to individual lines on a spreadsheet and assigned initial codes. Then followed a further three iterations of analysis during which the data was condensed, paraphrased, discounted, and adapted to create a different and more descriptive set of codes. Themes were sorted and adapted, and sub-themes were identified while eliminating repetition in the coded statements. Supporting quotes were chosen to illustrate each code and a data table of research findings was constructed. This final iteration provided the opportunity to

once again check the meaning made from the data and to draw out quotes that would be the basis for supporting the findings and to give voice to the participants during the writing process.

## **Results**

From analysis of the research participants' interviews, several key themes emerged. Principals talked about the benefits and challenges they had experienced with their participation in virtual learning, the factors they thought were necessary for students to be successful online learners, the changing role of teachers, and the affordances of technology.

### **Benefits of virtual learning**

Principals felt that the benefits of virtual learning lay in the opportunities for small rural schools to access experienced teachers and a wider curriculum, which enabled them to extend children's learning. For example, Dutchy noted that, "We've done all these things that I couldn't possibly hope to do in a small rural environment". Children's learning was extended with the development of self-management skills, independent study skills, and digital fluency, which principals said was empowering and motivating for their students and helped prepare them for secondary school. As Mary related, "It's really good preparation for the kids going to high school. Because in a wee school it's hard for them to have practice at timetabling issues, having other teachers, and having deadlines and things like that." Essentially, the principals believed that virtual learning could benefit small rural schools by providing access to experienced teachers and a broader curriculum, extending children's learning and fostering essential skills, ultimately empowering and motivating students for secondary school.

The social benefits of making friends with others in similar small schools and learning alongside others was highly motivating and extended students' learning.

Well, the big thing for me was for the students initially to see other children's work and quality of work, and what could be done around New Zealand. Because when you are in a very small, isolated school, and you happen to have one child at a particular level, being able to have that sort of impetus to push them to do a little bit more, to add a little bit more value to their work. That was very important for me. (Susan)

This was supported by Molly who said, "I like the idea that the kids learning, learning together, you know co-constructive learning where they are learning with an experienced teacher . . ." These examples demonstrate the benefits of virtual learning when students are motivated and extended in their learning by having access to new learning opportunities and a connection with a wider group of peers.

### **Challenges of virtual learning**

Alongside the benefits of virtual learning, the principals identified several challenges. One principal talked about the commitment needed to support virtual learning in a school, "It is hard—timetabling, space, keeping tech up to date, following up on children's work" (Mary). Along with the difficulties of managing the logistical needs of virtual learning in a school, another principal felt that it was difficult to tailor virtual learning to the academic ability of children:

. . . it can be difficult at times when you are talking to a group of kids online and you are not sure of their own academic ability as to the work that you provide and how suitable it is for them. (Bob)

One principal expressed concern about the amount of time children were spending on digital devices. "I have a worry that my students spend too much time actually on the devices" (Susan).

She worried that the increased use of technology was resulting in less practical hands-on learning for children.

Another principal thought that virtual learning would not be able to support a local curriculum because of its centralised provision and the diversity of schools that participate, “It’s centralised and it’s teaching to kids in different schools, you’re not going to be talking about the Ngarotoara [a pseudonym] environment and how that’s a big, huge part of our curriculum” (Mary).

Localised curricula, practical learning opportunities, and the logistics of supporting virtual learning in schools were identified as challenges by these principals; however, they were able to highlight a range of factors that helped students become successful online learners.

### **Success factors for virtual learning**

The principals valued face-to-face learning. For example, Dutchy stated, “I think it’s quite important that we don’t just keep it at online learning. It’s nice to be able to put a face to Susan [a pseudonym] and be able to talk to her face to face.” Blended learning was considered by all the principals to provide a good balance. They asserted that how children learn, whether online, face-to-face or blended, was highly dependent on each child’s situation, “So definitely a blend but individually obviously every kid’s situation is different.” (Isabel)

Synchronous interactions in safe online environments and the involvement of quality teachers were important for children’s engagement in online classes. “I think that a real person always needs to be there . . . and I’ve been absolutely amazed at the quality of some of our teachers” (Dutchy). This was supported by Thar who said, “The social side, the academic side. Seeing each other on the screen through Zoom, really means a lot rather than just typing away.” However, asynchronous virtual learning was also valued for providing more flexibility.

Self-management skills were identified by the principals as being important for students to keep on task with virtual learning, and principals agreed that the provision of support for online learners was important to ensure success, “My kids are in groups of two, or by themselves seem to be fine but my VLN kids when there’s four of them, they can’t really be left to their own devices . . . they get a bit silly” (Mary). This support involved maintaining good communication with online teachers, managing the dynamics and numbers of students learning online together in groups, and providing the necessary adult supervision.

