



The Virtual Learning Network in New Zealand: History and future thoughts

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*Future
Makers*

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Key Points

1. The importance and potential of open, flexible and distance education has been recognised by successive governments as a crucial part of New Zealand's future for more than three decades.
2. A succession of reports has identified that achieving the ideal 'future state' involves an 'end-to-end' view of the system-level requirements for support and investment.
3. While progress has been made at a national level in some areas (i.e. the physical infrastructure), the progress towards a fully integrated, connected, sustainable has been characterised more by a succession of 'ad-hoc' and/or 'short-term' initiatives that work outside or on the fringes of the current legislative and policy frameworks.
4. The Virtual Learning Network, as one of these initiatives, has managed to be sustained for 25 years through the efforts of principals and teachers 'on the ground', and with occasional support from the Ministry of Education.
5. The potential of online learning and initiatives such as the VLN to provide a vehicle for addressing some of the current strategic issues within our education system (e.g. teacher supply, initial teacher education, professional development and support, specialist subject expertise sharing etc.) has again become a focus of the current government and Minister of Education.
6. In seeking to bring initiatives such as the VLN into the 'mainstream' of our system it is important that we learn from the history of what has occurred, then take a future-focused view of what needs to be put into place to enable the sort of system re-design and activity that is reflected in the future state view. (i.e. we mustn't fall into the trap of simply designing a policy approach intended to 'remediate' the shortcomings of the current approaches).
7. The potential for incorporating open, flexible and distance learning approaches across all of our system will usher in a completely new paradigm of educational opportunities for all New Zealanders, across all of life. We need to ensure that our future vision takes account of this, and that our policy design and legislative frameworks support this future.

Introduction

He iti te mokoroa nāna te kahikatea i kakati

Even the small can make a big impact on the big

The Virtual Learning Network (VLN) has been a part of the learning landscape in New Zealand since 2002. Originally developed as a brokerage of educational service provision for students in rural and remote schools in New Zealand, the VLN has provided a mechanism for enabling these students to gain access to areas of the curriculum and specialist studies that aren't available in their local school context. Despite this length of its existence, and the benefits it has provided for large numbers of learners and their communities, the VLN has not yet been recognised as an integral part of our education system, depending instead on the goodwill, passion and vision of groups of individuals and the irregular support from philanthropists and government.

This document is an attempt to establish a reference point for understanding the VLN, from its origins to what it is today, and its potential as a critical part of the educational service provision within the ecology of education in NZ into the future. The paper is divided into two parts – the first a retrospective and the second looking to the future:

1. The first section provides some background as to why and how the VLN was established, how it has evolved and the role it now plays in the NZ education system. The purpose is to provide a common reference point for decisions about the VLN's future, including the implication for policy and resourcing which are considered in the second section of the paper.
2. The second section considers the opportunities for online learning in the context of NZ Education and the further development of the VLN as a part of this. While there has been much technological change since the time that the VLN was first conceived, not a lot is different in terms of the key drivers – in fact, they are becoming even more important now than they were 25 years ago. With this in mind, the second part of the paper takes an appreciative approach, identifying the strengths of the VLN and its contribution to our education system, and suggests ways in which this activity may be amplified in the current socio-political context to achieve more equitable and excellent outcomes for all¹.

A particular area of focus is the discussions about how the VLN may be used to address some of the current and emerging needs that exist in our education system, including those resulting from teacher shortages, and to inform future policy and resourcing decisions that may be made as a consequence.

¹ Ref. Ministry of Education's Purpose Statement - <http://education.govt.nz/our-work/our-role-and-our-people/our-purpose-and-vision/>

Part One: A retrospective

Ma tini ma mano ka rapa te whai.

By many, by thousands, the work (project) will be accomplished.

1.1 The Political Landscape for Innovation in Education

It is the nature of the political environment in NZ that the approach of governments is to address some of the issues in society arising from the increasingly complex and uncertain world we live with an enthusiastic 'clean sweep' kind of approach that is sincere in its intent, but too often fails to genuinely honour or engage with what has been done in the past.

Education has always been a key focus for such initiatives, given that it is one of the 'big three' in terms of government spend, and that education has always been regarded as an investment in sustainable growth and prosperity, as well as providing citizens with the faculties to think, create and be critical, and imagine a better future for all. In the past (almost) three decades there has been a succession of initiatives, involving large numbers of New Zealanders, seeking to find solutions to this complex mix of challenges in the face of technological change, global competition and uncertainty. These include:

- 1992 – **Education For Enterprise** – a one day conference convened by the then Prime Minister Jim Bolger to explore how telecommunications technologies might be put to better use for the development of interactive learning systems in a wide variety of educational and training systems.
- 2001 – **Knowledge Wave**² – Co-chaired by then Prime Minister, Helen Clarke and described as a three-day "group think" to create strategies and action plans that would drive New Zealand's economic transformation. Focused on five themes: innovation and creativity; people and capability; sustainable economic strategies; entrepreneurship; and social cohesion and the knowledge divide.
- 2014 – **Ministerial inquiry into 21st Century learning**³ – Convened by then associate Minister of Education, Nikki Kaye, the purpose of this inquiry was to investigate and provide recommendations on the best structures, tools, and communities, in both rural and urban New Zealand, that could better enable students and educators to attain the knowledge and skills, such as digital literacy, that the 21st century demands.
- 2018 – **Education Conversations** – initiated by Minister of Education Chris Hipkins to focus on the changes needed to make to governance, management and administration in education to ensure the fitness of the school system to meet the challenges we face, and to achieve equity and excellence.

Common themes repeated across all of these initiatives include:

² <https://www.beehive.govt.nz/release/knowledge-wave-conference-statement-co-chairs>

³ https://www.parliament.nz/resource/en-NZ/50DBSCH_SCR5695_1/b6ed634f8930f5797df8b91ca9f4a519e0e6608d

- How to build and sustain an education system that will ensure New Zealand’s ability to remain competitive in a rapidly changing and uncertain future
- How to leverage the power of technologies (current and future) to achieve this
- How to ensure that all learners are able to have their needs met and are able to participate in these new opportunities.

Comprehensive reports were written after each of these gatherings, complete with recommendations and ideas for action. Inevitably, the realities of funding availability, competing political ideologies and the risk aversion within the education system combined with the fact that much of this change requires a longer horizon than the current three-year political life-cycle allows, few of the recommendations in these reports have been embraced and implemented in a way that leads to the long-term, sustainable and high impact outcomes that were envisaged.

This, then, is the political milieu within which the Virtual Learning Network has emerged and managed to survive over the past 25 years, providing access to educational opportunities for thousands of young people in our schools, providing career satisfaction for many teachers and ensuring the sustainability of schools in rural and remote parts of the country.

1.2 Foundations laid for the VLN

“New Zealand’s future becomes more and more a race between education and economic stagnation and social dislocation... The need to build a learning culture is seen as critical to our success as a nation – the question is, how to do this within the resources available and in a way appropriate to New Zealand’s own cultural values.”

(Consultel report Exec Summary, page 8)

The groundwork for the social and political landscape that identified the need for what was to become the VLN was undertaken back 1992, a decade before the VLN itself came into existence. The trigger here was the release of the Consultel Report to the Prime Minister and Cabinet, Titled *“The Use of Telecommunications Technologies for the Enhancement of Educational Services”*.

The impetus for this report came from the “Education for Enterprise” conference, held in February 1992 where Prime Minister, Jim Bolger stated he wanted to explore further how telecommunications might be put to better use for the development of interactive learning systems for application in a wide variety of educational and training settings. The quote at the top of this section captures the motivation for the what was represented in the report.

According to the report (page 103), the key problems to be solved in the context of the NZ education system were equity and cost. Equity because not all New Zealanders have adequate access to education and training, and cost because the cost of traditional education and training is such that it is difficult to quickly increase numbers at the post compulsory level and to enhance opportunities at the compulsory level.

