

“e-learning” Sabbatical Report

S W Bovaird,
Principal, Lynfield College

This paper was prepared as my report for the Secondary Principal's Sabbatical I had in 2013. I selected **e-learning** as the topic I wished to investigate. Understanding how it can be implemented in a successful manner was the key understanding I wished to achieve.

E-learning is a key feature of developments at Lynfield College and I believe is changing the face of education not only in New Zealand but throughout the world, at all levels.

What do we do when the web, which has upended just about every other traditional institution, sets its sights squarely on schooling?

ASCD, Educational Leadership, March 2013, Vol 70 – No 6, P13.

I believe e-learning has the potential to reduce achievement discrepancies within and between different student populations and between different education jurisdictions. This is particularly relevant for New Zealand where there is a large gap between our top achievers and our poorest achievers. The motivational factor in using digital technology should not be underestimated in helping lower achievers to better engage in schooling.

I have set out to understand what was needed to introduce e-learning into a large urban high school. Although the actual sabbatical was for one term, I have ended up spending over a year on the project and will continue developing my understanding long after this report is submitted.

I have been surprised by the rapid change that is taking place in this area of schooling. When I first started I had a limited understanding of how technology would impact on schools at the level it currently is. The New Zealand Curriculum was one of my main reference points in terms of pedagogical change for e-learning. I had kept being told that pedagogical change would come from using devices, however no one could describe clearly for me what that would look like. This is no longer the case.

While the amount of material available is now enormous, there is still very little hard data on the extent of achievement levels or increasing motivation. We also don't fully understand the underlying mechanisms of how this works or how it varies with different devices. It is well recognised that ipads do have a magical impact on students, but what exactly is it and how it works is still a mystery. I'm sure that research over the next few years will increase our knowledge and understanding of this.

Much of the current writing and understanding comes from anecdotal experiences and can be found in books, blog sites, magazines, educational professionals and clusters of professionals being willing to share their ideas and experiences.

It is an area where we are learning as we go. Some schools are more advanced than others, while some have selected a path, which others will reject as being inappropriate for them. When embarking on e-learning one must be flexible, willing to learn from ones mistakes, be determined to carry on and ensure you are taking the other stakeholders in the school community with you. Staff also need to give up some of their control and be prepared to learn from the students. Many students are far more knowledgeable in the basic skills of digital technology than the adults around them.

A wonderful analogy is contained in the following video, “Building airplanes in the sky”
http://www.teachertube.com/viewVideo.php?video_id=123359

It highlights the point that we are building a new educational paradigm while still operating the existing one.

In his book "From Fear to Facebook: One School's Journey", Matt Levinson identified the following 10 tips for implementing e-learning. In his case it was laptops into Nueva School in Silicon Valley.

1. Listen to the students.
2. Involve, Prepare and Educate Parents.
3. Create professional development Opportunities for Teachers.
4. Don't go it alone.
5. Be Flexible.
6. Stay the Course
7. Maintain balance
8. Remember that kids are kids, and they need guidance
9. Keep learning with students.
10. Overcome fears.

Each school will place it's own emphasis on different points above depending on it's unique circumstances. I have found this list very useful, especially when the going was getting tough and I felt like abandoning any attempt at BYOD. – "Stay the Course". I was reassured to know that others had been down a similar path.

Government Support in NZ

In New Zealand we have been fortunate to have strong government support for e-learning. This has been apparent with both the previous and current Governments.

The advantage of this support is that there is a good level of coherence in the planning and delivery for e-learning. This I thought was noticeably lacking in the Government schools I visited in California and Vermont (USA), where planning is quite fragmented and operates mainly at a district level.

The Government has indicated that it is fully committed to using technology to raise levels of student achievement. The note below, follows the 2013 Budget.

17 May, 2013. Post Budget announcement from Hekia Parata & Nikki Kaye.

Education Minister Hekia Parata and Associate Education Minister Nikki Kaye today announced the Government will invest \$136 million over the next four years to complete the School Network Upgrade Project (SNUP) by 2016 - two years ahead of schedule.

"This Government is committed to providing modern learning environments that help all of our kids to succeed. This means putting in place the technology that supports their learning in the 21st century," says Ms Parata.

"And today we are committing to delivering that two years earlier than originally planned."

"We are also announcing as of June 2013, wireless capacity will be included in the school network upgrade process," says Ms Kaye. "Many students I talk to want wireless so that they can do schoolwork wherever they are in the school.

"We believe in the value of providing affordable, uncapped, high-speed, quality connections that will create learning opportunities for all students.

"Young New Zealanders need 21st century skills and access to the tools of a modern economy to succeed. By 2016, almost 98 per cent of schools will have ultra-fast broadband connections.

Other Government and Ministry of Education initiatives include;

- Provision of the **Lease Laptop** programme for teachers. This has been in operation in Secondary schools since 2002.
- A Parliamentary "Inquiry into 21st century learning environments and digital literacy". Report of the Education and Science Committee (December 2012)
- **SNUP** funding for schools. (to upgrade school internal networks)

- **N4L** network, about to come on line and will provide free internet access to schools. (*The Ministry of Education is working with Crown-owned company The Network for Learning Limited (N4L) to develop and operate a managed network for schools and to provide a range of education content and services. The N4L portal will establish an online community for teachers, students and education professionals. The portal will provide schools with a safe, collaborative environment where trusted educational content and services are discovered and new knowledge shared.*)
- **Ultra fast Broadband** in Schools. *With technology becoming key to education delivery, the Government has prioritised schools in its Ultra Fast Broadband (UFB) and Rural Broadband Initiative (RBI), under which fibre is being rolled out across New Zealand.*

97.7 per cent of schools and 99.9 per cent of students will receive ultra-fast broadband capability by 2016. The remaining 2.3 per cent of schools in areas too remote for fibre will have access to improved broadband services via wireless. Three schools will receive satellite services. As part of this commitment all state and state-integrated schools will receive a fully-funded connection to the fibre being rolled out in their area.

- The **TKI website** and “Enabling e-learning planners” The website provides an enormous variety of resources for teachers and school leaders. Eg. elearning.tki.org.nz

Most ICT teacher professional learning is mainly undertaken at an individual school level. There is a Blended e-learning teacher development contract run by Te Toi Tupu, available to some school through the Ministry of Education in Auckland.

The main document supporting and creating expectations for e-learning in our schools comes from the New Zealand Curriculum document, P35

The New Zealand Curriculum. (2007)

E-learning and pedagogy (page 36)

Information and communication technology (ICT) has a major impact on the world in which young people live. Similarly, e-learning (that is, learning supported by or facilitated by ICT) has considerable potential to support the teaching approaches outlined in the above section.

For instance, e-learning may:

assist the making of *connections* by enabling students to enter and explore new learning environments, overcoming barriers of distance and time

- facilitate *shared learning* by enabling students to join or create communities of learners that extend well beyond the classroom
- assist in the creation of *supportive learning environments* by offering resources that take account of individual, cultural, or developmental differences
- enhance *opportunities to learn* by offering students virtual experiences and tools that save them time, allowing them to take their learning further.

Schools should explore not only how ICT can supplement traditional ways of teaching but also how it can open up new and different ways of learning.

The Ministry of Education website also offers support for e-learning.

MOE Website

e-Learning offers students opportunities to:

1. become confident and skilled at using ICT now and in the future, at home, at work, and in the community
2. develop literacies and competencies that are needed in order to contribute to and effectively participate in the 21st century society and workplace
3. gain relevant and appropriate qualifications
4. experience work-related learning and, for some, enter into specialised study and careers in digital technologies
5. provide lifelong learning opportunities by making formal learning available at home as well as in the workplace and community; and
6. make informed choices about how, what, where and when to learn.

