



Size Only Matters if You Have Vision: An Exploration of an Urban E-learning Cluster

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Abstract

Historically, primary and secondary distance education in New Zealand has focused on providing opportunities for rural students. With the advent of Tomorrow's Schools in 1989, the need for rural schools to compete with urban schools in terms of their curricular offerings was one reason for creating e-learning clusters that would eventually become the Virtual Learning Network (VLN). After 25 years of practice, there is a growing body of research into these rural e-learning clusters. However, in 2011 the HarbourNet cluster became the first active, and sustained, urban-based VLN programme. This study begins to address the lack of research into urban e-learning by exploring the challenges HarbourNet was able to overcome to become a successful member of the VLN.

Keywords: urban education; e-learning; secondary schools; virtual learning; virtual schooling

Introduction

Although distance education has been used in the primary and secondary environment in New Zealand since the early 1920s (Barbour, 2014), the development of online or virtual forms of distance education is a much newer development. As in many countries (e.g., Canada, South Korea, and the U.S.), virtual learning in the New Zealand primary and secondary environment began in the early to mid-1990s. The first of these projects in New Zealand was the Canterbury Area Schools' Association Technology (CASAtech) project (Wenmoth, 1996). The CASAtech project, which became the Canterbury Technology Schools Project in 1996, focused primarily on rural areas, where small schools and shrinking numbers of teaching staff made it difficult to provide a full range of curricular opportunities to their student population. The OtagoNet e-learning cluster began in 2002. Its vision was "to create a broadband [network] linking the Otago Secondary and Area Schools, to strengthen existing relationships and collaboration of these rural and geographically dispersed schools" (Pullar & Brennan, 2008, p. 9). This was where the roots of a Virtual Learning Network (VLN) began. Approximately 20 of these regional e-learning clusters developed over the past two-and-a-half decades, although only a handful still exist today (Pratt, 2018).

Traditionally, almost all of the active e-learning clusters have been located in, or have focused primarily on, rural areas. Several urban-based projects (e.g., DunedinNet, Greater Christchurch Schools Network, HarbourNet, Nelson Loop, and Wellington Loop) have been officially undertaken to provide high speed internet, in the hope that they would lead to additional virtual learning opportunities. However, because the urban schools that comprised these clusters did not experience the curricular challenges of their rural counterparts, their activities were limited, for

the most part, to sporadic professional development events (Ali, 2017). One exception to this lack of activity was HarbourNet (an urban e-learning cluster in the Auckland area) which, for some reason, was quite active in its first years of operation.

The purpose of this study was to examine the development of HarbourNet as an urban e-learning cluster. This general purpose led to the following two research questions:

1. What were some of the challenges faced by an urban e-learning cluster?
2. How did that urban e-learning cluster overcome those challenges?

To address these research questions, the researchers chose to conduct a case study of HarbourNet. In this article, the researchers describe the background and what was known about virtual learning in New Zealand at the time of the study. Next, the researchers outline the study that was conducted, and the three themes that were found; that is, technological and communication issues, resistance from stakeholders, and buy-in from the community. Interestingly, for each of these themes it appeared that the urban cluster learned from the experience of their rural counterparts.

Literature review

As noted above, distance education at primary and secondary levels has been present in New Zealand for almost a century (Rumble, 1989). However, the VLN celebrates only its twenty-fifth anniversary in 2019 (Sudlow, 2019). During those 25 years, there have been explorations of national policy funding programmes that provided the necessary context and resources to allow the e-learning clusters that make up the VLN to exist (Powell & Barbour, 2011; Stevens, 2005), and descriptive examinations of the system (Roberts, 2009, 2010). Empirical research into the VLN has largely focused on case studies, which have often provided general evaluations or examined a specific aspect of individual e-learning clusters. For example, OtagoNet (now NetNZ) was one of the first e-learning clusters, and remains the most researched of any of the clusters (Lai, 2017; Lai & Pratt, 2004, 2005, 2009; Pratt & Pullar, 2013; Pullar & Brennan, 2008). Similarly, the FarNet e-learning cluster has been the focus of studies on virtual teaching and student experiences, with particular attention paid to their majority Māori population (Alexander-Bennett, 2016; Barbour & Bennett, 2013; Bennett & Barbour, 2012). Even the VLN-Primary (a nationwide e-learning cluster that focuses on the primary level) has been the subject of descriptive study into student and teacher perceptions of learning a foreign language in a virtual environment (Tolosa, East, Barbour, & Owens, 2017). All of these e-learning clusters (and the research into them) have focused on students attending schools in rural and remote jurisdictions.

However, this is not a totally accurate description of the distance learning context in New Zealand. For example, Roberts (2010) indicated that in 2009 the DunedinNet e-learning cluster had begun to offer courses. She also referenced that Wellington High School had students enrolled in virtual learning courses. Barbour and Wenmoth (2013) referenced that, after enrolling their students in existing rural clusters, a number of Auckland area schools had formed the HarbourNet e-learning cluster in 2012. Zwimpfer (2010) described the development of urban-based loops (such as the Nelson Loop, Wellington Loop, North Shore Education Access Loop, and Greater Christchurch Schools Network), which were designed to provide schools with reliable, high-speed internet access through a fibre-based loop. Although good internet access was the primary purpose of these “super loops”, additional goals included “distance education courses, remote learning . . . resource gathering and sharing, [and] video streaming” (Mallard, 2005, para. 6).