It is important to understand here that this report was commissioned before the advent of the World Wide Web (WWW), at a time when the major technological breakthrough offering greater online speed etc. was ISDN. This is evident in the solutions considered in the report, and the recommendations it makes, including;

1. Changes to funding mechanisms that would allow distance and open learning providers access to appropriate technology

2. Further scoping work to be undertaken and the establishment of a working group to understand the extent of need in the NZ context.
3. Provide targeted support for three technologies recommended:
 - Broadcasting (radio and TV and video recorders)
 - Teleconferencing (exploiting benefits of ISDN) - including telephone, voice made, private networks, early audio and video conferencing
 - Computer mediated communications – email, access to online databases, online submission of assignments etc.

Responses to these recommendations led to the establishment of TVNZ's educational TV channel that was broadcast during off-peak hours and to the establishment Telecom's Tele-learning Network and the provision of a nationally available Audio-conferencing and Audio-graphic bridge to allow multi-point conferencing to occur. Telecom also established its philanthropic Telecom Education Foundation (TEF) through which it provided funding to assist with the establishment and/or support of some of the early clusters referred to later in this paper.

While the majority of the Consultel report was focused on solutions at a tertiary education level, it did also address the compulsory sector. In relation to this the writers of the report state that they were unable to identify any source of funds that would enable the primary and secondary sectors to invest in new technology from its current resources. Therefore additional funding will need to be made available. (Consultel report, section 8.4.7, page 88)

The report also made mention of the importance of secondary school teacher re-training in technology if full advantage was to be made of the potential of these technologies. It states: *"... teachers must be familiar with the (technology) curriculum and, ideally, have practical experience of its use."* Specifically the report identified skill development requirements in the areas of audio conferencing, video conferencing and audio-graphics.

The Consultel report identified two options for how these recommendations may be implemented:

- Each organisation pursue their own individual paths with unilateral and competitive responses to rapid changes brought about by technological advances
- Organisations seek to collaborate to exploit the potential of technology for optimum effectiveness at the national level

As will be outlined in the pages that follow, this analysis of the landscape at the time, and the recommendations on how the dual problems of equity and cost might be addressed provided a fertile environment for the introduction of the innovation that was to become the VLN a decade later.

1.3 Emergence of Learning Communities Online

In the few short years following the release of the Consultel report we saw the emergence in NZ of the first clusters of schools that were formed around the use of online technologies to enable teachers in one school to provide lessons for students on other schools in the cluster.

One of the first to be established was the Canterbury Area Schools Association Network (CASAtech), later renamed CANTAtech to be more inclusive of non-area schools in Canterbury. Work on the establishment of this network was inspired by Carol Moffatt, the then principal of Oxford Area School who later became the Manager of the Ministry of Education's ICT for Schools division, and whose vision and influence carried over in support of the VLN as it began.

A key driver for this initiative was an announcement by the government of the day that they were considering closing any school with secondary students with a roll of less than 300, based on an interpretation of OECD findings at the time suggesting this as a threshold number of students required for a financially viable school. At the time, all of the Area Schools in the CASAtch network had fewer than 300 secondary students, and so were concerned about the possible implications of the minister's announcement (which fortunately for them never eventuated).

The author of this paper was at the time studying towards a Master's Degree in Distance Education through Deakin University, and introduced Carol to some ideas emerging in Australia, involving clusters of rural secondary schools using audio-graphics technologies to provide lessons in senior school subjects to students who were unable to access them locally. With support from Telecom NZ, Carol took the opportunity to visit these schools in Australia and returned to NZ committed to making something similar happen among the Area Schools in Canterbury.

Planning for the CasaTech (later CANTA-Tech) project began in late 1993, and the first online courses were taught in 1994 among the seven Area Schools in the CasaTech cluster at the time – stretching from Twizel in the South, to Akaroa in the East with a cluster of Area Schools in North Canterbury and Rudolf Steiner School in Christchurch. Other clusters soon came on board in the years that followed, including TosiTech (Blenheim/Nelson region) and CoroNet (Coromandel region) and FarNet (Far North) which were among those early starters.

These early clusters used a Canadian Audio Graphics product, Vis-a-Vis, for the synchronous component of the course delivery, requiring each school to have two separate ISDN lines installed, one for the graphics and the other for the audio link. A significant amount of the early support for this came from Telecom (including the installation of the ISDN lines and the audio-graphics bridge) arising as a result of the recommendations in the Consultel report.

1.4 The LCO Handbook

With more schools expressing interest in becoming a part of an online cluster, a small group of teachers from the early clusters were brought together in 2001/2 to develop a 'handbook' to assist new clusters in their strategic thinking and implementation process. The MoE provided a nominal amount of financial assistance to bring these people together. This publication was extensively updated in 2011 at the time of the 'next wave' of clusters coming on board as a result of the introduction of video conferencing. The Learning Communities Online (LCO) handbook⁴ as it was called was available in a print form and in an interactive, online form. It was built around a 'maturity' model with advice for prospective and participating schools at all stages of the process of using online technologies to extend the range of subject options for students, and included examples of work and models to follow that were submitted from teachers across all of the existing clusters. This handbook has been downloaded and used in many contexts across New Zealand and around the world.

1.5 The New Technological Era – Video Conferencing

2002 saw the introduction of video conferencing as a platform to enable clusters of schools working as Communities of Online Learning. Video conferencing was regarded as a more desirable platform for the synchronous aspect of online learning as it enabled the more immediate and 'intimate' connection between learners and their teacher that the audio-graphics technologies didn't, as they provided voice-only communications at the time supplemented by interactive online graphics sharing.

⁴ <https://vln.school.nz/groups/profile/2644/lco-handbook>

The first use of video conferencing in a formal cluster setting in NZ began in 2001 with the establishment of the Kaupapa Ara Whakawhiti Matauranga (KAWM) cluster that encompassed a number of school improvement initiatives (funded by the MoE) that aimed to:

- Improve student achievement
- Improve school performance
- Strengthen school and community relationships
- Upgrade school ICT infrastructure, and
- Improve teachers' professional capability through ICT

The KAWM project had five separate clusters under its umbrella, two of which were provided with video conferencing equipment and ISDN lines (where available) to enable them to connect with each other and share courses for learners. The other clusters were focused more on strengthening the internal use of their ICT infrastructure and developing teacher capability. A comprehensive review of this project is available in Education Counts⁵.

Video-conferencing was also adopted as the key technology by the nine rural area and secondary schools comprising the OtagoNet cluster, formed in 2002. Telecom were again the key supporters of this initiative, providing the technology required to link all nine schools with video conferencing equipment, and providing the bridge required to allow multiple schools to connect simultaneously.

Interestingly, the adoption of video conferencing didn't always contribute to more effective pedagogical practice. The video link was often used simply as a substitute for the more familiar face to face 'delivery', as the online teachers did not have to reconceptualise their approach to the extent they had done with the audio-graphics connection, where the connection relied a lot on quality oral interaction, questioning and use of well designed and sequenced graphic elements.

Despite this, the use of video conferencing saw many new teachers embrace the opportunity to teach at a distance across the network, with a number of 'stars' emerging as they became adept at teaching in this manner. The network continued to expand through the early part of the 2000s, including the emergence of the FarNet cluster covering many schools in the Far North region of the North Island where there was (and is) a shortage of specialist teachers, particularly those who were effective in teaching Māori learners. The FarNet was kept 'alive' by its community for more than a decade who saw high value in the network and what was able to be achieved in this way.

An excellent paper by Rachel Roberts in the Journal of Distance Learning (2009) titled *Video Conferencing in Distance Learning; a New Zealand Schools' Perspective* provides more detail and background on the use of video conferencing by NZ schools so won't be repeated here.

1.6 Involvement of the Correspondence School (Te Kura)

In 2001 the Correspondence School (now Te Aho o Te Kura Pounamu) established its 'e-section' – a pilot programme designed to introduce an online learning dimension into what had been a traditional print-based, correspondence institution. The small team in the e-section successfully created a wide range of online teaching and learning strategies and resources for learners across all age levels in the school (from ECE to senior secondary).