GLOBAL CONTEXT

When looking for guidance from international sources, The Organisation for Economic, Co-operation and Development –OECD; United Nations Education, Scientific and Cultural Organisation – UNESCO; and The International Society for technology in Education –iste, have both been very useful.

The **OECD** has identified a set of 21st century skills (4Cs), which all students should be exposed to. E-learning is the perfect vehicle for promoting these skills
They include the following:

C o l l a b o r a t i o n : Students are able to work effectively with diverse groups and exercise flexibility in making compromises to achieve common goals

C r e a t i v i t y : Students are able to generate and improve on original ideas and also work creatively with others.

C o m m u n i c a t i o n : Students are able to communicate effectively across multiple media and for various purposes.

C r i t i c a l t h i n k i n g : Students are able to analyze, evaluate, and understand complex systems and apply strategies to solve problems.

Higher-order skills (“21st Century Skills”), such as the “4 C’s” of Creativity, Critical thinking, Communication, Collaboration, and others are essential for absorbing knowledge as well as for work performance.

<http://oecdeducationtoday.blogspot.co.nz/2012/05/what-should-students-learn-in-21st.html>

UNESCO has produced numerous reviews on e-learning (2012) across the globe, focussing in themes; Mobile Learning for Teacher, Global themes and regions, Europe, Asia, Latin America, Africa & Middle East.

In the forward to ICT Competency Standards for Teachers, they identified the following in the forward;

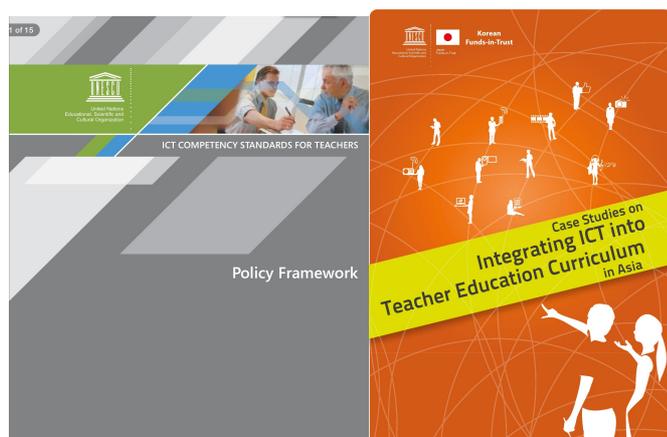
“To live, learn, and work successfully in an increasingly complex, information-rich and knowledge-based society, students and teachers must utilize technology effectively”.

Within a sound educational setting, technology can enable students to become:

- Capable information technology users
- Information seekers, analysers, and evaluators
- Problem solvers and decision makers
- Creative and effective users of productivity tools
- Communicators, collaborators, publishers, and producers • Informed, responsible, and contributing citizens

Over the past twenty years, many governments have adopted policies to guide the integration of ICT in education. However, because interest in mobile learning has only recently become widespread, most of these policies were developed in a ‘pre-mobile’ era and do not account for the new technological environment in which educators and students work. As this Series makes abundantly clear, there is a global policy vacuum when it comes to mobile learning.
(p9 UNESCO report on Global themes)

These 2 publications are part of a UNESCO set designed to inform educators about ICT developments from a global perspective.



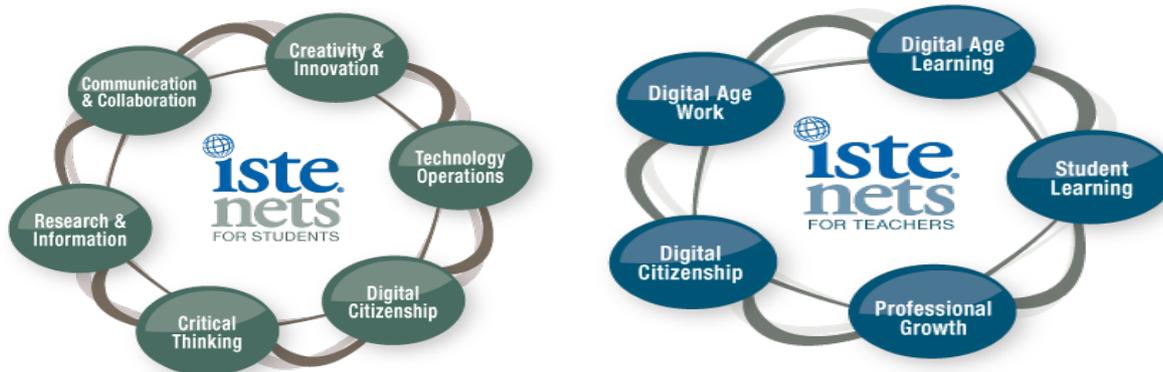
<http://unesdoc.unesco.org/images/0015/001562/156210E.pdf> (Policy Framework)

<http://unesdoc.unesco.org/images/0022/002235/223520e.pdf> (Integrating ICT into teacher Education Curriculum)

Already mobile technologies have irreversibly changed politics, business, medicine and many other fields, often for the better. They have not yet had a massive impact on education, but as this Series signals, it is not likely to stay this way. Mobile devices – because of their ubiquity and portability – are positioned to influence teaching and learning in a way personal computers never did. The papers that constitute this Series, by describing and analysing a number of diverse mobile learning projects, offer a taste of some of the changes that are right around the corner. More importantly though, they provide a tool for policy-makers, educators and others who hope to leverage a near-universal technology to help make education more accessible, more equitable and more effective for students everywhere. (Unesco, Turning on mobile learning, Global themes, conclusion, P14)

<http://unesdoc.unesco.org/images/0021/002164/216451e.pdf>

The International Society for Technology in Education (iste) has developed a set of standards (National Educational Technology Standards - NETS) for learning, teaching and leading in the digital age and are widely recognised and adopted worldwide. There are NETS for students, for teachers, for administrators, for coaches and for Computer Science Teachers.



Why are the NETS important?

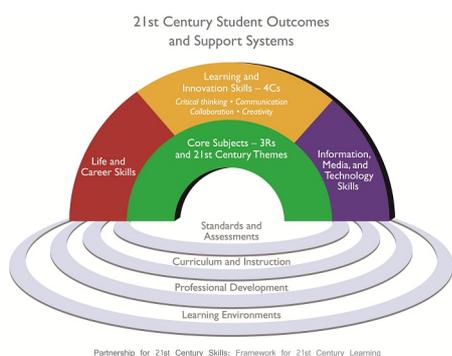
ISTE's NETS for Students (NETS•S) are the standards for evaluating the skills and knowledge students need to learn effectively and live productively in an increasingly global and digital world. Simply being able to use technology is no longer enough. Today's students need to be able to use technology to analyse, learn, and explore. Digital age skills are vital for preparing students to work, live, and contribute to the social and civic fabric of their communities.

ISTE's NETS for Teachers (NETS•T) are the standards for evaluating the skills and knowledge educators need to teach, work, and learn in an increasingly connected global and digital society. As technology integration continues to increase in our society, it is paramount that teachers possess the skills and behaviours of digital age professionals. Moving forward, teachers must become comfortable being co-learners with their students and colleagues around the world.

(See appendix 1)

The whole concept of literacy is also changing as a result of the impact of digital technology. In the USA, the National Council of Teacher of English, defines 21st century literacy as including “proficiency with tools of technology”. Professor Henry Jenkins at MIT (Massachusetts) identifies “networking and performance skills that take advantage of this connected, audience-rich moment”, as essential. (Educational Leadership, March 2013.)