In 2004, the initial version of a handbook to assist schools in forming e-learning clusters was published with support from the Ministry of Education (2011). Entitled *Learning Communities Online: A Support Handbook for Cluster Schools* (known as the *LCO Handbook*), this publication contained a matrix to guide development through the phases from conception to implementation. In 2010 the *LCO Handbook* was extensively revised, and an additional dimension was added to the matrix to address issues of “sustainability and maturity”. This revised handbook was released in a final version for use by schools and clusters in early 2011. The new sustainability and maturity dimension was particularly important as, in the same year, Barbour (2011) engaged in the largest study of the VLN to date, largely focusing on the issues of sustainability and maturity. This national study examined “the development of virtual learning in New Zealand, in particular, how the *LCO Handbook* was being used to assist and inform [that] development” (p. 3), and focused almost solely on the rural e-learning clusters. The report was eventually divided into three sections: specific artefacts to support the *LCO Handbook*; common barriers to maturity and sustainability; and examples of how networked schools were emerging. Barbour, Davis, and Wenmoth (2016) later reported that the common barriers to maturity and sustainability that existed were: a lack of coherent vision in individual e-learning clusters; trouble in securing and maintaining necessary funding and resources from year to year; and the need for more cooperation and collaboration within and between the e-learning clusters. However, this national study focused almost exclusively on the rural clusters—no data was collected from the DunedinNet e-learning cluster, the urban-based loops, or any of the urban schools that chose to join one of the rural e-learning clusters.

Barbour (2011) also noted that, for the most part, development of these e-learning clusters was primarily a rural phenomenon. Individuals who tried to develop clusters in urban areas often found it difficult to identify a sense of purpose. Barbour speculated that this lack of purpose was due to the size of urban schools, which were large enough to not have the curricular challenges faced by their rural counterparts. In fact, of the urban clusters, only HarbourNet and the Greater Christchurch Schools Network had a critical mass of participating schools, found any real sense of purpose, and actively pursued a vision of networked schools (Wenmoth, 2010). Unfortunately, although there is a growing body of literature and research on rural e-learning clusters in New Zealand, there is little to no research on urban e-learning clusters.

Methodology

The purpose of this study was to examine the development of HarbourNet as an urban e-learning cluster. This general purpose led to the following two research questions:

1. What were some of the challenges faced by an urban e-learning cluster?
2. How did that urban e-learning cluster overcome those challenges?

Before they collected the data, the researchers suspected that responses to the first research question would be similar across all of the e-learning clusters. However, they believed the second research question would provide other urban e-learning clusters with guidance for their own future development into active clusters. Regardless, given the exploratory nature of the research, a single case study was selected as an appropriate methodology (Yin, 2003).

Although founded in 2010 (Greater Christchurch Schools Network, 2019), one of the driving forces behind the *active* development of the Greater Christchurch Schools Network was the devastating February 2011 earthquake (CORE Education, 2011; Wenmoth, 2011); which closed Christchurch’s schools for 3–5 weeks and resulted in most schools double-bunking in the few structurally sound school buildings that remained (i.e., one school would use the school buildings in the morning, then a second school would use the same school buildings in the afternoon) (Ministry of Education, 2012). Excluding this urban e-learning cluster meant that HarbourNet,

which served schools in the Auckland area (New Zealand's largest urban centre), was the only e-learning cluster that had developed naturally, was located in an urban area, and didn't have the impetus of a natural disaster. As such, HarbourNet was selected as the case for this research study.

The study followed a research process similar to the one used by Barbour (2011) in his examination of the development of e-learning clusters in New Zealand—specifically, how the *LCO Handbook* was used in that development. This earlier study focused primarily on the more established clusters (at the time, these were e-learning clusters serving primarily rural schools). Using this model, there were two main methods of data collection: unstructured focus groups, and artefacts.

Data collection

The researcher conducted site visits to three of the schools and met with stakeholders who were participating in the HarbourNet e-learning cluster. These visits were selected, arranged, and attended by the ePrincipal for HarbourNet. At each location, the researcher was provided with a tour of the site and, in particular, the virtual learning facilities. Each tour allowed the researcher to observe the site and become more familiar with the specific research context (Stringer, 2004). The researcher took digital photographs, collected artefacts, and often had the opportunity to informally interact with teachers and students engaged in virtual learning. Shank (2002) described observation as a fundamental data collection method to “see those things that others have overlooked, to hear those things that others have failed to notice, and, in general, to find things that make our understanding richer and deeper” (p. 33). Even in an informal context, the observations during the site visits provided useful information that was often used during the focus groups.

At each school, the researcher also conducted unstructured focus groups with HarbourNet personnel and individuals from the stakeholder sites. The HarbourNet ePrincipal participated in each focus group with individuals from each of the schools that were visited and the internet service provider that partnered with the e-learning cluster. According to Morgan (1997), focus groups are useful for obtaining descriptive data from a number of participants in a single session. Focus groups are similar to interviews in that they allow researchers to learn about the participants' perceptions, feelings, and attitudes. Although these focus groups were unstructured in nature, the researcher had a general plan about the topics that he wished to cover. Focus groups allow the researcher to explore perspectives of the same events within a social group (Kitzinger & Barbour, 1999), and this approach lent itself to an unstructured exploration of the general topics of conversation. For example, after a general question asking the participants about their school, HarbourNet, and their school's participation in the e-learning cluster, the researcher often focused on what they thought was working, what the challenges had been and how those challenges were overcome, and their perceptions of the reasons for HarbourNet's success.