⁵ <https://www.educationcounts.govt.nz/publications/e-Learning/5087>

In 2002, when OtagoNet was being established, Derek Wenmoth, director of the e-Section, was invited to contribute to the strategic thinking behind this development (based on his experience with the original CasaTech project and his work with the e-Section). A significant issue had emerged through the OtagoNet planning process as it became evident that, despite there being nine “new” courses being offered by local teachers to all students across the network of nine schools, there were still a handful of courses that students wanted access to that couldn’t be provided. It was feared that the number of new courses wouldn’t be sufficient to keep all of the year 12 and 13 students in these schools if they couldn’t access the full range of first choice subjects they wanted.

This was resolved by enrolling these students with the Correspondence School (under the dual-enrolment provision) for the ‘missing’ subjects, thus enabling all 78 year 12 and 13 students across the nine schools to access their five first choice subjects for learning in those years through a combination of:

- Subjects offered in their ‘home’ school
- Subjects offered by other teachers/schools in the OtagoNet cluster
- Subjects offered by the Correspondence School

The relationship with the Correspondence School (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. The success of this relationship provided a compelling story for what could have become a model for further expansion across the country. Unfortunately the political drivers at the time meant that the ongoing involvement of Te Kura in this way wasn’t supported.

1.7 The Establishment of the VLN

In 2002, as the relationship with the OtagoNet Cluster was progressing, and as further clusters became actively involved in providing online programmes within their clusters, it became obvious that there was an opportunity to explore how courses being offered within one cluster may be accessed by schools in another cluster where those courses weren’t being provided. With a small token of support from the Ministry of Education, a small team from within the e-Section at the Correspondence School (Te Kura) agreed to design a solution and came up with the concept of an online “brokerage”, consisting of a simple website that would allow clusters to advertise the courses they were offering, and in particular, those where there was still capacity to include students from schools outside the cluster. The concept of a ‘virtual learning network’ was thus conceived and the URL registered to be used for this purpose.

Design features of that early stage of the VLN included:

1. Common template for describing course offerings
2. Searchable database of course offerings, by subject, year, level, timeframe etc.
3. Common timetable across the whole network
4. Provision for multiple modalities (i.e. video conferencing, audio conferencing, correspondence only etc.)
5. Online registration of interest and enrolment
6. Mechanism for communications and feedback within the platform, providing an opportunity for a ‘community’ to evolve and help grow the VLN as a collective enterprise.

The brokerage website was operational by the end of 2002, with most of the features described above embedded in its way of operating. Unfortunately, the provision of online registration and enrolment wasn't able to be included due to a combination of a number of complexities, including...

- The existing policy environment that didn't allow students to be enrolled simultaneously at more than one school (apart from Te Kura)
- The range of student management systems (SMS) being used by schools and the fact that they didn't allow for the seamless exchange of data between schools
- The 'volatile' situation in schools where the demand for and availability of courses was likely to change without warning

As a result, it was agreed that the function of the brokerage site was to simply make the connection between those supplying the course and those wanting to take it, and that, with the aid of a simple email link, the two parties would be put in touch and the rest of the enrolment process handled manually according to the practices within the host school.

The initial build of the original brokerage site was done using an existing LMS platform that was extensively 're-purposed' as outlined in the next section. Part of the thinking here was that the LMS itself may become used as a common platform for sharing course content and designing the supplementary asynchronous course support for students.

1.8 The VLN Platform

Deciding to create an online brokerage was one thing, but making that a reality was constrained by the issue of cost and the desire to have something up and running quickly ahead of the start of 2003 course selection.

The decision was made to begin with an established LMS platform, "Interact", created and maintained by the IT department at the Christchurch College of Education, and used for all of their online courses. The benefit of using Interact was that its technical structure made it more agile and adaptable, plus this adaptation could be achieved quickly by the in-house developers at the College of Ed. The basic LMS structure took care of all of the log-in and identity access management issues, plus the core structure also accommodated the essentials of content management and communications tools to allow for the community development aspect of the brokerage. All that needed adding was some functionality to enable the capture of the course options within a structured database, and the representation of this information within a searchable environment and displayed within a standard weekly timetable.

The emergence of larger players in the LMS market such as Moodle led the College of Education to scale back its support of Interact, eventually phasing it out altogether. In anticipation of this the decision was made to shift the VLN to ELGG⁶, a powerful open source social networking platform designed to provide a robust framework on which to build all kinds of social environments. As an open source product ELGG was more widely supported by a global open source community, plus it allowed local developers to incorporate the technical features required for the VLN. The current VLN continues to operate on the ELGG platform to this day.

Two other key parts of the brokerage are important to consider, The first is the technical platform(s) used to enable the synchronous communications to occur and second is the ability to easily and efficiently schedule these communications as a part of the programme provision.

⁶ <https://elgg.org/>

When the VLN was first established the key synchronous technology chosen was Video conferencing over ISDN lines. This required a significant investment in the hardware at each location, and connection to a video conferencing bridge, a hardware system that is able to connect multiple videoconferencing systems together into a single conference. Because of its cost and need to be positioned 'centrally' on the network, and because of the level of support required, a VC bridge has been funded by the Ministry of Education and installed and maintained by asnet technologies⁷, a NZ based company that specialises in video conferencing support.

While the MoE-supported asnet bridge has served the users of the VLN very well for more than a decade, developments in the area of online technologies, particularly cloud-based products, have seen a number of video conferencing solutions enter the market and some of these have now been adopted by the VLN providers. Reasons include;

- Lower overall cost – many of these cloud-based applications are available at low or no cost to the users (with options for a subscription for extra features or for increased management options)
- Can be used across standard internet-connected networks and available on whatever device the user may have (i.e. desktop, tablet or mobile phone) – thus eliminating the need for specialised equipment and enabling participation from a wider range of locations (including the learners' homes)
- Easier approach to managing and scheduling calls – including the immediacy of recording and gaining access to recordings of calls which is a benefit for those who may miss the session or who want to replay and review it at a later stage
- Provision of a range of features for sharing content interactively as a part of the call, including documents and video content. This is a significant in supporting the expanding repertoire on online pedagogical approaches being used by online teachers and learners

Examples of the sorts of cloud-based applications that have been or are being used currently are;

- Google Hangouts (to be replaced by Hangouts Chat and Hangouts Meet later this year)⁸
- Skype and Skype for Business⁹
- Zoom¹⁰

Of these, Zoom, appears to have significant use currently, although new applications are appearing all the time. There are a number of important things to be considered when selecting what to use in the context of a national network such as the VLN, including..

- The benefits of having a common tool or platform across all courses, providing consistency of experience for both teachers and learners
- Standard forms of interoperability with and embedding in other platforms being used, including any future nationally provided platforms currently being considered by the Ministry of Education

⁷ <https://www.asnettechnologies.co.nz/>

⁸ <https://gsuiteupdates.googleblog.com/2019/01/upcoming-hangouts-service-consolidation.html>

⁹ <https://support.skype.com/en/faq/FA34551/what-s-the-difference-between-skype-skype-meetings-and-skype-for-business>

¹⁰ <https://zoom.us/>

Common approach to scheduling and visibility of course availability and enrolments across the network, making it easier to assess the value being provided and identify areas of need or 'pain points' in the network

1.9 VLN and VLN-C

In the late 2000s the Ministry of Education was looking to create an online community space for the thousands of teachers involved in its ICTPD programme, with the aim of creating an opportunity for teachers across NZ to participate in online groups, sharing ideas and experiences. As the ELGG platform being used for the VLN already provided the features required, and was being funded by the Ministry of Education, the decision was made to use this as the ICTPD community platform. Since the name Virtual Learning Network was already being used and was registered as the URL address, the decision was also made to adopt this for the wider community.

This created a point of tension for the original VLN clusters users (who weren't consulted in the decision it appears) who were keen to ensure that the original purpose and intent of the VLN as a brokerage for the online learning clusters could be differentiated from the wider, online groups use of the site. After some discussion the decision was made by the cluster groups to adopt the name the Virtual Learning Network Community (VLN-C). A separate tab was created on the VLN site to provide access to this particular use of the online environment to continue to support the work of the online learning clusters.