In the USA the “Partnership for 21st Century Skills” is working to strengthen their 21st century learning framework. www.p21.org



This looks at ICT as a means of delivering the 4C skills as developed by the OECD.

As part of the Sabbatical I had the opportunity to visit schools in California as part of a tour by Cyclone Computing to schools using ipads in the classroom (private schools) and then public schools in Vermont.

California.

All the schools we visited were Middle or High schools in the Silicon Valley area, South of San Francisco. They were all private and were using a great deal of digital technology.

St Ignatius College Preparatory. (1455 students).

- They use Dropbox to store material. Very little is printed and almost no paper is used. Blogging is also used by students so that they can see each others work. The school has found that when writing for other students, they care more about the quality of their work. Their public blogs are also available to parents.
- The school librarians do a lot of the technical support. They have 3000 devices on a ruckus wireless network.
- They intend reviewing their current scheme at end of current academic year. They would prefer to move to 1:1 where students own their own device. This would give students greater ownership of the devices.
- Good teaching is still good teaching despite the presence of devices.
- There is a huge variety of teacher uptake. A third of teachers use moodle, or Google sites. Most staff are post PDFs as a substitution activity. They are starting to become more adventurous and moving up the levels of the SAMR model.
- Power points are being made available for students prior to the lesson
- Teachers were worried about students having 1:1
- Apple TV is in all classrooms rooms. When students project their work they use the VGA cable with their ipads.
- Every student now has access to all knowledge. This means teaching methods must change to one of helping, coaching etc.
- A published set of skills are assumed for all incoming students.
- 40% of books are electronic. English refused, only paper.
- There are 3 learning management systems. This is fine for staff, but not for students

NUEVA.

- They use an inquiry-based approach.
- Matt Levinson, wrote his book from Fear to Facebook based on his experiences here. He has now moved on.
- Teachers need to learn how to give up control to allow students to show them how the technology works. The importance of teacher confidence in classroom was stressed.
- They use existing teachers to help others. There is organic growth for staff development.
- They teach students about failure. The fear of failure is a major handicap. You lean through your failures.
- Always have a plan B for using technology.
- Parent involvement is essential. What are the rules at home. Setting guidelines at home are important.
- They still restrict use of 1:1 devices use at break times.

Monte Vista Christian School

- www.mvcs.org
- Students bus in from a 45 radius, rural area.
- The campus has 103 acres, 900 students. 38 buildings and is a college prep. When iPads came in a different type of student came.
- They use Moodle, has 1 tech person. Emphasis on projects,
- They are hoping for a 3 year cycle of iPads
- The librarian is part of the tech team.

- Google docs are important. Collaborative work is encouraged between students.
- There are no data projectors. It is all LCD & Apple TV

Valley Christian Junior High

- They are looking at changing furniture as a result of iPads.
- Maths. Students take notes in notability and now do practice problems in class. Homework is pre learnt using video. Most students use teacher provided video.
- The iPad project has been far more successful than was expected.
- Goals were laid out for year one;
- They used moodle.
- Blooms Taxonomy forms a vital part of understanding levels of student understanding.
- Wide use of moodle. Use cloud based.
- School has a youtube channel.
- Teachers know their craft, but the craft is changing.

Vermont

The Vermont schools were a mixture of elementary, middle and high schools. Clusters of local schools were in districts. Each district had its own arrangements for e-learning. In all cases the school provided devices and the school didn't support students bringing their own devices.

They are still in the early phase of implementation. Some schools had grants from philanthropic organisations, while others had federal economic stimulus grants. Each school had different devices so the students had to change devices when they moved to the next school. In one district elementary students used netbooks, while ipads were used in the Middle school down the road.

In all cases there was no certainty about future funding. This created great anxiety as staff up skilled for digital devices but could not guarantee whether any devices would be available in the future. This lack of certainty was a real issue, as the staff I spoke to did not want to go back to the pre digital days.

The staff had never been given a device until the students were given them.

Conclusions from the USA experience;

- For pedagogical change to be sustained, certainty is needed about future device availability.
- There should be consistency or at least consultation between schools to support students moving from one school to another.
- If students are writing for other students, they care more about their work.
- Pressure point has to be, Is this the best teaching I can do? Don't apply tech pressure, apply pressure through quality teaching
- If your development is student centred it works. If it is adult centred it won't work.
- Teachers need to learn how to give up control to allow students to show then.
- Always have a plan B for using technology.
- Teachers know their craft, but the craft is changing.

LOCAL CONTEXT

In his book "From fear to Facebook: One school's Journey", by Matt Levinson (Nueva School, Hillsborough, California) states in the forward;

"Today's educators have a chance to be courageous and take the risk of jumping off the high dive. Those who do so will give students opportunities to bring their passions into the classroom and encourage them to gain the cultural competencies and social skills they will need in their future roles as 21st century citizens and workers. Whereas the industrial age prepared many to be workers on assembly lines, today's information age challenges us to be critical thinkers and active citizen, to come together collectively and conceptualise solutions to new problems that didn't exist in the last decade"

How digital technology is changing the world.

- Commerce, trade me, online shopping – travel, online applications - insurance
- Entertainment, DVD, ebooks, digital downloads
- Communications, landlines, skype, email, smart phones
- Social interaction, Facebook, twitter, digital cameras
- Cloud storage, global centralised servers rather than in house.
- Education, BYOD, 1:1 devices, anywhere, anytime, any pace. Personalised learning. Moocs (massive open online courses)

These changes are having a pronounced impact on our society. The more our students are aware of these changes the better they will be able to adjust. Our schools should not be resistant to change but be knowledgeable about the changes to assist in the necessary adaptations. At the same time we must recognise that not all students have had the same exposure to a digital world and that while technical skills may be very high, issues around acceptable use, plagiarism, research skills etc require significant teacher input.

"The internet is threatening to shake up education, as it has already done with music, retail and journalism"
New Zealand Listener, October 20-26, 2012. P18

The implementation of e-learning, BYOD, BYOT, BYOB or 1:1 mobile devices for students, or whatever you want to call it is inevitable in New Zealand schools. The issues for us to deal with are when, how and the characteristics that are appropriate for each school.

Change in this area is rapid and planning long term is very difficult. One needs to be vigilant and look for the opportunities that arise. The technology often changes before it can be implemented. This therefore needs to be built into all considerations. Implementing e-learning requires sophisticated thinking and astute leaders (not just principals) willing to lead the school and it's community. At Lynfield we went for a BYOD model, as this placed responsibility on the family to select a device most appropriate for them It took ownership responsibility off the school, which is significant at a time of rapid change.

Our rationale for implementation of a digital device programme includes;

- To enable a more personalised education which can occur anywhere, anytime at any pace.
- To enable students to power up with technology when they come to school rather than power down.
- To supplement current good practice by enabling students to access more data, which they are able to process and present to an audience. Communication and collaboration are fundamental to this learning. Staff are less focussed on content delivery and more focussed on ensuring understanding and follow up.
- To support students to cope with the rapid pace of change they live with.
- Students are starting to come to us with an experience of mobile devices at Intermediate school. In 2012 the local Intermediate which has 55% of the Yr9 intake embarked on a mobile device programme.

This will be expanded in 2013. They have also provided each member of staff with a device. Many of the local primary schools have also gone down this path.

The Process of implementing Change.