Finally, documents from the individual schools and the e-learning cluster were collected. Documents are often used as a source of data to assist with triangulation, to guard against the claim that the findings are biased because there is a single source of data collection (Denzin, 1970; Patton, 1990). These items included anything the researcher felt might be relevant to the study, and any documentation that the focus group members felt may be important for understanding the development or success of the HarbourNet e-learning cluster. Bowen (2009) indicated that documents could include:

advertisements; agendas, attendance registers, and minutes of meetings; manuals; background papers; books and brochures; diaries and journals; event programs (i.e., printed outlines); letters and memoranda; maps and charts; newspapers (clippings/articles); press

releases; program proposals, application forms, and summaries; radio and television program scripts; organizational or institutional reports; survey data; and various public records. (pp. 27–28)

The documents collected for this study included digital photographs, newsletters from the schools and e-learning cluster, hand-outs from events, brochures and pamphlets, student handbooks, and formal school reports.

Data analysis

The focus groups were recorded with the voice memo feature on an iPad. At the conclusion of the data collection, these audio recordings were provided to a graduate research assistant who transcribed the focus groups verbatim (Sandelowski, 1994), excluding conversation fillers (MacLean, Meyer, & Estable, 2004). Because using a transcriber who is not directly involved in the data collection process has the potential to introduce bias into the data (Poland, 1995; Tilley, 2003), the lead researcher—who was also the interviewer—reviewed each of the transcriptions for accuracy. Each transcription was also provided to the ePrincipal of the HarbourNet and FarNet e-learning clusters to review for accuracy (Mero-Jaffe, 2011).

After being transcribed, the complete data set was coded and analysed using a format similar to the four-stage process developed by Ruona (2005). In the first stage, data are prepared for analysis (i.e., in this case, the transcripts were converted to tables in Microsoft Word). Next, the researchers become familiar with the data through both the initial preparation and multiple readings and viewings of the data. Data are then categorised into codes to organise similar elements throughout the documents. Finally, a constant comparative method is used to develop themes and generate meaning (Strauss & Corbin, 1994).

The case: HarbourNet

The HarbourNet Online Learning Community¹ was established in 2012. However, its roots began a full year earlier, when Orewa College joined FarNet and Ormiston Senior College joined OtagoNet. The goal of this membership was to gain experience with virtual learning, and to better understand the operation of two of the oldest existing e-learning clusters in the country. Interestingly, Ormiston Senior College continued to be a member of OtagoNet for another 4–5 years, and Orewa College became the managing school for HarbourNet the following year. From 2012 to 2014, HarbourNet maintained a close relationship with its geographic neighbour—the FarNet e-learning cluster. HarbourNet (2013) described this relationship as “two clusters working together to provide and engage in e-learning opportunities for students, staff and communities by offering a blended approach to e-learning” (para. 1). For example, the HarbourNet ePrincipal was also the FarNet ePrincipal, but each cluster had a unique Assistant ePrincipal. During these early years, HarbourNet grew from 163 students attending eight member schools who were enrolled in nine courses offered by HarbourNet in 2012, to 191 students attending 13 member schools who were enrolled in 14 courses offered by HarbourNet and 36 courses offered by other clusters in 2014 (McCarthy, 2019).

In 2014, HarbourNet ended its formal relationship with FarNet (although both programmes continued to be members of the VLN-Community),² and the HarbourNet Assistant ePrincipal was promoted to the role of sole ePrincipal for HarbourNet. As their formal partnership with FarNet came to an end, HarbourNet entered into a relationship with the New Zealand Online

¹ See <https://sites.google.com/view/harbournet/home?authuser=0> for more information about the e-learning cluster.

² “The Virtual Learning Network Community (VLNC) is a group of clusters and individuals that choose to operate as a collaborative network, utilizing digital technologies in order to enhance the learning outcomes and opportunities for learners (students, teachers, school communities and educators).” (VLNC, 2015, para. 1)

Teaching Learning Community (NZOTLC). This organisation included most of the remaining e-learning clusters and was designed to “work collaboratively but also in a reciprocal manner to provide learning pathways for both their students, staff as well as wider whanau and community” (NZOTLC, n.d., para. 1). This collaboration worked well, and in 2018 HarbourNet served 129 students from seven member schools and four associate schools. The students were enrolled in eight courses provided by HarbourNet and 48 courses from other clusters. At present the NZOTLC is being rebranded as the Online Learning Community, and in future it will include only the remaining four e-learning clusters from the North Island (i.e., FarNet, HarbourNet, Volcanics, and Welcom).

The data collection for this study occurred during HarbourNet’s second year of operation. At the time of this study, HarbourNet was still in a formal relationship with FarNet, and the administrative structure still included a combined ePrincipal for HarbourNet and FarNet, as well as an Assistant ePrincipal for each cluster. During that school year, HarbourNet served 257 students attending 13 member schools. The students were enrolled in 29 courses offered by HarbourNet/FarNet and 32 courses offered by other clusters throughout the school year. The lead researcher visited three of these schools and the offices of the main internet provider for the cluster.

Results

Several themes emerged from the data regarding both the challenges and opportunities afforded by HarbourNet. Challenges included themes of technological problems, communication issues between stakeholders, and resistance from stakeholders creating barriers to the growth and development of the cluster. Conversely, the leadership saw the opportunities in the cluster as a “game changer,” and their vision and leadership skills helped in the success of the cluster. Analysis of the data uncovered themes relating to vision, a focus on students, finding the right people, and a push for collaboration and experimentation.