Whilst this distinction has provided a way of keeping the two areas of the site separated, it has created an ongoing point of confusion for those coming to the VLN without any knowledge or understanding of its history or of the work of the online learning clusters working now as the VLN-C.

1.10 Expansion of the VLN Community

By 2008 the VLN had been operating effectively for 6 years and had established a strong network of clusters across the length and breadth of New Zealand. Hundreds of students in these schools had been able to access their subjects of choice in their final years of schooling that they would otherwise have missed the opportunity to study or would have had to move from where they lived to enrol in another school usually involving boarding or staying with relatives.

With this growth came an increased appreciation of the extra work involved in managing things at the local level. In the absence of any policy changes the clusters were still operating within the constraints of funding and support that applied in face-to-face schools. After a period of lobbying that involved support from the PPTA, the Ministry of Education committed to providing two years of financial for the establishment of full-time e-Principal positions in each of the participating clusters. These positions were established to provide oversight, mentoring and strategic leadership for the development of the teachers and cluster activity, and through this process, to make recommendations on the future sustainability of the VLN as a part of the NZ education system. While these positions certainly added significant value to many of the clusters and to the VLN as a whole, the period of two years ended without a clear sense of direction for the future, apart from a request that the positions be continued – something that didn't eventuate given the changes in government and MoE budgets and spending.

By 2014 the VLN-C included clusters of schools from almost every area of NZ, including a small but growing number of Primary schools, and worked closely with tertiary institutions and other online learning initiatives such as Virtual Kura, ELLINZ/ESOL, Itinerant Music, Virtual Professional Learning & Development (VPLD). In 2014 the VLN-C also became formally established as a charitable trust, to

enable members to better coordinate their efforts in supporting and advocating for online learning in NZ schools.

At their AGM in 2014, the VLN-C reported that some clusters were continuing to grow in participation where there has been the support of principals and community (including FarNet, HarbourNet and Volcanics), while other clusters were all but disappearing where the level of support had waned or a significant person had left the region (e.g. TaraNet and CoroNet). The main concern among the struggling clusters was the difficulty of operating within the existing face-to-face paradigm and the policies and resourcing models that supported that. Clusters that remained viable were, for the most part, receiving strong support from principals and BoTs across the cluster who were prepared to commit resources from within their own budgets. Most were also receiving support and funding from local trusts or other external sources.

In an effort to address the issue of creating a sustainable model the three main clusters in the South Island (OtagoNet, AorakiNet & CantaTech) joined together to form NetNZ¹¹, developing a charitable trust and a limited liability company to achieve their aims of developing "*...An environment for sustained innovation and development of quality, online learning experiences, for anyone, anywhere across New Zealand and beyond.*" NetNZ remains the strongest example of cluster activity in the VLN at the current time, operating largely on the principle of 'reciprocity' as it continues to find a solution to the familiar issues of establishing a sustainable financial model to support the ongoing activity of the cluster.

1.11 VLN-Primary

The Virtual Learning Network (VLN) Primary School describes itself as a people network collaborating online and dedicated to providing equity and access to learning opportunities for New Zealand students. It began as a school cluster hosted within Matapu School, South Taranaki, and has evolved into a Charitable Trust led by school leaders and virtual learning advocates. It aims to connect schools through a collaborative online network (the virtual school) in order to open up access to specialist teachers, share the best of our teaching strengths, and to build professional capability that enables schools to become more flexible and open places of learning for our children. It is partly funded in partnership with the MoE and contributions from participating schools.

Learning opportunities are developed through the needs and strengths of the schools themselves and e-teachers and tutors are provided by schools themselves or contracted into the network. There are regular weekly scheduled classes for extension maths, literacy, science, Astronomy and a wide range of languages - Te Reo Māori, Mandarin, Spanish, French, Cook Islands Māori, German, Japanese, Afrikaans, Korean, Bahasa Indonesian and Tagalog.

The VLN-P's Rural & Remote Schools Project brings together schools from Stewart Island, Great Barrier, Eastern Taranaki & Wairarapa with the goal of reducing the social isolation of these students, giving them opportunities to learn alongside peers of their own age and preparing them for when they their districts to go on to secondary school. There is huge potential to extend the benefits of this project to many other small and isolated schools, but sustainability of resources has so far limited the scaling up this very successful project.

¹¹ <http://www.netnz.org/>

1.12 VLN and Te Kura

Te Kura (formally the Correspondence School) was mentioned earlier in this paper, having played a key role in the early support of the VLN. Te Kura is a national provider of distance education for compulsory sector learners. Formed in 1923 its original purpose was to provide access to a quality education to those who lived beyond the reach of major population centres – such as remote farming families etc. Te Kura remains New Zealand’s largest distance education provider within the early years and schooling sector, with an enrolment in excess of 20,000, over half of which represent learners already enrolled in their local school, but who are ‘dual-enrolled’ with Te Kura in order to gain access to the one or two subjects not available to them in their local school. Although debated at times as a form of ‘double dipping’, the practice of dual enrolment with Te Kura has been informally sanctioned – and funded - by the Ministry of Education for more than 30 years now, as a means of ensuring all learners are able to access the subject choices they desire – or require in order to qualify for later enrolment in tertiary programmes they wish to be involved in.

It is important here to acknowledge and understand how the VLN aligns with and complements the work of Te Kura as part of the broader ecosystem of online and distance educational provision to schools and early learning settings. As has been illustrated in the story of the establishment of the OtagoNet cluster, the cooperation between Te Kura and the local cluster leads meant that every student in that cluster was able to access the full complement of learning experiences to meet their needs and desires. Further, teachers in the VLN clusters often benefitted from the instructional design and resource support provided informally by some staff at Te Kura.

The important thing to note however is the different way in which the work of Te Kura has been recognised and supported during the past 25 years as the online learning clusters have been established. The table below summarises some of the similarities and differences:

	Te Kura	VLN
Established	1923	Clusters operating since early 1990s, VLN formally established 2002
Modes of delivery	Primarily correspondence until 2001 with the establishment of the ‘e-Section’. Since then has used an increasing range of online approaches, including video-conferencing.	Initially audio-graphics technologies used, with video-conferencing used since 2001/2. Supplemented with various asynchronous technologies and some print-based support
Mandate	National provider of distance education for those unable to attend a local school or unable to access particular learning needs/subjects. Provision and support of the learning programmes is provided by the one organisation.	A “grass roots” movement, operating as a collaborative and brokerage, with the learning programmes and support provided by teachers from the participating schools in the network. Clusters largely defined by geographic location or by special character.
Staffing	Specialist teams of instructional design staff, learning support staff and online teachers operating at a national and regional level.	Staffed by teachers from the schools within the cluster. Teachers responsible for designing and developing their own support materials and online programmes.
Funding	State funded institution. Receives funding on the basis of EFT for student enrolments. Includes funding for the dual-enrolled students from existing schools in addition to the funding received by the local school.	Schools receive a full EFT for each enrolled student, but without any current mechanism for sharing that funding with other schools based on where the teaching is coming from. The provision of programmes for students in other schools is provided on the basis of a principle of ‘reciprocity’, with participating schools sharing course(s) across the network in exchange for their students receiving access to courses from other schools.

1.13 Local Loops

The roll-out of the fibre networks across New Zealand saw increased activity among schools in urban areas keen to take advantage of the opportunities this connectivity would provide. Zwimpfer (2010) describes the development of urban-based loops – such as the ‘Nelson Loop,’ ‘Wellington Loop,’ ‘North Shore Education Access Loop,’ and ‘Greater Christchurch Schools Network’ (GCSN) – which were designed to provide schools a reliable, high speed Internet access through a fibre-based loop. Most of these ‘loops’ were coordinated by various forms of committee or trust, acting on behalf of the local schools to provide technical advice and support for schools connecting to the fibre network. In addition, these groups provided guidance and support for a range of educational programmes and initiatives to drive the uptake and use of the fibre once connected. Many of these loops engaged in some level of connection with the VLN schools as they looked for ways to expand the learning opportunities of their students. Some such as the Wellington Loop and GCSN became active in promoting a localised sharing of subject expertise among schools within their region in much the same way as the VLN schools had been doing.