Two Australian researchers have written a very worthwhile book entitled “Bring your own Technology” Acer press, 2012. They provide a very valuable observation about developing an e-learning path in any school setting;

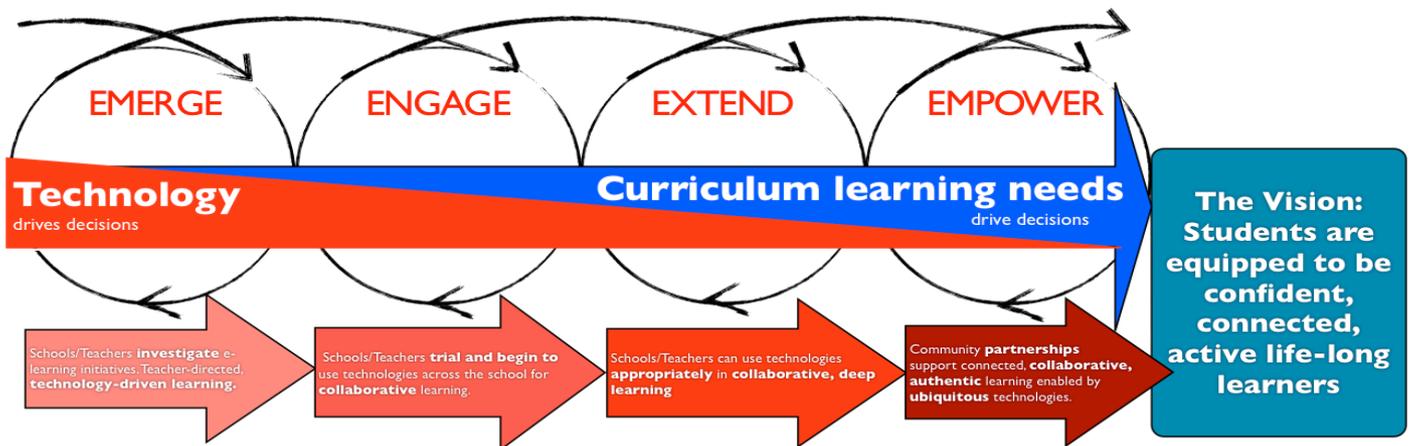
“One of the obstacles in preparing to make use of the students’ technology is the absence of any charts to show the way. No-one has travelled the full route and can talk about what is entailed in securing total student uptake, normalising the technologies’ usage or realising all the opportunities on offer”. P22 Lee & Levins.

“At the time of writing (2012) the literature available to guide you on the use of BYOT is limited in the main to Blogs and some education authority websites. It is by nature short and light, based strongly on opinion, with scant supporting research”. P17 Lee & Levins.

The Ministry of Education has produced a very useful document entitled “The e-learning Planning Framework”. It contains 5 dimensions for considering e-learning. (See Appendix 2)

The diagram below shows the phases of schools’ and teachers’ growing e-learning capability to enable staff and students to learn with and through technologies.

(see Appendix 2)



Role of Staff

1. Leadership.

Support and drive from the leaders in the school is fundamental to implementing e-learning. When we look at Levinson's key factors in implementing e-learning, many require the drive of senior leaders, eg.

1. Involve, Prepare and Educate Parents.
2. Create professional development Opportunities for Teachers.
3. Don't go it alone.
4. Be Flexible.
5. Stay the Course
6. Maintain balance
7. Overcome fears.

Orewa College in Auckland has been the leading innovator in e-learning for public education. In this case the willingness of the Principal to front the initiative publicly and her determination to "Stay the course", have been pivotal to the success of the programme. Orewa is now seen as the "go to" school for e-learning.

In the USA, Chris Toy, on behalf of the National Association of Secondary School Principals, a former Maine principal, current educational consultant, prepared the following 10 guidelines to help principals and other school leaders succeed in integrating 21st century learning technology in their schools. This list is derived from conversations with teachers, students and parents from around the country;

- Principals must effectively and consistently model the use of the same technology tools they expect teachers to use in their classrooms with the students.
- Principals must be consistent in their decisions and expectations about integrating learning technology in the school.
- The principal's communication about the pace and process of integrating learning technology needs to be clear and reasonable.
- The principal must provide appropriate professional development time and resources to support effective classroom implementation of technology.
- The principal must support early adopters and risk takers.
- The principal must do whatever it takes to ensure that all staff has early access to the very same digital tools that students will be using in their classrooms.
- As the educational leader, the principal must make it clear to the technology leader that all decisions relating to learning technology will be made by the educational leaders with input from the technology leaders, not the other way around.
- The principal must set and support the expectation that student work will be done and stored using technology.
- Principals must ensure that families and the public are kept informed about the school's goals and progress relating to its use of technology as a learning resource.
- The principal must be an active and public champion for all students, staff members, and the school in moving the vision of fully integrating learning technology for the second decade of the 21st century.

Much of the overseas evidence backs focussing initially on teacher professional learning. In any school there is a wide range of expertise, experience, enthusiasm and confidence among staff in e-learning.

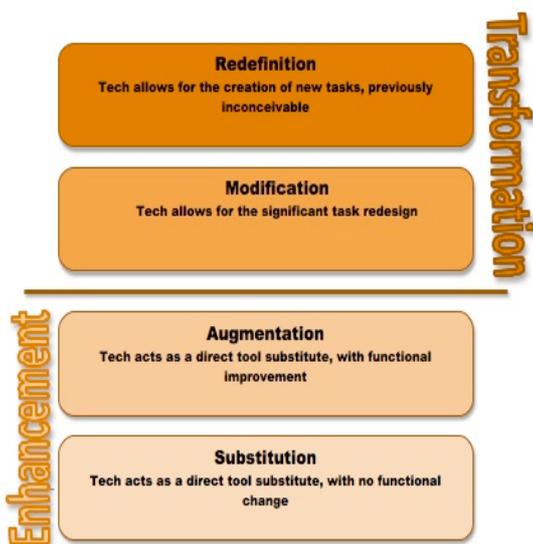
There needs to be teacher professional learning in order for the devices to be used fully in class. Teachers need to understand the wider context in which e-learning is developing as well as the possibilities it affords change in pedagogy.

We also need to be aware that training without the hardware and infrastructure to implement, will only cause frustration for staff and “I told you so” from those who resist the change.

For these reasons Lynfield waited 18 months from the time the decision was made to launch BYOD, until it actually starts with a full year level at the start of 2014.

A tool that we found extremely useful to support staff and encourage a full adoption of digital devices was the SAMR model

This model identifies the stages we go through when implementing technological change in our classrooms. We acknowledge that substitution is an acceptable first stage and that it is very non-threatening to staff. The goal however is to work through Augmentation, Modification and ultimately to Redefinition. At the redefinition stage significant pedagogical changes have taken place and the full benefit of the technology can be realised.



This SAMR model was first posted in March 2010 following the Apple World Leadership Summit in Prague and updated in February 2011. It continues to be a significant model in identifying e-learning adaptation. The aim is to move from Enhancement to Transformation.

<http://www.maggiehosmcgrane.com/2010/03/samr-model.html>

Appointing a digital co-ordinator to support staff up skill has been vital in pulling together all the existing knowledge and skills in the staff. Many staff have then gone on to become experts in specific areas such as Moodle and Google Docs.

We are still putting together a staff guideline booklet for supporting staff, especially those who join the school after this initial round of training. It will complement the general staff handbook.

Perception of some staff

When introducing any change in education, there are always a few who will oppose the initiative and express genuinely felt concerns. E-learning is no different.