### **Role of the teacher**

The principals described situations in which the role of the teacher was changed by virtual learning. Teachers took a more supervisory role and their time was freed up to do other tasks when children were participating in their virtual learning class. However, the principals expressed some concern at not being directly involved in children’s learning and so felt uncertain about the participation and achievement of their children in online classes.

For example, one of the principals remarked that:

I find the challenge is when they are online, they are individuals, or maybe two students and they are away from me, and I actually have no idea how well they are participating, and what they are actually learning and getting from it. (Susan)

Susan’s comments reflected a concern about not being able to gauge student participation and learning in the virtual setting.

Another concern raised by the principals in this study was that the use of online tools to create learning programmes for students meant that technology was taking on the role of a second teacher in the classroom.

As one principal put it:

I do, sadly, rely on the second teacher, like Maths Buddy . . . and sometimes I find my planning is more catching up and seeing what they've achieved and what they might need more work on and then resetting another task for them. (Susan)

Some principals talked about their role as an online teacher and the need to improve their digital skills, as this could affect students' participation in online learning. "I think that's been a big thing for me too was getting me up there with using the technology that's there, being an eteacher, taking classes online" (Polo). Essentially, these principals were describing the reality that teachers' roles changed, either by taking on a more supporting role or stepping up to the challenging role of being the online teacher.

### **Role of technology**

As the principals discussed their experience of virtual learning, they noted the role of technology on several occasions. They referred to faster broadband access, and their beliefs that technology had been and would continue to be a driver for change in schools. "With the advent of quicker broadband and what have you, we've made a shift in education that perhaps five years ago we didn't even think would happen" (Dutchy). The principals accredited better infrastructure for improved access to virtual learning tools, and also mentioned that virtual learning tools were becoming ubiquitous and similar across schools and across online and face-to-face classrooms. Molly said, "It's so really good that they've started using *Google Classroom* in most of those [online] classes. Because we work with *Google Classroom* so that's kind of handy."

Although they acknowledged the transformative effect of technology on education (especially in terms of improved infrastructure and widespread use of virtual learning tools), the principals highlighted persistent challenges in rural areas where unreliable internet access remains a barrier, underscoring the pivotal role of technology as both an enabler and a potential impediment to students' success. For example, even with the improvements in infrastructure, broadband, and technology, principals said the infrastructure could still be unreliable in rural and remote areas and felt that the internet was still not accessible to all. "We can't give children any work from home that involves internet as they don't have access. Families have internet but it is capped and expensive and gets used by the adults in the house first" (Polo). These findings emphasised the important role of technology in virtual learning as an enabler or a barrier to students' success.

### **Discussion**

The principals interviewed in this study outlined many benefits that they felt were important for their learners in the context of virtual learning in collaborative school networks. The principals said that children were able to benefit socially, diverse needs of learners were supported, children had greater choice and access to a wide range of learning opportunities, and they were able to develop a range of skills such as key competencies and digital fluency through their collaborative virtual learning experience. These specific social and academic benefits were also supported in the literature (Ministry of Education, 2011b; Thomson, 2011). Principals considered that virtual learning provided students with opportunities to become independent learners, to socialise with students from other schools, and to compare themselves academically with other students, which provided good preparation for their transition to high school. The literature stated that students who are well supported by their family and teachers, and are resilient, confident and independent, are more likely to make a successful transition to secondary school (Baills & Rossi, 2001; Johnson, 2016; Vincent, 2015).

Although the principals felt that virtual learning provided many benefits, they also felt that learning should be blended and not fully online. Blended learning, where students combine parts of their virtual learning with learning that is in the physical school environment (Barbour, 2015; Staker & Horn, 2015), was noted as being important by all principals in this study. They felt that opportunities to have face-to-face interactions were socially beneficial to children, as well as having opportunities to undertake hands-on practical activities, and the principals felt these wouldn't be achievable in a fully online environment. They described how children were very motivated and engaged to participate in the Rural and Remote Schools Project and looked forward to camp, which is the face-to-face component of this project. The principals commented on how important it was for the teacher and the students to see each other physically or in their online classroom. They felt that synchronous visual interactions with real people and the involvement of quality teachers were important for children's academic and social engagement. These views were supported by Cavanaugh et al. (2015), who emphasised the importance of teachers with strong pedagogical skills and theories of "social presence" (Borup et al., 2014; Palloff & Pratt, 2008).

Contrary to the view that synchronous learning was preferable, one principal felt that asynchronous virtual learning provided a more flexible option for learners and reduced the need to coordinate timetables to facilitate working together across schools. Another principal discussed her use of online tools to support and individualise learning programmes, which she described as technology effectively becoming the second teacher in the classroom. This raised the importance of distinguishing between virtual learning platforms and software (in which children were being taught by technology [East, 2016]), and virtual learning (in which children learn together with online teachers in both synchronous and asynchronous environments [Bolstad & Lin, 2009]).