Technological and communication issues

From a technology standpoint, it was no surprise that everyone needed the technology to work for an e-learning cluster to be successful. Numerous exchanges discussed technical problems that occurred in the start-up phase of the cluster, similar to the following exchange that occurred at Orange College:³

Catherine: The technology of setting up the VC [video conferencing] in three schools. One school only got online last week. They had audio but they didn’t have the video going and that was a real obstacle. And the fact that we had Dan, Tom, and John from Aliant [ISP]. Dan went around the schools going, “Hey, we’ll get this package for you. [We can] make it cheaper for you to get this package.” But for some schools, for the start, they didn’t link [the video] into the bridge. They were one step short . . . And there was an assumption that when you set up the technology that automatically you had the link. But the video bridge wasn’t set up.

Sarah: First time we started, we didn’t have a link to the bridge. We had to go through Aliant and count down for them to get everybody linked up. And then we had two schools that really struggled to get through their own systems . . . Actually struggled to get online, but they’re all online now. So that was the biggest headache, but I think it’s [a] huge learning curve, because now we know that some of the schools that are on [telecommunication company X] actually have trouble coming into the other end, coming into the ISP [internet service provider]. So that’s something we will think about next time we think about schools coming in. That was the biggest headache and it was a big obstacle. The teachers were new.

³ Pseudonyms have been used for the names of schools and individuals throughout the article.

They wanted to get online, they wanted to do the right thing and do what . . . they were supposed to be doing. So that was really frustrating.

It's easy to see how a technology issue can affect student learning and create problems for staff and students. Over time, it can erode confidence in virtual learning, and leadership needed to not only make sure problems were addressed in a timely fashion, but ensure that confidence was maintained. The fact that the HarbourNet leadership contracted with Aliant, who were able to "assume full responsibility for the systems and service providers" (Aliant corporate brochure), provided a devoted and/or dedicated entity that was responsible for the overall coordination of technology between the schools, the Ministry, the ISPs, and so on.

With that said, the participants focused less on technological skill and more on a shared perspective of both needs and constraints, as seen in the following exchange from Queens College.

Jane: . . . having Orange College do it and because Karen is a strong leader in the principals' cluster. She was actually able to articulate what had happened at Orange, and knowing that they had done it and been there before, and because she was quite passionate about it, even though, technologically she's just not there.

Catherine: No, that's right, you don't have to be.

Jane: No, you don't have to be that, but she knew from the pedagogical basis, for the whole teaching and learning thing. And, of course, you're doing it as well . . . What happened from there [was] we went over to Southgate College and had got Valerie, who was in that little thing this morning . . . who is also not very technologically minded at all, but was keen to see how it could be developed in the school. So, we had a principals' meeting over there with a mock lesson that was running out of Orange College with Spanish and so we basically sat like an audience watching the lesson so that we could immediately see how this could work.

Still, someone needed to understand the technological side of virtual learning (which was one of the duties of Aliant, in conjunction with the HarbourNet leadership). Additionally, the experience gained from the partnership with the FarNet e-learning cluster allowed the schools participating in HarbourNet to develop and/or adopt materials to support their technology use without the typical trial and error that often occurs (e.g., Orange College eStudent Video Conferencing Booklet).

As stated in the exchange below, the communication between the IT department and the enterprise (education, government, or industry) was a key feature for the success of the cluster.

Dan (Aliant): We would just start the whole process around the IT and firewall stuff early. We got the green light just before Christmas, and of course, worst time of the year. Everyone was on holiday and January is typically a write-off in the business world because everyone is on holiday. And typically with the schools they are doing a lot of other IT projects over the long break. So I just think it was put down the priority list a bit and things that we asked to get done, simply didn't get done until we finally put it in and then the teachers were screaming "We can't use this thing". Then they actually decided it was a priority. So, I think that was the biggest challenge. In hindsight . . . a couple of schools were bang, up and working, but some schools were not.

Catherine: Like everyone's on the same page, and that's what was missing. When I was saying to you when we had that presentation, that all the principals saw a lesson in progress, it was a mock-up lesson, they saw the gear, they saw the links . . . It's simple. It's quite understandable and once the principals actually found out that . . . it wasn't just us imposing something else on them, or the Ministry. They actually understood.

Dan: Yeah, we didn't know that the Ministry fund[ed] a connection, so they fund Asnnet to set up a school. But we didn't know what those requirements are. If we knew those we could have facilitated that, and once we did know it was easy. But because we fully understand what they've got there and how to connect it over, it was easy. So it should never be as hard again.

Catherine: And [Asnet] were playing hardball, I know they were. To begin with . . .

Dan: But you know, we face the same challenges everywhere we go . . . even in government, in dealing with IT, and many departments outsourced their IT and we have to deal with them, and firewall people.

Catherine: And they don't like people coming in and telling them what their system should look like.

Dan: And they hate opening ports in their firewalls. Unfortunately, the way the world is, if you want to collaborate, you got have make compromises in your security somewhere, if you want to talk to someone else.

As mentioned earlier, technological issues can accumulate if not addressed early, and stakeholder confidence can waver.

Communication was key to making sure things did not get out of hand, or mistakes repeated. Towards the end of the same focus group, the participants summarised this theme nicely:

Catherine: Yeah, but it is that communication. The discussion wasn't had because we didn't know what we didn't know . . .

Dan: A lot of IT people are anti this sort of thing because it means more work for them. Something else in the network they don't know about, they hate that.

Interviewer: They also have a really difficult time giving up control as well.

From a leadership standpoint, communication is key to ensuring that the inevitable technology issues are mitigated swiftly, as well as making sure that situations are discussed and reflected on so they are not repeated with future launches. Communicating can ensure that growth will proceed with confidence, and it can limit potential resistance from stakeholders, which is the next theme to emerge from the data.

Resistance from stakeholders

Another theme that emerged from the data stemmed from discussions about resistance to the cluster. The resistance by some stakeholders was primarily territorial in nature; that is, schools were nervous about the potential loss of staffing or students. In the following exchange from Queens College, it appeared to be simply a resistance to the unknown.