“Mobile phones have, for many people, come to represent the antithesis of learning. Their small screens and often intellectually shallow content have led people to associate mobile phones more with entertainment than education. They are commonly viewed as isolating, distracting and even dangerous to young people, providing access to inappropriate content and enabling destructive behaviours such as cyber-bullying. Many of these concerns are valid, and educators will need to propose workable solutions in order to move mobile learning from the margins of education to the mainstream”. (UNESCO p7, Global themes)

- “We can’t trust students with these devices
- There are no controls over internet access. (There are none now, with 3G networks)
- They will be stolen
- If they don’t do homework now, why will that change?
- If they won’t look after their calculators, how will they look after an ipad?
- If I give them content to watch at home, what will we do in class?
- How are YOU going to keep the device safe?

These are comments which I have been made aware of from some staff and parents in the initial phase of BYOD preparation.

Pedagogical Impact.

(See NETS; Advancing digital age learning.)

These devices complement the work of the classroom teacher but do not replace it. In the USA online (only) secondary schools have not been successful in raising student achievement. Online learning is sweeping across America. In the year 2000, roughly 45,000 K–12 students took an online course. In 2009, more than 3 million K–12 students did. What was originally a distance-learning phenomenon no longer is.

Most of the growth is occurring in blended-learning environments, in which students learn online in an adult-supervised environment at least part of the time.

“As this happens, online learning has the potential to transform America's education system by serving as the backbone of a system that offers more personalized learning approaches for all students”. (Horn and Staker, 2011) (UNESCO, Nth America Themes edition)

Its about Teaching and Learning, not iPads

The kind of shift in learning the iPad (and other tablets) can initiate is dependent on good teaching practice and preparation. The iPad has an app for just about anything. Students will be able to work out how to use the app. They do that quicker than us. As teachers, its our responsibility to show them what to use it for. It’s why we have to think of what we want them to do as learners, not what can the iPad do. We have to make the iPad suit the learning, not make the learning suit the iPad to justify having it. So think of the skills you want your students to develop and then work out if the device can improve that skill. If it doesn’t, don’t use it.

Student use of devices.

The ipad (or other tablet) can be used in the classroom for a variety of purposes. Fundamental to their use is access to the Internet through Wi-Fi.

Key student tasks include;

- Information gathering
- Information presentation
- Information processing
- Communicating
- Storage
- Activities
- Motivation
- Students with disabilities

Information gathering:

A key purpose of students having a mobile device at school is to access the internet, in order to retrieve information. That information can take many forms.

Information gathered through the Internet is generally more up to date than print material, however students need to be taught not only how to search but how to validate the information they gather. The Internet can be

biased, or just plain wrong. While sites such as Wikipedia are great, they are open source. The information students obtain needs to be verified from other sources.

We (teachers) must help students to make sense of the information, to synthesise, analyse and judge the credibility of the material they encounter.

Information on the Internet, such as World Wide Web sites can be written by anyone. Since there is **no quality control** for information published on the Internet, it becomes our responsibility, as individuals, to judge what is right, wrong, immoral, illegal, biased or totally incorrect. This form of judgment can be taught and learnt. This decision making process is called 'critical thinking'.

*"Critical thinking and the use of the internet as a Resource". Paul G. Paris
Flinders University, pparis@bigfoot.com
International Education Journal Vol 4, No 1, 2002*

Schrock's Critical Standards Guide for Educators

Critical Standards	Suggested Questions
Reliability	What is the source of the information: did it come from an academic, government or commercial site or a Usenet newsgroup? If the information was obtained from a commercial site, what is the site designed to sell? Does that goal affect the quality or objectivity of the information provided?
Authority	Postings to Usenet newsgroups frequently reflect the author's individual opinion. What do you know about this author's credential?
Objectivity	Is the information presented objectively, or does it reflect the biases of its author or web site? How thorough is the coverage compared to other sources?
Relevance	If information about your topic is changing rapidly, how current is the information? How recently was the web site updated? Does the information you retrieved from the Internet add a significant perspective to your research?

<http://ehlt.flinders.edu.au/education/iej/articles/v4n1/paris/paper.pdf>

Resources. Many of these resources will be out dated and replaced by others in a very short period of time.

<http://fcit.usf.edu/internet/chap5/chap5.htm>

- Internet searches, Google, yahoo, bing (Microsoft), google chrome (Google), Safari (Apple) firefox (opensource)
- Data rich sites, Wikipdia, CIA factbook, UGS, NZ Statistics dept.
- Newspapers & magazines. – nzherald (free), usatoday.com (free), magazines (paid subs) ie National Geographic, Economist
- Radio, digital, free radio through apps such as "Radio", RadioNews,
- TV, One News, 3 TV, SKY, BBC, CNN
- e-textbooks, Our Choice (Al Gore, Environmental textbook, generally good approx. \$6). Excellent free downloads in iTunes U,
- Video sites, Youtube, Vimeo, clickview, e TV, Khan academy,
- In built camera. Images can then be used in other applications
- In built GPS capability,
- Maps, Google Earth, etc.
- Educational material, Khan Academy, showme.com, iTunes U,
- Virtual fieldtrips, <http://www.learnz.org.nz> Free virtual fieldtrips for NZ teachers, sciencecompanion.com, <http://www.kn.pacbell.com/wired/fil/pages/listvirtualgr.html> (A hotlist of virtual fieldtrips)
- Make your own resources and record them. Post on Youtube, facebook, or apps such as Educreations, Baiboard, Board or Showme.
- Online learning sites, gcfllearnfree.org (Computer programmes), mangahigh.com (maths games & resources)
- Apps, map sites, travel sites, all **Information presentation**

Information Presentation.

- Writing
- Display work on data projector. Make your own resources and record them. Post on Youtube, facebook, or apps such as Educreations, Baiboard, Board or Showme
- Postcard presentations.
- Keynote (power point), Slideshare
- Podcasts
- Telling stories
- Auto prompt for speeches, PresenterPro, Prompster LE
- Whiteboard presentation. educreation, showme
- Audiobooks.
- Skype or video links

Processing information

- Writing
- Calculator
- Voice recognition (Disabilities)
- Translation

Communicating

- Email
- video stream
- Group communications, video conferencing. (Skype, Facetime)
- Facebook
- Twitter
- Collaborating with peers
- Publishing on the web, creating a web page, blog
- Wikis

Storage

- Device local drive. This is often quite limited, especially on tablets.
- Dropbox, cloud on (cloud)
- Evernote (cloud)
- Google docs (cloud)
- Keeping a diary. (local app)
- Goodreader app (uses local drive to store)
- Access back to e-lync
- External wireless storage devices are available to provide extra storage for videos, photos etc. eg Seagate, GoFlex Satellite, Mobile Wireless Storage, 500GB, or Airstash, a wireless device that looks like a flash drive with an SD card inserted. It has built in WiFi to connect to the ipad.

Further Study (Tertiary).

Not only are we supporting students to thrive in a digital age, we are providing the skills they need for further study. Many of the courses that our students go onto require online skills.

There are also enormous changes taking place globally with technology in the area of schooling and tertiary sectors;

The Economist June 29th, "Education technology, catching up at last" P29.

The Listener, October 20-26, 2012. Cover story – A New World of Knowledge.

As many renowned Universities move to have course material freely available to the public through Moocs (massive open online courses) more and more students will be able to access study material over the internet. Coursea is a Stanford online service, edX from MIT and Harvard in Massachusetts.

These programmes are in their early stages of evolution but the institutions setting them up hope that eventually they will become a source of funding. For students the main draw back at the moment is the lack of a recognised qualification such study provides. I'm sure that will change in the next 10 years.

Digital Citizenship.