All principals felt that support for virtual learners was important, and to provide support they would need to ensure they maintain good communication with online teachers, manage the dynamics of students working independently, support children to develop self-management skills, and provide adult supervision where necessary. Whalley (2016) supported this view that school-based support was critical for students' success; and strategies such as communication, adult support and supervision, and scaffolding learners to develop independent learning skills are also important.

Finally, advances in technology were discussed by the principals as being an enabler for schools to connect to each other, and to improve virtual learning through the advantages of new learning tools. Access to and advances in technology reflected the investment of successive governments in broadband and fibre networks, schools' infrastructure, and a managed school network (Roberts, 2014). However, the digital divide was still raised by some principals as a concern regarding the affordability and reliability of rural broadband networks. They felt that their children were unable to learn online from home because, although they might have internet, they couldn't use it because it was too expensive for families. This suggests that the digital divide is still a problem for rural communities (Crothers et al., 2015).

## Conclusions and implications

Principals' accounts of their experience highlighted a range of benefits of virtual learning in providing a wider curriculum, developing digital fluency, reducing professional isolation, and relieving workload. They also identified a range of concerns with learning online, although there were contradictory viewpoints on this. They felt there were tensions between planning for a localised school curriculum and working collaboratively with schools from other areas. However, another principal saw this as an opportunity to collaborate on a bigger-picture inquiry, and keep a local focus. One principal expressed doubt about the capacity of virtual learning to

cater for personalised learning needs, while another principal felt it was the ideal way to personalise learning for their students. All principals agreed that learning online was just one part of a child's learning experience and, although valuable for broadening their opportunities, blended learning was more important. On discussing the future of schooling, principals did not think that virtual learning should or would replace traditional schooling, but that it would be a growing and accepted part of a child's education in the future.

This study provided evidence that virtual learning can help to reduce some of the challenges faced by principals in small rural schools. Professional and social isolation can be reduced through access to a wider network of colleagues, workload can be shared through collaborative teaching, and students can access a wider curriculum and develop digital literacies and key competencies by participating in virtual learning. Principals who were well supported and who collaborated in online communities could be just as connected and provide as many opportunities for their children as those in large urban schools. With fast, reliable internet, a school that is open, networked, and collaborative can increase its capacity to provide learning opportunities for both students and teachers. But it requires thinking differently and being more flexible, collaborative, and smarter in our approach to education.

Based on the results of this study, principals and teachers who are still working in isolated silos could consider how to begin collaborative online relationships with others outside their school to extend the learning opportunities for themselves and their students.

Questions to consider could include:

- What are the learning outcomes we want for our children?
- What professional benefits are we seeking for ourselves?
- How do we include virtual learning as part of our schools' strategic goals?
- How do we integrate virtual learning into our curriculum planning?
- Have we scoped our students' needs and our teaching strengths and weaknesses so that we can provide targeted learning programmes?
- What strategies can we put in place to support our children learning online?
- What professional learning and support have we got in place for ourselves and our teachers?

From a broader perspective, government should ensure that any new policy takes account of the needs of small rural schools and provides guidance and resourcing that support schools to collaborate online. In addition, more needs to be done to reduce the growing digital divide in rural communities. Professional support and development for teaching and learning online should be available for classroom teachers to become confident online teachers and to provide better support for their online learners. Professional learning should focus on understanding the nature of virtual learning and how children learn online; and that it enables people to connect and learn through digital networks. It's not just about technology platforms or software applications.

Many principals in small rural schools may be working in professional isolation, and not collaborating in ways outlined in this study. Further research across a larger group of principals could identify barriers and enablers to online collaboration. This research focus could be extended to larger schools in different settings to explore the opportunities collaborative virtual learning provides for a wider range of school settings. Principals interviewed in this study identified a range of challenges in learning in virtual environments. Further research is needed into both online and blended teaching strategies that focus on social engagement and interactivity, online programme development, and assessment.

Finally, we would be remiss if we didn't mention that, although this research was undertaken before the pandemic, the demands of COVID-19 and the pivot to emergency remote learning exposed significant deficits in principals' and teachers' ability to provide continuity of learning in the face of disaster (Wenmoth, 2021). In reality, even after extended periods of lockdown, and several waves of remote learning, educators were unprepared and unable to toggle between face-to-face instruction and true virtual learning without losing continuity of curriculum or quality of instruction (Barbour, 2022; Barbour et al., 2020). The earthquakes in Christchurch in 2011, flooding throughout Auckland, the devastating effects of Cyclone Gabrielle in 2023, and the possibility of more regional or global pandemics, show that the traditional brick-and-mortar education system will continue to be disrupted. As such, it is important to better understand the current ecosystem of distance and virtual learning in New Zealand's school sector, to be better prepared for the next time.

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