1.14 Accelerated English Language Learning (ACCEL)

The Accelerated English Language Learning (ACCELL)¹² programme was a Ministry of Education programme designed for students from years 7-13 at the beginning stages of the English Language Learning Progressions (Foundation to Stage One).

Responding to similar ‘drivers’ as the VLN schools, the ACCEL programme targeted schools that...

- do not have access to qualified ESOL teachers
- have little or no experience in working with English Language Learners at this early level, and/or
- have little access to support systems/PLD for ELLs.

ACCELL was designed as a short-term (up to 1 year) intensive intervention focusing on accelerated progress in English language learning. Students were taught online by qualified and experienced ESOL teachers and given follow-up work designed to accelerate students' progress in learning English. The aim of ACCELL was to enable students to participate effectively in their mainstream classes and make significant progress in catching up to their native-English speaking peers. It demonstrated very powerfully the ability of this sort of programme to achieve its objectives and provide valuable support to schools and learners where specialist teaching and teachers are in short supply. The programme was discontinued at the end of 2019.

1.15 Changing the regulatory environment

Despite the long history of open, flexible and distance learning in New Zealand, the failure of the policy and regulatory environment to adequately keep pace with things has been disappointing. The prevailing paradigm of face-to-face schooling, and the structures and processes that support that dominates the decision making mindset of policy makers and educators. Until quite recently, even Te Kura sat outside the scope of the Education Act as it applies to all other schools, with a separate amendment required to allow it to operate in the way it does with more flexible ways of working with learners.

¹² <https://sites.google.com/a/accel.school.nz/accel/>

This was changed with the introduction of the concept of Communities of Online Learning (COOLs) under the Education (Update) Amendment Act, 2017¹³ which provided an opportunity to address some of the anomalies within the regulatory environment in an effort to enable groups such as the VLN and Te Kura to operate within the policy framework of the rest of the education system.

A working document developed by the Ministry of Education titled “*The Changing Role of Distance Education in New Zealand*”¹⁴ outlines the rationale and scope of what was proposed to change in one part to the Act regarding the establishment of Communities of Online Learning (COOLs). In providing a rationale for introducing the COOLs concept the paper paints a picture (like Stevens & Tate and the Consultel Report almost three decades previously) of conventional and distance education continuing to converge, with virtual communities of learning taking advantage of digital technology to provide distance education options to students. The paper recommends that the convergence of face-to-face and correspondence education highlights a need for a more flexible regulatory environment to enable the distance education market to keep pace with sector change. As a result, they envisaged the role of a specialist correspondence school diminishing over time.

The working document provided two options for consideration by government:

1. Option 1

Enable a wider range of education providers to deliver distance education, including amending the Act to enable;

- a. state and other specified schools (or networks of schools) to deliver distance education, either full or part-time – on a subject-by-subject basis, while also delivering face-to-face schooling
- b. tertiary or other providers to be able to deliver distance education to the compulsory schooling sector, either full or part-time – on a subject-by-subject basis

2. Option 2

Enable distance education to be an alternative to face-to-face school access – achieved by changing the overall scheme of the Act so that any student could choose distance education as an alternative to a face-to-face schooling option. This would require a more flexible funding system, where the funding follows the student, would be necessary to reduce the risks of students being double funded.

While the adoption of either of these options would certainly have supported the ambitions of the VLN-C to become a more integral part of the overall NZ Education system, the (amended) Act that was finally passed included the concept of COOLs as a ‘structural’ element, but without addressing specifically the various policy and resourcing issues required to allow the VLN clusters (and other online learning providers) to operate effectively (and sustainably) in the NZ context.

¹³ <https://www.education.govt.nz/our-work/legislation/the-education-update-amendment-act-2017/>

¹⁴ <https://www.ppta.org.nz/dmsdocument/220>

1.16 Conclusion – Part One

“... e- learning has created new, electronic educational structures within which senior high school students have been provided with extended learning opportunities. As small rural schools become smaller in many parts of the developed world, it is possible that virtual classes, located in intranets, can provide a basis for a new approach to the provision of educational opportunities for those whose homes are located beyond major centres of population.”
Stevens, 1988

As the first part of this paper illustrates, the use of online technologies has enabled new forms of educational provision across a range of networks in New Zealand that have directly benefitted learners, their schools and communities for more than 25 years. While the VLN’s history is founded on providing levels of access for learners in rural and remote parts of the country, the potential of this networked approach to educational provision needn’t be considered exclusively in those contexts. As the numbers of learners who are dual-enrolled with Te Kura suggests, the issue of equitable access to areas of the curriculum for all learners is experienced in both urban and rural schools. As Ken Stevens wrote back in 1988, we can continue to use the new, electronic educational structures available to us to bring educational opportunities to learners regardless of location, linking the best teachers and subject matter experts with learners to provide the highest quality learning experiences. Consideration of how this can be achieved is the focus of the next section of this paper.

Part Two: The future

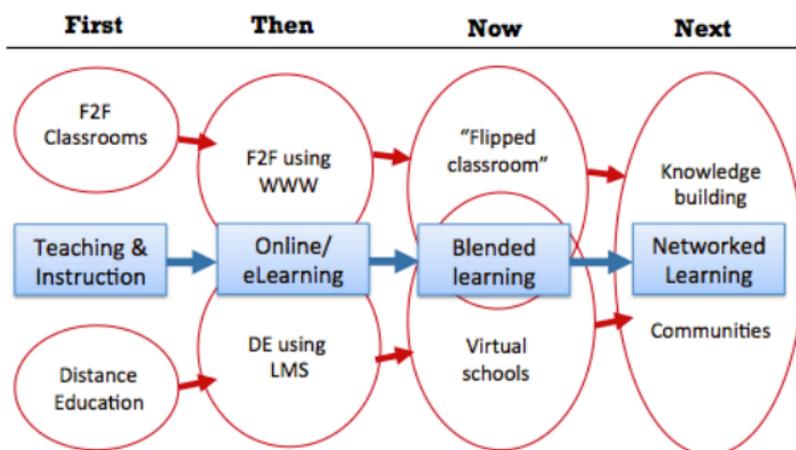
He purapura i ruia mai i Rangiātea e kore e ngaro.

It's fine to have recollections of the past, but wisdom comes from being able to prepare opportunities for the future.

This section of the paper provides a high level view of what an online-enabled education system might look like, and identifies;

- A future state
- The drivers for this change
- The barriers that exist currently
- Recommendations for taking this work forward

2.1 Future State



CC Derek Wenmoth 2009

There has been a steady evolution of what we have seen happening in schools and with schooling over the past 50 years, much of which has been happening 'on the fringes' of the conventional schooling system, but all of which reflects response to changes happening in our wider society.

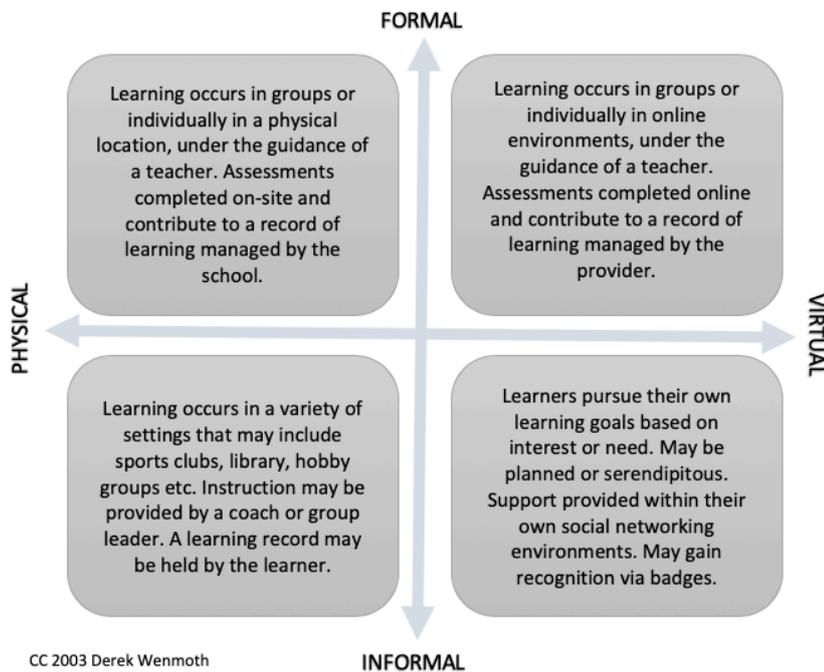
The illustration above is an attempt to convey the general pattern of this change and the direction things are heading. The first column represents the view of schools and schooling pre-1990s, with a distinction made between face to face schools/classrooms (seen as the 'norm') and distance education provision, predominantly in the form of correspondence and considered in the main as a 'second choice' option to the preferred face to face contexts.