Probably the biggest concern for parents is around the safety of their children on the internet. These concerns very greatly and often are related to the parents familiarity or confidence with devices, although not always. Some of the greatest opponents seem to be in the technology field.

“Schools are an important laboratory for technology education of young people, not only in terms of technical proficiency, but also regarding basic etiquette and manners. Schools are fortunate to have opportunities to work with students at impressionable ages so that they can develop strategies for self-regulation”.

From Fear to Facebook: One School's Journey. P118.

Students need to understand the rules and the reason for them.

“Instead of banning and blocking, schools need to work with students to create responsible digital citizens and have necessary consequences in place where there are violations, just as is the case in real life. When we address the problem, rather than blame the tools, we move towards creating responsible students”

- 7 Myths about BYOD debunked, The Journal. Lisa Nielsen.

Schools need to work with parents and provide them with information. One of the best supports we have used is the Internet safety group called “Netsafe”. *Netsafe.org.nz.*

The Future.

The three quotes below have had a significant impact on my understanding of the changes our schooling systems are experiencing.

Safety

“Schools have an obligation to provide a safe learning environment but they are also charged with fostering innovation and creativity” *From Fear to Facebook*

The Future

“What do we do when the web, which has upended just about every other traditional institution, sets its sights squarely on schooling?”

ASCD, Educational Leadership, March 2013, Vol 70 – No 6, P13.

Generational Impact

“This is the first generation that has ever mastered a multitude of tools essential to society before the older generations have. Because of constant exposure to digital devices – because of chronic digital bombardment – this generation has grown up in a new digital landscape – digital is their language of choice - their native tongue”.

Understanding Digital Kids (DKs) Teaching & Learning in the New Digital Landscape, By Ian Jukes, 2006

As I mentioned at the start, understanding e-learning is a journey. The changes are constant and at times over whelming. They are however a part of our society and we need to accept the inevitability of them and learn how to manage them, or else they will manage us.

S W Bovaird
18 November 2013

Appendix 1

ISTE

ISTE's NETS for Students (NETS•S) are the standards for evaluating the skills and knowledge students need to learn effectively and live productively in an increasingly global and digital world.

Simply being able to use technology is no longer enough. Today's students need to be able to use technology to analyse, learn, and explore. Digital age skills are vital for preparing students to work, live, and contribute to the social and civic fabric of their communities.



1. Creativity and Innovation

Students demonstrate creative thinking, construct knowledge, and develop innovative products and processes using technology.

- Apply existing knowledge to generate new ideas, products, or processes
- Create original works as a means of personal or group expression
- Use models and simulations to explore complex systems and issues
- Identify trends and forecast possibilities
-

2. Communication and Collaboration

Students use digital media and environments to communicate and work collaboratively, including at a distance, to support individual learning and contribute to the learning of others.

- Interact, collaborate, and publish with peers, experts, or others employing a variety of digital environments and media
- Communicate information and ideas effectively to multiple audiences using a variety of media and formats
- Develop cultural understanding and global awareness by engaging with learners of other cultures
- Contribute to project teams to produce original works or solve problems

3. Research and Information Fluency

Students apply digital tools to gather, evaluate, and use information.

- Plan strategies to guide inquiry
- Locate, organize, analyze, evaluate, synthesize, and ethically use information from a variety of sources and media
- Evaluate and select information sources and digital tools based on the appropriateness to specific tasks
- Process data and report results

4. Critical Thinking, Problem Solving, and Decision Making

Students use critical thinking skills to plan and conduct research, manage projects, solve problems, and make informed decisions using appropriate digital tools and resources.

- Identify and define authentic problems and significant questions for investigation
- Plan and manage activities to develop a solution or complete a project
- Collect and analyze data to identify solutions and/or make informed decisions

- Use multiple processes and diverse perspectives to explore alternative solutions

5. Digital Citizenship

Students understand human, cultural, and societal issues related to technology and practice legal and ethical behavior.

- Advocate and practice safe, legal, and responsible use of information and technology
- Exhibit a positive attitude toward using technology that supports collaboration, learning, and productivity
- Demonstrate personal responsibility for lifelong learning
- Exhibit leadership for digital citizenship

6. Technology Operations and Concepts

Students demonstrate a sound understanding of technology concepts, systems, and operations.

- Understand and use technology systems
- Select and use applications effectively and productively
- Troubleshoot systems and applications
- Transfer current knowledge to learning of new technologies

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Digital Age teaching

ISTE's NETS for Teachers (NETS·T) are the standards for evaluating the skills and knowledge educators need to teach, work, and learn in an increasingly connected global and digital society. As technology integration continues to increase in our society, it is paramount that teachers possess the skills and behaviors of digital age professionals. Moving forward, teachers must become comfortable being co-learners with their students and colleagues around the world.



1. Facilitate and Inspire Student Learning and Creativity

Teachers use their knowledge of subject matter, teaching and learning, and technology to facilitate experiences that advance student learning, creativity, and innovation in both face-to-face and virtual environments.

- Promote, support, and model creative and innovative thinking and inventiveness
- Engage students in exploring real-world issues and solving authentic problems using digital tools and resources
- Promote student reflection using collaborative tools to reveal and clarify students' conceptual understanding and thinking, planning, and creative processes
- Model collaborative knowledge construction by engaging in learning with students, colleagues, and others in face-to-face and virtual environments.

2. Design and Develop Digital Age Learning Experiences and Assessments

Teachers design, develop, and evaluate authentic learning experiences and assessment incorporating contemporary tools and resources to maximize content learning in context and to develop the knowledge, skills, and attitudes identified in the NETS·S.

- a. Design or adapt relevant learning experiences that incorporate digital tools and resources to promote student learning and creativity
- b. Develop technology-enriched learning environments that enable all students to pursue their individual curiosities and become active participants in setting their own educational goals, managing their own learning, and assessing their own progress
- c. Customize and personalize learning activities to address students' diverse learning styles, working strategies, and abilities using digital tools and resources
- d. Provide students with multiple and varied formative and summative assessments aligned with content and technology standards and use resulting data to inform learning and teaching

3. Model Age Work and Learning

Teachers exhibit knowledge, skills, and work processes representative of an innovative professional in a global and digital society.

- a. Demonstrate fluency in technology systems and the transfer of current knowledge to new technologies and situations
- b. Collaborate with students, peers, parents, and community members using digital tools and resources to support student success and innovation
- c. Communicate relevant information and ideas effectively to students, parents, and peers using a variety of digital age media and formats
- d. Model and facilitate effective use of current and emerging digital tools to locate, analyze, evaluate, and use information resources to support research and learning

4. Promote and Model Digital Citizenship and Responsibility

Teachers understand local and global societal issues and responsibilities in an evolving digital culture and exhibit legal and ethical behaviour in their professional practices.

- a. Advocate, model, and teach safe, legal, and ethical use of digital information and technology, including respect for copyright, intellectual property, and the appropriate documentation of sources
- b. Address the diverse needs of all learners by using learner-centred strategies providing equitable access to appropriate digital tools and resources
- c. Promote and model digital etiquette and responsible social interactions related to the use of technology and information
- d. Develop and model cultural understanding and global awareness by engaging with colleagues and students of other cultures using digital age communication and collaboration tools

5. Engage in Professional Growth and Leadership

Teachers continuously improve their professional practice, model lifelong learning, and exhibit leadership in their school and professional community by promoting and demonstrating the effective use of digital tools and resources.