Catherine: Bonnie was talking this morning about the students; she found that they were very excited. That actually came very much from the teacher. It was a te reo Māori teacher and he was doing level one, two, and three as a combined and he didn't want to let them go and he was really, really worried. He even had all the parents in. So I say to Terri who is the eDean there: Look, let it go. Don't . . . battle. They've had the discussion there. If he's still worried just . . . don't worry about it too much.

Sarah: We had the potential for that to happen at our school, but then Donald came, and ever since then trouble that could have happened with the e-teacher . . .

Jane: All of the resistance we had . . .

Catherine: It's the unknown . . .

The participants were aware that any new initiative would be met with some trepidation from staff, and that this could spread to others, such as parents and students, particularly when there are unknowns. One of the specific strategies that the leadership used to engage the students and stakeholders (and by extension their parents/guardians) was hosting an “eLearning Day.”

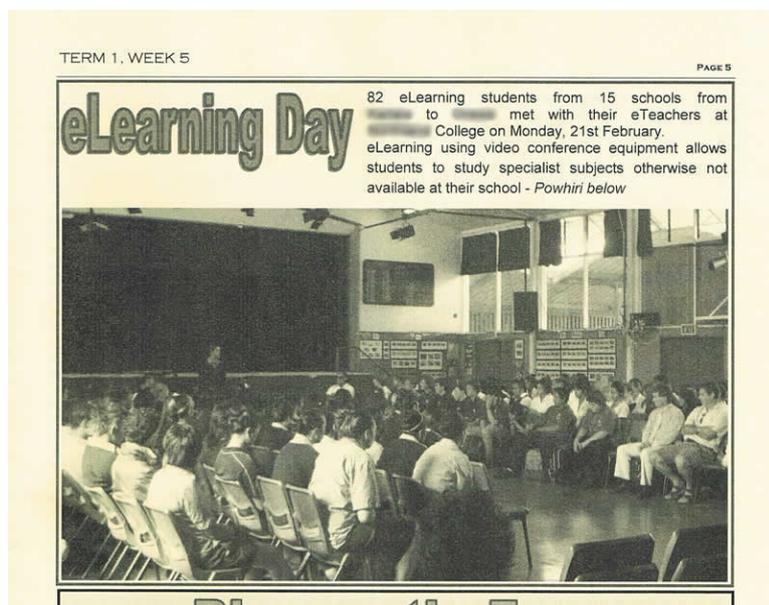


Figure 1 Promotional material from the FarNet/HarbourNet newsletter

The introductory letter that was provided to students at the event also focused on the realities of learning at a distance, and what students should expect. This was probably an attempt to get ahead of any concerns the students might have had about the medium (“Welcome to FarNet/HarbourNet e-Day” letter). Marketing realistic expectations to students and parents/guardians was also evident in other promotional material (e.g., “FarNet & HarbourNet Schools” brochure).

However, more of the discussion dealt with specific staffing and enrolment concerns, such as the following exchange from the participants at Orange College.

Sarah: . . . this one school, that I said to Karen, just let it go, just let them go because they are dragging their heels. And she said, “Well, I’m gonna get that staffing out of them” and she did. They are the ones that were asking when is the planning for next year, just this morning.

Karen: Yeah, you are right . . . I know we wanted more at the beginning. You don’t wanna go beating it. People have either got an act of faith that this is the right thing to do, or they haven’t. And some of the doubters will only be convinced [when] the Southgates and the Wānanga start talking. And it’s not just me talking all the time. So they pick it up.

The participants were aware that there would always be naysayers, and that results would be the only way to change their minds. For example, a report to the Board of Trustees of Orange College focused on the National Certificate of Educational Achievement results for students enrolled in the virtual learning environment (Orange College HarbourNet Report for BOT, March 2012).

An interesting discussion about potential cultural and religious conflicts concerning virtual learning also took place.

Catherine: The only other issue we had, we couldn't resolve actually. We had a girls' Islamic school that wished to be involved, because they are very small school, and it would be very useful for them to have access to a wide range of subjects. But it wasn't our issue; it was their issue . . . there were a lot of conditions . . . like: "Would there be male teachers? Would there be boys in the classes?" Well we had to say, "I'm sorry. If you wish to be in it, this is the way it operates." We couldn't set up something without boys, without male teachers, we just couldn't do it.

Karen: . . . without online messaging and things like that. The principal is very, very keen because she saw it as a way to sustain her school, which was a very small school. But the board of trustees—that was the stumbling block—was getting through [to] the parents who'd actually sent their girls to a special character school could see the whole thing online. Another school . . . had actually provided a teacher for us, but then at the last minute that teacher couldn't do it because of other commitments in the school for various reasons. And so we were left with 20 or 30 students [and] we had to go and find another teacher when all our nets [i.e., clusters] were full. You know, we really wanted to do the right thing by the students. So Catherine headhunted another teacher at another school to actually deliver VC [video conference]. So we've also had to do a bit of a quid pro quo to get one teacher delivering to two schools. So that was sort [of] late into the piece too. That has been going on for about four or five weeks.

In many of the above exchanges the leaders simply moved on from resistance by either finding a workaround or simply leaving the resistant group out of the process.

In another instance, potential resistance was headed off by providing demonstrations of virtual learning working in situ. The following exchange from Orange was particularly important because it describes the Prime Minister observing a successful lesson.