The second column represents what we saw happening through the 1990s and early 2000s with the introduction of the World Wide Web (WWW), with distance providers moving to using online environments such as a Learning Management System (LMS) to deliver instruction, and face to face schools/classrooms making use of online technologies to provide access to a wider range of learning resources, and to connect learners and teachers across different time/space contexts.

The third column represents where we've come to now, with an increasing convergence between the face to face and the online space, with virtual schools becoming recognised not simply as a 'second choice' option, but in many cases a 'preferred choice' given the ability of learners to access the learning of their choice at any time in any place, and with/from the experts they choose.

The final column represents where things will move into the future. The concept here is of learning being ubiquitously provided, within the context of knowledge building communities where recognition of what is learned will be as important as how it is learned etc. Face to face settings that we know as schools will continue to be places where students congregate, but the way they function, including the roles of teachers, will change significantly, with the provision of learning experiences being variously provided on-site and virtually, both formally and informally.

The graphic below illustrates the expansion of the overall domain of learning – based on the intersection of two axes, one being the formal-informal learning continuum, the other being the time-space continuum.



As we re-imagine what schooling might look like into the future, and the role of online/virtual learning, we need to understand it in the overall context of the opportunities that modern learners are presented with. When designing everything from policy through to the systems and processes supporting that, we need to be thinking beyond the boundaries of simply ‘fixing’ what’s not working with the current approach, and building towards this more expansive, blended and life-long milieu, where learning that is available any time and in any place will be a characteristic of what happens in all quadrants represented above.

2.2 The networked school

In our modern world the concept of a small business operating completely alone, remaining steadfastly independent and competitive to the exclusion of others is fast disappearing. Most are appreciating that they can be much more successful by being a part of a wider network of provision, remaining innovative through the benefits of competition, but working smarter and maximizing opportunities through the benefits of collaboration. This is the age of the ‘networked’ organization, where “collaberation” is the winning formulae.

Schools need to be working this way also. The days where each individual school entity, no matter how large or small, is able to provide for the all of the needs of all of their students has long gone, and those who continue to try are increasingly burdened by the costs associated with doing so.

The traditional model of schooling that still underpins most of our policy and practice places emphasis on the importance of the physical school as the place where learning happens – with allocations of

resourcing, staffing, and student EFT funding all focused on the individual school. Under the self-managing schools model, this gives rise to highly competitive mindsets and practices.

With the adoption of modern information and communications technologies we have seen some moves towards *connections* being made between and among schools, the first glimpse of collaborative practices, particularly around sharing of project work with curriculum areas, participation in national or global projects, and some ‘extra-mural’ activities. Some schools have even moved towards models of sharing resources or even sharing staff expertise and courses (such as has been happening with the VLN-C). While this is certainly a step in the right direction, the limitation is that the connected school, under current legislation, remains an independent, self-managing entity, existing to serve the needs of the learners that are attending, and for whom they receive funding in direct proportion.

Achieving the paradigm of the networked school requires changes in two critical areas:

1. Governance – with shared governance models emerging within cluster arrangements.
2. Learner-focus – key design decisions are made from the learner (consumer) perspective, and not from the institutional (deliverer) perspective as in the current paradigm.

The table below provides a more detailed analysis of what this shift involves, and illustrates the key areas where change is required to achieve a truly networked schooling approach.

	Traditional	Connected	Networked
Nature of school	<ul style="list-style-type: none"> - Schools perceived as the place where learning happens. - Face-to-face instruction regarded as the ‘norm’, distance education accepted as ‘second best’ or what you do if you can’t attend face-to-face classes. - Schools as independent entities, catering for all the needs of their students. 	<ul style="list-style-type: none"> - Schools remain as physical sites of learning, with emerging models of connectivity between and among school sites. - e-enabled opportunities for learning embraced in traditional settings. - Schools as collaborating entities, negotiating areas of collaboration. 	<ul style="list-style-type: none"> - Networks of schools and learners – accepted models of differentiation between <i>places</i> to learn and <i>sources</i> of learning and instruction. - Schools as nodes on a network – integrally connected as consumers <i>and</i> contributors. - Ubiquitous presence - complete integration of physical/virtual nature of school.
Governance	<ul style="list-style-type: none"> - Centralised control and governance - Bureaucratic systems and structures 	<ul style="list-style-type: none"> - Localised control and governance - Independent and autonomous 	<ul style="list-style-type: none"> - Distributed control and governance - Interdependent and collaborative
Technology	<ul style="list-style-type: none"> - Technology appropriated by schools in an additive manner – to supplement or extend existing practices. - Schools/ teachers are the ones in charge of it. - Online environments used for resource location – the “online encyclopedia” 	<ul style="list-style-type: none"> - Technology appropriated by schools to create new learning and teaching opportunities. - Student access and use a priority. - Online learning environments appropriated for use as: <ul style="list-style-type: none"> o Intranets o Extranets 	<ul style="list-style-type: none"> - Student appropriation of technology – they choose what, where, when and how it is used. - Online environments managed by learners utilizing existing and emerging social networking features. - Technology a key enabler of the ubiquitous system – learning anytime, anywhere, anyhow.
Teacher role(s)	<ul style="list-style-type: none"> - Teacher primary role as instructor. - Teachers as generalists – including subject matter expert, pastoral care, programme designers and managers. 	<ul style="list-style-type: none"> - Teacher as facilitator, guide, mentor etc. - Emergence of specialist teacher roles (subject matter experts, ‘e’-principals etc.) 	<ul style="list-style-type: none"> - Teacher as ‘experienced’ learner – participant in the learning process. - Teachers as specialists: ‘e’-teachers, ‘m’-teachers and ‘c’-teachers.
Organisation of learners	<ul style="list-style-type: none"> - Students taught en-masse in age-based groupings. 	<ul style="list-style-type: none"> - Age-based groupings continue, but with increased emphasis on differentiated approaches. 	<ul style="list-style-type: none"> - Vertical groupings of students, with focus on interest/ability groups – stage, not age.

Curriculum	<ul style="list-style-type: none"> - Curriculum tends to be factual, knowledge based. - Organisation of knowledge into 'subjects', presented as courses. 	<ul style="list-style-type: none"> - Competency-based curriculum, framework of qualifications. - Subjects and courses remain, with increased use of themes and integration. 	<ul style="list-style-type: none"> - Emergent and 'negotiated' curriculum. - Lots of options and choices, with granular approach.
Learning/ instructional design	<ul style="list-style-type: none"> - Emphasis on teacher-centred instruction, and 'delivery'. 	<ul style="list-style-type: none"> - Emphasis on personalizing learning, and on understanding acts of learning. 	<ul style="list-style-type: none"> - Emphasis on student-centred learning and 'participation'. - Focus on 'mass personalisation' to address issues of scale and sustainability.
Resources for learning	<ul style="list-style-type: none"> - Copyrighted, 'owned'. - Authoritative. - Expensive. - Require physical storage. - Need to 'endure' as physical artefacts. 	<ul style="list-style-type: none"> - Increasing sharing of resources based on issues of cost and currency of information. - Move to electronic access and storage. 	<ul style="list-style-type: none"> - Open education resources. - Creative commons licensing. - Available from the 'cloud'. - Always current and curricula-aware - Includes teacher created and student created resources.
Learning activity	<ul style="list-style-type: none"> - Learning in artificial isolated contexts. - Learning as a passive activity – meeting external expectations. 	<ul style="list-style-type: none"> - Learning as an active process – directed by/with students. - Learning occurs increasingly in authentic, real-world contexts. 	<ul style="list-style-type: none"> - Focus of all learning is learner-driven, and collaborative learning activity is the norm. - Addresses authentic, real-world needs and problems.
Assessment of learning	<ul style="list-style-type: none"> - Tests and external assessments to meet standards set by examiners. - Paper-based, end of year assessments prevail. 	<ul style="list-style-type: none"> - Mix of internal and external assessments. - Standards-based approaches, with rubrics outlining levels of achievement supported by evidence gathered by learners and teachers. 	<ul style="list-style-type: none"> - Students set learning goals and participate in development of assessment rubrics. - Life-long portfolios of evidence owned and managed by learners. - Micro-credentials used as an alternative to traditional forms of formal assessment.