- a. Participate in local and global learning communities to explore creative applications of technology to improve student learning
- b. Exhibit leadership by demonstrating a vision of technology infusion, participating in shared decision making and community building, and developing the leadership and technology skills of others
- c. Evaluate and reflect on current research and professional practice on a regular basis to make effective use of existing and emerging digital tools and resources in support of student learning
- d. Contribute to the effectiveness, vitality, and self renewal of the teaching profession and of their school and community

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 Technology in Education.

The five dimensions

Leadership and strategic direction	Leaders investigate the potential of technologies.	Leaders trial e-learning initiatives, and begin to align them to curriculum planning.	Deliberate leadership aligns the use of technologies with curriculum needs.	Leadership sustains and innovates the use of technologies as part of overt focus on learning.
Professional learning	Professional learning raises awareness and grows knowledge of technologies.	Professional learning increasingly focuses on using technologies for learning.	Professional learning explores ways to enhance evidence-based learning using appropriate technologies.	Professional learning is blended, sustained and extends student-centred learning through ubiquitous technologies.
Teaching and Learning	Technologies supplement teacher-directed activities.	Technologies begin to meet needs and support higher-order, collaborative learning.	Learning activities integrate technologies appropriately to support authentic, higher-order, collaborative learning.	Student-centred, authentic, higher-order, collaborative teaching and learning is enhanced by ubiquitous technologies.
Technologies and Infrastructure	Technologies and infrastructure needs are investigated to support the physical environment.	Technologies and infrastructure to meet identified needs are trialled, within the physical environment.	Equitable, well-managed technologies and infrastructure support needs across an increasingly online environment.	Equitable, open access to reliable technologies and infrastructure that meet all needs is sustained across an online environment.
Beyond the classroom	Opportunities are identified to work with the community using technologies, and to address their impact.	Activities are trialled to deliberately extend community relationships using technologies, and to explore their impact	Communities are deliberately engaged through appropriate technologies, and are responding to their impact.	Blended communications enhance the way partnerships actively engage in sustained response to the impact of technologies.

LEADERSHIP AND STRATEGIC DIRECTION.

 Leadership and strategic direction				
This dimension describes the aspects required to effectively lead the way learning is enhanced with and through technologies in ways that reflect our bi-cultural heritage. Leaders are: the Principal, Senior Management Team, nominated leaders, emerging leaders, and students.				
	Emerging	Engaging	Extending	Empowering
<i>e-Learning integrated into school vision</i>	<p>2. VISION: The school vision refers to e-learning and the potential of technologies to enable and support learning.</p> <p>3. CONSULTATION: The Principal, staff, students and BoTs investigate how e-learning can enhance the school's vision.</p>	<p>4. VISION: School vision describes how technologies will support the school's curriculum.</p> <p>4. CONSULTATION: The Principal, staff, students and BoTs understand and are consulted in the vision development.</p>	<p>5. VISION: School vision articulates how technologies will enhance teaching and learning. It aligns to policy, curriculum, and appraisal.</p> <p>6. CONSULTATION: The Principal, staff, students, BoTs and the wider community are all deliberately involved in vision development.</p>	<p>6. VISION: School vision integrates e-learning throughout. There is an on-going cycle of review.</p> <p>8. CONSULTATION: The community's needs drive the vision. The community, including the students, is fully engaged in its on-going development.</p>
<i>Leadership of e-learning</i>	<p>9. RESPONSIBILITY: Individual personnel, including the Principal, are assigned roles for leading e-learning.</p> <p>10. FOCUS: Leaders investigate opportunities to work with and through technologies for learning.</p>	<p>11. RESPONSIBILITY: Principal, senior management and school personnel, which may include students, have responsibility for leadership of e-learning.</p> <p>12. FOCUS: Leaders focus on how technologies respond to short-term needs.</p>	<ul style="list-style-type: none"> ● RESPONSIBILITY: Principal, senior management and staff, including students, deliberately mentor all community members to use technologies to extend and enhance teaching and learning. ● FOCUS: Leaders focus on how technologies respond to short/medium-term learning needs. 	<ul style="list-style-type: none"> ● RESPONSIBILITY: Principal, leaders and students model active leadership and mentor others to develop imaginative practices to enhance and negotiate the school curriculum. ● FOCUS: Leadership capability at all levels focuses on using technologies to enhance the school curriculum. This is driven by students' learning needs.
<i>e-learning integrated into strategic direction and policy</i>	<ul style="list-style-type: none"> ● PLAN: The strategic plan includes reference to technologies, with the focus largely on resourcing. ● PROCESS: A process to achieve e-learning goals is described. ● DIGITAL CITIZENSHIP: There is reference to the importance of cybersafety and digital citizenship policy/practices 	<ul style="list-style-type: none"> ● PLAN: The strategic plan has some alignment to e-learning in the school's vision. Students' learning needs may inform the plan. ● PROCESS: Processes and roles to achieve e-learning goals are described. ● DIGITAL CITIZENSHIP: There is reference to how cybersafety and digital citizenship policy/practices will be developed. 	<ul style="list-style-type: none"> ● PLAN: The strategic plan aligns to the vision and refers to how technologies will support learning. Students' learning needs will inform the plan. ● PROCESS: Processes and systems to achieve e-learning goals are integrated at all levels. ● DIGITAL CITIZENSHIP: A plan is being implemented to deliberately foster cybersafety and digital citizenship policy/practices 	<ul style="list-style-type: none"> ● PLAN: The strategic plan addresses sustainability of e-learning driven by all students' needs. ● PROCESS: Processes and systems to achieve e-learning goals are driven by evidence-based curriculum needs and are central to improvements. ● DIGITAL CITIZENSHIP: The plan clearly shows how cybersafety and digital citizenship policy/practices are integrated and modeled.

2. PROFESSIONAL LEARNING.



Professional learning

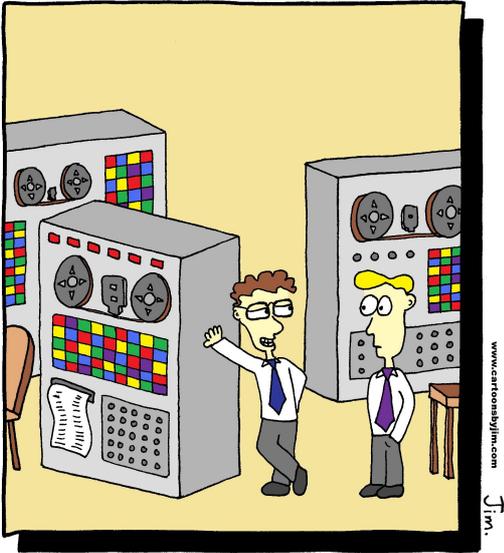
This dimension describes the aspects required for teachers and schools to build their e-learning capability within their school community and virtual network, **in ways that** reflect our **bi-cultural** heritage. This includes: alignment to vision, strategy, teaching and learning; an open, sharing culture; building relationships and mentoring; change management; active inquiry and appraisal.