Karen: And it's interesting the feedback from our kids. When Dan was talking with the Prime Minister last week, because the Prime Minister came in and sat in on one of the classes, and Andrew [student] said he thought it would be . . . really good because it is teaching him to be independent so when he goes to [university], he's already used to . . . independence and different approaches and different subjects and taking it in [his] stride.

Catherine: It's a good prefix [sic]. You know we had the te reo students and the Prime Minister said: "What other subjects do you do?" Dan says, "I'm doing level three accounting" and Steven says, "I am doing level three chemistry" . . . We staged it in a sense so that we had up to level one and level two te reo students having a lesson with their te reo Māori teacher up in Kāinga. So, 50 people [in the] school from [years] 1 to 13 teaching us with the Prime Minister sitting in on it. [It could be] two thousand schools. That is what I wanted to get across.

Clearly, the participants understood that a high-visibility event (such as having the Prime Minister observe a lesson) would help the cause of promoting virtual learning and getting additional buy-in.

To summarise, the primary barriers to the success of HarbourNet were technology issues and communication between stakeholders about such issues, along with a general resistance to change. In both cases, leaders were able to either learn from each situation or find workarounds. Further, the leaders did not spend time trying to convince resistant stakeholders; rather, they looked for buy-in elsewhere and focused on attracting the right people to participate. These factors are detailed in the next section.

Buy-in from the community

Although the exchange described above highlighted attempts to get buy-in from a high-level official (i.e., the Prime Minister), leaders were also keen to build momentum and capacity at ground level. This desire meant that they started small and built momentum in much the same way (e.g., through demonstration), as was highlighted in the following focus group at Southgate College.

Lisa: We . . . set up a meeting of principals [for] a lesson. We had our Spanish teacher here, beaming in to some students at Southgate College. I mean it was a mock-up lesson, everyone understood that. But when the principals were actually a part of that lesson then they could actually see our teacher talking to the kids at Southgate and in a really good teaching pedagogical sort of way and could think, “Oh this is pretty good.” And also the technology. It’s not just young kids who find technology compelling. The old principal, seeing this stuff happening by video conferencing, which they had never seen before, it’s actually quite compelling. So I guess this sweetener was, yes there is a need, we can’t deliver these things in our own school, here’s how it might work, and how it might work was a very effective demonstration. We made sure that the technology was good, and set up really well so they could actually see a model of how it would work.

Interviewer: Okay.

Lisa: And then those people who were akin [sic] to being part of the future way that things are going, and [they] were pretty easy to persuade actually.

Catherine: What’s really good is this one school at the northern-most point, Raymond College, that was historically losing a lot of students because they can’t provide subjects. They were losing students to Wānanga School—for [Raymond College] it was a no-brainer to join in. There is another school out west that we are thinking of introducing this to, that is also in the same boat. These principals, it is actually a win-win for them, it really is.

Lisa: And the other thing [interviewer], is that I believe we are at a bit of a tipping point, really, and a number of not just principals, but teachers in general, are coming to the view that they actually need to get with it. It’s no longer an optional thing to use one-to-one technology or this or that. It’s becoming quite clear that this is what’s happening. And so for [a] number of people, there’s this view: “I actually need to get in on this because otherwise I am not going to be able to do my job properly. If I don’t know how this works, I actually am not going to meet all the requirements for my own job.” And that’s not just teachers. That’s principals. That’s everyone. So I think it’s a combination of a number of things.

A different route to getting buy-in was to convey to stakeholders that virtual learning made sense both now (e.g., for financial reasons) and for the future (e.g., the move to virtual learning at some level is inevitable). The fact that Orange College had joined the FarNet e-learning cluster the year prior to the creation of HarbourNet also provided evidence of some of the potential benefits.

If New Zealand schools are unable to offer a face-to-face course, the only distance learning option for students is through Te Aho o Te Kura Pounamu (i.e., Te Kura, previously known as The Correspondence School). Te Kura began to experiment with virtual learning approximately 20 years ago, but at the time of this study the vast majority of their offerings were still delivered in a traditional correspondence education model that many students and school personnel reported as being outdated and ineffective. As the following interaction between the HarbourNet chair (Karen), ePrincipal (Catherine), and Assistant ePrincipal (Sarah) illustrates, one of the goals of HarbourNet was to provide a model of instruction that addressed these perceived concerns with Te Kura.

Sarah: We started the whole process [of getting the e-teachers] in August of last year, by asking them, “Ok, what are you likely to want? Or to need?” And some of the schools’

responses were: “We just don’t know.” “What are you already having to [provide] through the Correspondence School?” That was a starting point and then we went from there. Then we got all the needs and . . . we were . . . able to say, “These are the areas that we actually need.” And I got together with Keith at the end of last year as well. So [he looked] at what he was able to provide, and I looked at what I was able to provide, then we had this gap on what we needed. So between the two of us we said, “Well, Keith you do the level two . . . and level one [course], and I’ll handle [the others].” So we very much worked between the two of us. We went back to our classes and said that we need languages and we need geography etc. Keith and I have really actually worked closely . . .

Catherine: When you actually look at the numbers we process, there were 134 enrolled in HarbourNet. We processed 157 . . . obviously some have dropped out along the way. Combined with HarbourNet I think we have processed 500 students. Which is a lot for any school to start off with—even [for] a normal school to start off with.

Karen: We’ll have to think through how many schools we will include, that we would actually manage. And I think we would need to think through do we need to split into more than one net [i.e., cluster]? Or do we have a big net, which we put more staffing into? You know there are a number of possibilities and it may be that of writing a whole lot of individual nets. You may end up as a HarbourNet/FarNet Consortium. We might have three or four senior people running it. We’ve got [to] look at [it], because we understand that we are the only urban net, at least big urban net. We need to think through the model that’s going to work best for us. And it may be that expanding and having more staff is better than splitting off. But we’ve got to think that through.