2.3 Drivers of change

The influences shaping the future of education have remained constant for the past two decades, although the complexity, scale and impact of these is increasing all the time. Key drivers are:

1. Expansion of knowledge and technology

The explosion of knowledge advent of cloud technologies are two of the key drivers of change in education generally, driving the move to embracing all forms of flexible and online learning across the board.

Both of these things mean that the circumstances under which the VLN and Te Kura were established have changed, requiring any formulation of policy in this area must be done with a deep understanding of what the new and emerging opportunities are, and not simply endeavouring to 'fix' the shortcomings of the current system.

In responding to the explosion of human knowledge we must understand the impact of the idea that 'knowledge exists everywhere, and is accessible from anywhere'. Where in the previous paradigm we focused on 'protecting' knowledge and being precious about its validity and authenticity (still key concerns), the ways in which we achieved this must change in an age where the ubiquity of technology and the access it provides to vast stores of knowledge transcends the ways we've operated before. The focus now must be on utilising technology to help us search, sort and evaluate existing knowledge and to connect, collaborate and curate new knowledge within vastly different forms of learning communities – both on and offline, and in formal and informal settings.

This has impact also on the ways we assess learning, and create records of learning as an attestation of what has been achieved by individuals in their personal learning journeys.

2. Mobility of jobs and people

The last half century has seen a significant escalation of transience in our population. It is increasingly the case that individuals and families are moving to take up new roles and jobs, with the numbers of people staying in one place for all of their lives becoming fewer.

This is impacting on the traditional view of the 'space-time' boundaries of education that are changing in complex and unexpected ways – particularly as technology is enabling the traditional 'boundaries' of classroom and school to become more permeable.

This is an area where open/flexible/online learning is serving us well, in two ways particularly:

- In enabling learners to move from one place to another and enjoy a continuity in their (personalised) learning pathway without the interruptions caused by enrolling at different institutions and the time delays this can bring.
- Learners can access the learning most appropriate to the particular context or job role that they find themselves in – not depending on the availability of local expertise for instance. Similarly, workplaces benefit from access to learning opportunities that help with the advancement of skills and knowledge in their ever changing workforce without their workers having to travel away to access this learning.

A unique 'record of learning' is the key to enabling the solution for both of these scenarios, owned and managed by the learner, and capable of handling data from multiple systems to provide a single point of reference for all details of the individual's learning history.

3. Learner choice and autonomies

An emphasis on learner agency has emerged as a defining aspect of our modern education system. The focus on personalising learning programmes, and the rejection of a 'one-size-fits-all' approach is providing learners with much greater choice and access to the things they want/need to learn about and with whom they want to learn.

Education systems around the world have sought to embrace this philosophical approach, recognising the uniqueness of each learner, and the need to accommodate their particular interests and address their particular learning needs. While this ambition has been clearly stated (e.g. in the NZ push for 'personalising learning' in the early part of this century') the organisation of our schooling system has not made this easy. By continuing to separate learners into age-group cohorts and teach them by 'class', in time-bound blocks of instruction; and in schools where the numbers (and expertise) of staff available is determined by the numbers of students etc. we remain fixed in the industrialised system view of schooling that is biased to supporting the factory approach (one-size-fits-all) to education.

The demand for our modern schooling system to be more personalised is a response to our understanding of...

- The skills and dispositions that make each learner unique in the way they engage with learning and process ideas and information etc.
- The increasingly diverse areas of interest that individuals may wish to engage with as they pursue their own areas of learning and pathway to the future.
- The forming and re-forming of learning relationships that are served by communities of practice as groups pursue common learning interests that are current for that time.

4. Interdependence and universalisation

Through the latter part of the 20th Century and into the new millennium there has been an increasing awareness of the fact that we have become more 'globalised' in our world view. There is very little of our current way of living that isn't impacted by global trade and politics. Further, the globalised access to information and expertise has seen an unprecedented flow of ideas, knowledge and insights about the culture and histories of other societies and civilisations – including understandings about the inter-dependencies that exist in our global ecosystem, and the impact of human activity on global food supply, flora/fauna, climate etc.

We see this reflected both in our local/national school curriculum design, and in the connections that teachers and students are able to establish and pursue with global sources of information and knowledge.

This driver of change in our education system has several implications;

- The opportunities that now exist for learners (and teachers) to engage with a much broader, diverse and rich body of knowledge and expertise puts pressure on our previously 'constrained' view of knowledge and the curriculum;
- The understandings that are emerging about our corporate responsibility for things such as environmental and financial sustainability make emphasise the importance of establishing and operating within networks that are interdependent – highlighting the very real importance of focusing on competency development in the area of collaboration and the ability to embrace and work within multiple world views etc.
- How to resolve the growing tensions that then exist between local and global – so that local traditions and histories aren't subsumed by a crass 'globalised sameness' in our way of thinking and operating as learners.

5. Student volumes and economics

As our populations grow, and the demand for education becomes more diverse and life-long, the ability of our industrial-mindset model of schooling is becoming increasingly stressed. The urgent need in developing countries, for example, to improve the rates of literacy and numeracy among significant populations (millions), and in contexts where teachers are scarce, is where the use of technology-based solutions are being implemented on a wide scale.

In New Zealand the situation is similar – but different. We have a well-developed education system served by thousands of teachers across over 2500 schools. Despite this however, there are still many students who are unable to access the learning opportunities they need (e.g. special learning needs) or desire (e.g. secondary subject specialisms).

While we continue to build new schools to cater for areas of population growth, these facilities are expensive to build and maintain, and sit idle for large periods of time (e.g. after school hours, holiday periods etc.). In many (particularly secondary) schools specialist facilities may also be left unused for periods of the day when not in use. All of this creates complexity for system-level planners (and funders) who are trying to ensure the best value for money options are implemented.

Further, schools that are built to accommodate population growth in one region at a particular time may then not be required as the population in that place ages or the reason for them being there changes and the population declines (e.g. industry closure etc.).

The way in which schools are resourced becomes an issue here also. The current policy and regulatory frameworks in the NZ education system are biased towards a view of schooling

that is based on students attending physical places called schools where teachers work to provide instruction and pastoral care, and where instruction occurs within certain hours of the day and days of the year. The funding of schools and teachers is premised on this thinking, which means there is little or no opportunity to easily accommodate the emerging forms of educational provision that may include open/distance/flexible¹⁵ approaches to engaging with learners.

2.4 Barriers to change

2.4.1 Fixed or narrow mindsets

The most significant barrier to change is the impact of fixed mindsets that are anchored in traditional ways of operating and the protection of the 'status quo'. This has both historical and current implications:

1. Addressing the constraints of current policy and legislative frameworks

For the past 25 years the VLN development has been driven at a local level by educators seeking to provide the best learning opportunities for their learners in the local context. A model and ways of working have been developed that have emerged as a result of principals, teachers and local trusts etc working within and at the fringes of the existing regulatory frameworks. This has meant they have had to find solutions that are mutually agreed on, yet not supported by policy in a number of areas. Some of the specific policy barriers needing to be addressed include:

- Disaggregating the EFT to allow payment for participation in learning to be remunerated more flexibly and in line with where the learner is actually receiving instructional support
- Extending school day – addressing those area of current policy that are bound in the concept of a school day, school year, seat time etc
- Recognition of teachers aside from having to be based in a school
- Support systems that provide for movement of students between providers. Competitive funding encourages behaviour that seeks to retain students regardless of the fit with students' profiles that can change over time (Stein, 2016)

The work of educators to build the VLN into what it is today despite the current policy and legislative constraints is testimony to the power of the original vision. Addressing these constraints will help create the conditions under which provision of online opportunities for learners can thrive – fulfilling much of the early vision for the VLN. That vision, however, must be revisited and refreshed to ensure the future success of the VLN.