	Emerging	Engaging	Extending	Empowering
<i>Sustaining a professional e-learning community</i>	<ul style="list-style-type: none"> ▪ CULTURE: There are examples of a supportive learning community exploring technologies (such as voluntary mentoring) amongst teachers/teams. ▪ FOCUS: The sharing of learning, when it occurs, largely focuses on technology skills. 	<ul style="list-style-type: none"> ▪ CULTURE: A supportive culture for whole-school e-learning is developing. Mentors emerge as strong voices. ▪ FOCUS: Teachers/teaching teams trial, reflect on and share examples of e-learning pedagogy in action. 	<ul style="list-style-type: none"> ▪ CULTURE: The professional learning culture is open, safe and collaborative, ensures that learning communities (leaders, teachers, support staff) are mentored, and relevant to the school strategy. ▪ FOCUS: School staff, students and the community respond to and reflect on the impact of e-learning on identified learning needs. 	<ul style="list-style-type: none"> ▪ CULTURE: A blended, inclusive, reciprocal professional learning culture is focused on student achievement with and through technologies. ▪ FOCUS: The school and community share imaginative e-learning understandings and practices that respond to learning needs and trends.
<i>Professional inquiry into e-learning</i>	<ul style="list-style-type: none"> ● REFLECTION: Opportunities are provided to review teachers' e-learning needs. No clear alignment between vision, strategic plan and professional e-learning goals. ● FOCUS: The focus is on growing teachers' technical skills rather than pedagogical skills. ● ACTIVITIES: Professional learning activities are occasional. 	<ul style="list-style-type: none"> ● REFLECTION: There is a system in place to review teachers' e-learning needs, with activities aligned to school focus ● FOCUS: Teachers investigate the way technology can support learning - and teachers' role in this process. This may focus on discrete learning areas. ● ACTIVITIES: Professional learning is part of a whole school goal and may be informed by student learning. 	<ul style="list-style-type: none"> ● REFLECTION: Professional e-learning needs are identified through a system of review and appraisal that is aligned to the strategic plan and vision. ● FOCUS: Teachers overtly inquire into how technology can be used appropriately to enable the personalised, authentic involvement in learning. ● ACTIVITIES: Professional learning is aligned to individuals' and school/community needs and strategy, and focuses on supporting effective teaching and learning. 	<ul style="list-style-type: none"> ● REFLECTION: On-going, sustained cycles of monitoring and evaluation are deliberately aligned to teaching and learning needs. ● FOCUS: Teachers and leaders see themselves as learners, inquiring into imaginative ways to use technology to extend and personalise a student-centred model of learning. ● ACTIVITIES: Professional learning activities model and share imaginative practices that focus on how effective teaching and learning can be enhanced with and through technologies.

3. TEACHING AND LEARNING.

 Teaching and Learning The aspects of teaching and learning in the New Zealand curriculum that can be enhanced with and through technologies, in ways that reflect our bi-cultural heritage. → Refer to the <i>Suggested guide on how to use the framework</i> for information on the evidence you might draw on to self-review against this dimension.				
	Emerging	Engaging	Extending	Empowering
<i>e-Learning within the whole school curriculum</i>	<ul style="list-style-type: none"> PLAN: School leadership and staff identify the importance of e-learning in the wider school curriculum plan. Implementation tends to be within discrete learning areas/individual teams. 	<ul style="list-style-type: none"> PLAN: School leadership work with the school staff to establish a cohesive curriculum that includes appropriate e-learning resources. Implementation tends to be across most learning areas with some cross-curricular alignment. 	<ul style="list-style-type: none"> PLAN: School staff and community negotiate a cohesive curriculum that integrates appropriate e-learning resources. Implementation reflects widespread cross-curricular alignment and may extend to networks beyond the school. 	<ul style="list-style-type: none"> PLAN: Staff, students and the wider community own a negotiated curriculum in which technologies are assimilated with clear alignment to the vision and strategy.
Digital citizenship Key Competencies, Values, digital literacy skills, and cybersafety.	<ul style="list-style-type: none"> Principal and teachers are aware that Digital Citizenship defines the Key Competencies and Values in a digital environment, as well as digital literacy skills and cybersafe practices. Individual teachers occasionally explore digital citizenship. 	<ul style="list-style-type: none"> Principal and teachers trial digital citizenship practices in teaching and learning and there is a growing awareness amongst students. 	<ul style="list-style-type: none"> All staff and students collaborate in learning activities that routinely and deliberately explore and foster digital citizenship practices in real-world contexts. 	<ul style="list-style-type: none"> All staff, students and the wider community model responsible behaviours as successful digital citizens, in real-world contexts.
Learning areas How technologies are used to help students engage with curriculum content in ways that reflect our bi-cultural heritage.	<ul style="list-style-type: none"> TEACHERS: Teachers begin to use technologies, often based on their own preferences, to help students understand the content in learning area(s). IMPACT: Students experience technologies as a supplement or 'one-off' activity, focused on surface learning within the school/network. 	<ul style="list-style-type: none"> TEACHERS: Teachers trial technologies to deliberately help diverse students understand the content in learning area(s). IMPACT: Students begin to use technologies to support higher-order, authentic learning within the school/network. 	<ul style="list-style-type: none"> TEACHER: Teachers select technologies appropriately to help students understand and apply higher-order, authentic thinking in learning area(s) content. IMPACT: Students select and use appropriate technologies to explore, create and communicate higher-order, authentic learning. 	<ul style="list-style-type: none"> TEACHER: Learning programmes are negotiated with students to provide choice and personalization. Higher-order, authentic learning experiences explore content in learning area(s), enhanced by technologies. IMPACT: Students construct their own learning goals, independently select and use appropriate technologies to

				co-construct effective higher-order, authentic learning.
<p>Pedagogy How technologies are used to enhance effective teaching approaches, particularly ako, in ways that reflect our bi-cultural heritage.</p>	<ul style="list-style-type: none"> ● TEACHER: The use of technologies may be a supplement or 'one-off' activity to support teacher-centred, didactic ways of teaching. ● IMPACT: Students use technologies as part of task completion or isolated skill-building. They respond to activities rather than collaborate or use prior knowledge. 	<ul style="list-style-type: none"> ● TEACHER: Teachers trial technologies to support collaborative, inquiry-focused approach that reflects the principles of ako. ● IMPACT: Students begin to use technologies to support collaborative, inquiry-focused approach. 	<ul style="list-style-type: none"> ● TEACHER: Teachers select technologies appropriately to enable a collaborative, inquiry-focused approach that reflects the principles of ako. ● IMPACT: Students engage successfully in collaborative authentic, learning experiences, enhanced and supported appropriately by technologies. 	<ul style="list-style-type: none"> ● TEACHER: Pedagogy assimilates technology into blended, student-centred, collaborative learning experiences, based on evidence-based inquiry that reflects the principles of ako. ● IMPACT: Students independently and actively participate in authentic, culturally meaningful learning and are becoming safe, responsible digital citizens.
<p>Assessment How technologies are used to monitor, review and evaluate the impact of teaching on student achievement in ways that reflect our bi-cultural heritage.</p>	<ul style="list-style-type: none"> ● TEACHER: Leaders and teachers investigate the way technologies can support traditional assessment practices across the curriculum. ● IMPACT: Students are assessed by teachers, often using paper-based methods and supplemented by technologies. Assessment is largely summative using traditional methods. 	<ul style="list-style-type: none"> ● TEACHER: Technologies are trialed to enable students to critically reflect on and manage their own learning. ● IMPACT: Students occasionally use technologies to produce and share aspects of their learning. 	<ul style="list-style-type: none"> ● TEACHER: Technologies are used appropriately to enable students to critically reflect on and manage their own learning, as well as sharing progress with the wider community. ● IMPACT: Students begin to use technologies appropriately in an on-going way to develop and share their learning, curate aspects of their work, and engage in self and peer-based reflection. 	<ul style="list-style-type: none"> ● TEACHER CAPABILITY: Technologies are assimilated as part of evidence-based inquiry, providing ubiquitous access to learning, to engage whānau/family and connect to wider networks. ● IMPACT: Students use technologies appropriately, in a continuous cycle, to support the way they set their learning goals, manage life-long portfolios and work towards becoming self-regulated learners.



BYOD issues were an even bigger problem in the 1950s.

This cartoon was first published in the June 8 issue of *Reseller News*