Catherine: And you’ve got to give a good product. And you don’t want to get too big too quickly because you don’t [want to] lose that credibility of the hands-on approach that we have at the moment. But I think we could expand. Maybe minimum next year we could look at 15 schools.

Another avenue for getting buy-in was the leadership team’s “clout” in the education community. This “clout” was underscored by the partnership between FarNet and HarbourNet. This partnership had a shared leadership structure and allowed those participating in the novice cluster to learn from the experience of those in the veteran cluster.

This credibility appears to have developed over time, with leaders building trust with their performance and success in other areas. As the following response indicates, people react differently when an idea comes from someone who has built up credibility.

Karen: I think also—you know, earlier you were talking about the leadership aspect of it. I think one of the reasons why people have been persuaded to come in, and why we went into FarNet in the first place, is that we trust that Catherine knows what she’s doing—she’s been doing it for quite some time. It wasn’t just some bright new idea that someone was trying to persuade you to pick up. We picked it up from a proven net . . . I’ve been around forever, so when other principals hear me talk, I’m not just saying some brand-new thing. They know, I guess, in a way, that I would take one thing or promote things that I’ve got enough experience to know to sort out the bright new idea that’s actually not going anywhere, from the bright new idea that could go somewhere. So I think part of it is that you’ve actually got a great deal of experience in the leadership. It’s not just the leadership, it’s a fairly solid, long-term leadership that they trust. I think if I [had] been new to the harbour district, people wouldn’t have known me . . . Catherine has done an amazing job of getting them placed, you know, with all the clusters and things. She’s got the clout and she got the credibility so that if she says, “If you take the student, I will guarantee a place in a particular class here.” That credibility is huge. And she’s got that credibility.

In this statement, the Chair of HarbourNet (Karen) makes it very clear that the HarbourNet ePrincipal (Catherine) has developed long-term relationships and has leveraged [her] sustained

success into moving initiatives forwards, based in part on her credibility as a leader and her experience with the FarNet e-learning cluster.

Finally, although leaders moved away quickly from areas of resistance, they were eager to recruit people who were the right fit for their e-learning cluster. A teacher could be recruited for strategic staffing reasons, as described below by the eDean of Queens College (Jane).

Jane: Because we are a small school and we've only got 400 kids from year 10 to year 13, people sort of think, "How are we going to contribute to the staff? How are we going to . . .?" And we are going, "We can make it work because we have actually thought through how we can, which teacher would be best." Because we've got someone who could teach year 11, 12 and 13 Japanese, which I know is not offered at the moment. And we are saying [that teacher] is a big block that has to go into the timetable first, or it has to fit around here [so] she could . . . be teaching her own class, because there is not a huge number of students [in her class] and at the same time [she could be teaching] the online class.

The eDean was thinking strategically about efficiency. There was an opportunity for growth (i.e., in Japanese courses) and someone who might be capable (i.e., a teacher with experience in teaching several levels of Japanese courses). Adding virtual students to her bricks-and-mortar classroom wouldn't create a seismic shift in scheduling or staffing.

In other instances, the HarbourNet leaders found a good virtual teacher who was also an advocate for virtual learning in multiple ways. In the previous exchange, the focus was logistics, while there's a hint that the teacher could be a good virtual instructor. Conversely, the following exchange highlights some of the characteristics of a good virtual learning advocate.

Lisa: And that's why Daniel is so vital. You've gotta get not only the technology, but you've gotta get somebody who is leading, who can actually troubleshoot, keep connected to kids. [When] they get grumpy because something doesn't quite work, [he] keeps them engaged and then comes to sort out problems. He encourages them and keeps things going.

Catherine: And communicates with me as the teacher. You know he is championing it with full plates.

Lisa: And also, it's quite a while before you know it, before you know they've slipped, And you know they're getting out of it, so you ask "How's your accounting going?" and the kids goes [shrugs her shoulders]. So you say, "What's going on here? Where's your work?" "Well I haven't quite done it yet." "When did you last e-work?" "Three weeks ago." And you go, "Awww."

Catherine: Yeah.

Lisa: [The student says], "It's going well."

In short, apart from being a champion for virtual learning, the principals are looking for teachers who are flexible and can adapt to uncertain or ambiguous situations.

Later in the same focus group, these individuals discussed another teacher whom they felt was a virtual learning champion.

Lisa: Yes, I know Boyd, yes.

Catherine: From over at Tāone, and he is extremely keen to find ways of supporting his senior students. And we actually can be doing it just through Skype in the meantime, because it starts a day behind. Yeah, so I wanted to talk to you more about that too.

Lisa: I have had some contact with Kāenga and there is a group down there . . . he's actually been using the facility [but] to model the teacher more than [using it for] the students.

Catherine: Okay.

Lisa: All of those things will be a shot in the arm for the Pasifika languages . . . To get to that level of participation. You know he is a very good teacher. He's got top scholarship in some language . . .

In both of these exchanges, the participants highlighted another characteristic of the teachers they wanted recruit. The teachers must go above and beyond their usual commitments to support their students, reaching out when they sense a problem, and keeping communication lines open.

Lastly, although some recruitments were not successful for logistical reasons, the recruit continued to be on the radar, as shown in this exchange between the eDean at North End High School (Tina) and the HarbourNet ePrincipal (Catherine).

Tina: The Samoan, the Tongan, the Cook Islands, all those things, if we can get that as a service, where we are offering it as well as receiving, [then we've] got a partnership.