2. Building a future vision for the VLN

The VLN community comprises a large number of educators and others who have been committed to pursuing this vision for some time now – some for almost two decades. Lessons learned from the successes along the way point to an emerging vision of what the VLN may be able to provide as a more 'integral' part of the NZ education landscape. In moving forward to create the conditions under which the VLN can thrive, it is important that this work be done not simply to 'fix' the problems that currently exist, or to provide funding models to support

¹⁵ Distance learning - focuses on *location* - learning does not require physical attendance at a learning institution

Open Learning - focuses on issues of *access* to education

Flexible learning - concentrates on teaching and learning approaches which are informed by the *needs of the learner*.

what is already being done. Instead, we need to be prepared to challenge and adapt the current model itself to ensure that whatever is changed in the policy and legislative frameworks will support the emerging vision of a future state (outlined earlier in this paper).

2.4.2 Lack of national coordination

An effective online learning system requires a robust digital infrastructure to support this. Following the recommendations of the Consultel Report in 1992, support was given to establishing a national audio-conferencing bridge and network, and later an audio-graphics bridge. Responsibility for this was left with commercial providers (Telecom) and the traffic flowed across the public network with some provision being made for a 'sectioned off' part of this via the Telecom Education Network.

Relying on the publicly provided infrastructure, while cost effective, does pose challenges however. Aside from the cost management issues, two of the key challenges are;

1. **Data security, privacy and online safety.** The investment made in the provision of a dedicated education network (N4L) in New Zealand is a very positive step forward here. While providing a more secure network to give schools and users confidence about these challenges, more work can be done here to ensure it is appropriately governed and that the measures that have been put in place to ensure safety and privacy are 'best practice' and responsive to the needs of the sector as the environment constantly evolves.
2. **Provision of online services.** Online services are an essential requirement of an effective online learning system as they are required to mediate much of the teaching and learning activity that occurs in face to face settings. Increasingly, these same services are being used now in face to face settings as various forms of 'blended learning' are embraced (see section 2.1 above).

Some of the services referred to here include:

- Learning Management System (LMS) – for sequencing instructional material, hosting conversations, setting learning tasks etc.
- Synchronous tech – includes video conferencing tools, chat facilities etc.
- Record of learning – enabling the learner to accumulate an accurate record of what they have learned, the feedback on their learning, and the artefacts providing evidence of this.
- Micro-credentials – an emerging form of assessment for the multitude of tasks and events that a learner may engage with.
- Content management/Learning Object Repository – a place where learning content can be stored and curated, with systems in place to ensure the quality, currency and links to curriculum of resources stored there.

Schools across NZ and in the VLN currently use a range of services to meet these needs. Most are investments made a local level or involve the use of 'free' services such as Google Classroom etc. As the reach of online learning expands, and particularly as an increasing number of students are receiving their instruction from more than one site (e.g. face to face school and online through the VLN or Te Kura) the importance of managing their learning data in a unified and transparent way becomes vital. The key focus here must be on interoperability, and the capability of systems to exchange data in ways that make the management of this more 'seamless' and secure.

Recommendations for action

“New Zealand’s future becomes more and more a race between education and economic stagnation and social dislocation... The need to build a learning culture is seen as critical to our success as a nation – the question is, how to do this within the resources available and in a way appropriate to New Zealand’s own cultural values.”
(Consultel report, 1992, Exec Summary, page 8)

The intention of this paper is as a background document, rather than a policy recommendation document. As such I have resisted developing a set of specific recommendations here as these should fall out of the appropriate process of consultation and collaborative development, that is informed by what has been included in this paper. The recommendates cited below therefore serve as a part of the background information, intended to serve and inform the development of a co-ordinated, nationally supported strategic approach moving forward.

In their 1994 paper (published two years after the Consultel report) titled *The Changing Nature of Distance Education in New Zealand*, Ken Stevens and Ormond Tate concluded that with the proliferation of distance education providers within New Zealand there was increased need for a co-ordinated policy to avoid duplication of expensive resources. They advocated that the Ministry of Education should:

1. Develop a policy to encourage potential students to avail themselves of open and distance education opportunities.
2. Encourage open and distance learning institutions to investigate and respond to educational requirements locally and nationally.
3. Establish a [national] distance and open learning advisory committee.
4. Establish a distance education and open learning co-ordinator who will work closely with distance educators, the proposed committee and with other parts of the Ministry, other agencies and providing institutions to influence or develop curriculum, assessment, staffing and funding regulations and rules that are appropriate to distance education and open learning.
5. Foster co-operation between conventional face-to-face and distance education so that they are complementary, and not separate.

Twenty Five years later the reasons for pursuing a coordinated approach are more profound and wide reaching than simply avoiding the duplication of expensive resources. These five recommendations remain relevant and urgently need adopting if we are to leverage the opportunities the online/virtual learning world has to offer.

In terms of where the focus of policy and legislative emphasis should be, the following recommendations adapted from the FLANZ submission to the Productivity Commission report deserve further consideration:

1. Invest in, rather than simply “fund” education: Invest in collaborative infrastructure such as data sharing, common platforms and support.
2. Value vocational, distance, part time and lifelong learning: measure outcomes over longer periods and using rubrics generated and agreed with the sector(s).

3. Recognise the increasing potential of workplace learning/training through flexible e-learning (application here for initial teacher education and professional learning as well as opportunities for learners in schools).
4. Support systems that provide for movement of students between providers. Competitive funding encourages behaviour that seeks to retain students regardless of the fit with students' profiles that can change over time.
5. Accept some national responsibility for risk in the sector.
6. Develop policy in relation to open, flexible and distance education practices in the NZ education sector.

Designing a “next generation” VLN

As has been outlined elsewhere in this paper, it is important as we consider the future of online/flexible learning and the VLN in the NZ education ecosystem that we seek not to simply ‘remediate’ what has already been put in place by attending to the ‘gaps’ identified in various areas of policy, legislation and funding. Instead, emphasis must be given to establishing a ‘future focused’ vision of what a ‘next generation VLN’ might enable. The existing model(s) of operation have demonstrated their effectiveness in addressing the issues of access to breadth of curriculum, and supporting the gaps in capability in some areas of our system. These drivers will continue to be important, but in a ‘next generation VLN’ the following should also be considered to achieve a more ‘integrated’ view of the role and contribution of online/flexible learning within the NZ Education ecosystem:

1. Capacity building/expansion through...
 - Provision of instructionally designed learning resources – for learners and teachers across the country – with specialist teaching support available in addition
 - Provision of ‘assessment as a service’ options
 - Building a network of provision that enables learners to access particular ‘subjects’ of interest, participate in specialist learning activities or enjoy learning with like-minded cohorts etc.
2. Capability building through...
 - New models of Initial Teacher Education that connect the ‘best’ teacher educators with candidate teachers ‘in situ’ within schools/centres/kura etc.
 - New models of Professional Learning that are in-depth, sustained and support the improvement of practice in local contexts.
 - Programmes of professional support for specialist teachers and para-professionals (e.g. teacher aides, special needs teachers etc.)
3. Supporting life-long learning through...
 - National provision of shared services that are capable of data interoperability and can be accessed by the individual regardless of the institution they may be enrolled in.
 - Provision of standards supporting a ‘record of learning’ that follows the learner through life, and is managed by the learner (and/or their whanau).
 - Implementing innovative assessment solutions (e.g. micro-credentials) that enable learners to build their own learning profile based on need and context.

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