Catherine: Yeah . . . And you see Renate has actually given us a fantastic teacher, but I haven't been able to [use them] because . . . you know that school—Wharekura College that I mentioned—they were gonna deliver to Te Papa Rangi for the year 7 students, but . . . they haven't really pulled it out. It was a bit of a funding thing.

The leaders understood that quality virtual teachers were hard to find, and they must constantly work to recruit, even if those gains were not immediately realised.

To summarise, a key theme of the data was how stakeholders garnered support and momentum for this initiative. The leaders were quick to move on from distractions, got the right people in the right spots, and used small-scale demonstrations to attract interest. The leaders used their connections and credibility to assist these efforts, and made sure that lines of communication remained open. Finally, it was clear that these leaders truly believed in promoting virtual learning and were willing to work hard to maintain the momentum already developed.

Discussion

Our analysis of the interviews and artefacts from an urban e-learning cluster revealed themes of technology and communication issues, stakeholder resistance, and buy-in. In this section, we compare these results with previous research into e-learning clusters. As mentioned earlier, much of the previous research focused on rural clusters (Barbour, 2011; Barbour & Wenmoth, 2013; Pratt, 2018), allowing comparisons between the two environments.

Barbour et al. (2016) listed several barriers to maturity in the rural e-learning clusters: a lack of vision, resource uncertainty, and the need for cross-collaboration among clusters. HarbourNet's leadership appeared to be addressing each of these in some way. With respect to vision, the leaders discussed how they recognised that the timing was right, from the standpoints of both need and technology, to grow the cluster (Alexander-Bennett, 2016). Barbour (2011) noted that a well-articulated vision was important for getting support from participating schools, and that urban schools seemed to have trouble with this aspect. Put differently, Barbour et al. (2016) found that weak visions often focused on simply increasing distance education opportunities. Further, they found that the visions of older, more established rural clusters were not particularly strategic; instead, they relied on the drive and passion of the leadership. Powell and Barbour (2011) discussed how New Zealand was poised to be at the forefront of digital technologies in education. HarbourNet appears to mirror these traits: they have a passionate leadership, and their

recognition of opportunities to leverage distance education as transformative for all students goes above and beyond (while still addressing) the need to provide more opportunities. The leaders were also proactive in addressing resource uncertainty in several ways (Powell & Barbour, 2011; Stevens, 2005). First, while understanding that technology issues were inevitable, they seemed intent on learning from previous mistakes in order to not repeat them in the future, and to stave off new factions of stakeholder resistance. Next, from a personnel standpoint, the leaders demonstrated a strategic mindset with respect to recruitment and managing teacher logistics. They actively sought eager participants and skirted resistance whenever possible. In addition, they aimed to increase visibility, as demonstrated with the site visit from the Prime Minister.

This mindset also incorporated the third barrier mentioned by Barbour et al. (2016), the need for collaboration across the clusters. Collaboration was seen in the recruitment strategies (i.e., to limit disruptions), and in reaching out to specific areas for teaching languages. These actions provided a sense of purpose for the cluster. (Earlier, Barbour (2011) had suggested lack of purpose was a reason for urban clusters' lack of development.) Barbour noted that urban clusters often focused on students being competitive, which would obviously hamper collaborative efforts. Further, because of the number of students, leaders in urban clusters often felt they could meet the needs of their constituents without assistance. Those in rural clusters, on the other hand, recognised the need for collaboration due to their size. In this sense, the actions of leadership at HarbourNet were more similar to those in rural clusters than in urban clusters.

Conclusions and implications

At the time of this study, several members of the super loops were interested in or had been exploring virtual learning to some degree (e.g., the Nelson Loop and the Wellington Loop). Neither of these clusters had become active in the 3–5 years of their existence. Yet, in less than one year, the HarbourNet e-learning cluster had become quite active, with almost a dozen participating schools. Understanding the factors that led to this success could have a positive impact on many of the urban e-learning clusters in New Zealand. This study examined the challenges faced by HarbourNet as an urban e-learning cluster, and how they were able to overcome those challenges.

The primary challenges faced by HarbourNet were technology issues and communication between stakeholders. To address these challenges, the leadership attempted to ensure that the inevitable technology issues were mitigated swiftly and that the solutions were communicated promptly and in an informative fashion. These challenges were also discussed among the e-learning cluster's leadership and member schools, as they reflected on the situations to ensure that mistakes were not repeated. Interestingly, the leadership made a conscious decision to not spend time trying to convince resistant stakeholders, but instead looked for buy-in elsewhere and focused on attracting the right people. Consistent and effective communication, and small-scale demonstrations, were important in promoting virtual learning and maintaining the initial momentum.

This study was the first systematic exploration of an urban-focused e-learning cluster in New Zealand. Additionally, the data was collected fairly early in the development of the cluster. A replication of this study is recommended to provide an update on the successes and/or challenges faced by HarbourNet since this initial study, and how they overcame those challenges (assuming they have). Since the data was collected for this study, HarbourNet and FarNet have separated into two e-learning clusters, and the original joint ePrincipal has retired. Future research examining how the separation in administrative structure and leadership has affected the HarbourNet cluster is also recommended. Finally, because HarbourNet is still the only successful urban-focused learning cluster, it would be interesting to identify schools in other urban areas that have joined one of the other e-learning clusters (i.e., those urban schools, such as

Wellington High School, that expressed an interest in virtual learning, but had no cluster in that region, or have been involved in the DunedinNet e-learning cluster or the super loops) to determine what the barriers to virtual learning have been for them, and explore why they have been unable to overcome those barriers.

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