To investigate the directions that eLearning[1] could take in the future at Marlborough Girls' College and in the Marlborough Educational Community

Karen Stewart

Marlborough Girls' College

[1] 'Learning and teaching that is facilitated by or supported through the smart use of information and communication technologies' (Ministry of Education, 2006, pg 2)

Acknowledgements

I wish to thank:

- the Marlborough Girls' College Board of Trustees for granting leave from my position as Principal;
- the Senior Leadership Team, who led the school in my absence;
- the Principals, Deputy Principals, eLearning Directors and staff at the schools I visited, who were all welcoming and generous with their time;
- colleagues who have given their time to discuss the issues they are facing and the solutions they are implementing;
- the speakers at the workshops and conferences I have attended during this sabbatical;
- Professor Niki Davis for her time and the challenges she posed;
- and the Ministry of Education for the funding of this sabbatical.

Executive Summary

Technology is constantly changing and converging. 'Students, regardless of community demographics, socio-economic backgrounds, gender and grade, tell us year after year that the lack of sophisticated use of emerging tools in schools is, in fact, holding back their education and, in many ways, disengaging them from learning' (Project Tomorrow, 2009, pg 1).

Our task as educators is, therefore, to focus on pedagogy whilst also keeping up-to-date and selecting the appropriate digital tools. As Fisher and Frey (2010, pg 197) argue, 'we have to stop thinking of technology in terms of nouns (Goggle, YouTube or Twitter) and, instead, think in terms of verbs (presenting, sharing and communicating)". We should be evaluating digital tools in terms of functionality that supports best practice and engages learners.

'The key to successfully integrating ICT into the classroom lies in bold and inspired leadership' McLeod (2011, pg 10). Our role as leaders is not only to initiate dialogue about how teaching and learning can be appropriately supported by which digital tools, but also to lead the change management required when embedding eLearning and establishing a sustained, evolving strategic vision (Crook et al, 2010, Graves et al, 2010).

Purpose

The Ministry of Education's 'vision for principalship in the 21st Century is shaped by the rapid change and growth of the world in which we live. As society, knowledge and technologies grow and change, so do our students' learning needs and the way learning is delivered' (Ministry of Education, 2008, pg. 25). The New Zealand Curriculum requires that Principals identify areas for change in their school, consider the focus for this change and how the change can be stimulated and sustained (Ministry of Education, 2008). Leading a secondary school and the Marlborough Region Information Communication Technologies Professional Development (ICTPD) Cluster (2010-2012), requires that I continue to develop the knowledge and

understanding of the potential of eLearning to 'open up new and different ways of learning' (Ministry of Education, 2007, pg 36) and the 'confidence and capability to lead and manage the change required to maximise the benefits of these technologies' (Ministry of Education, 2006, pg 6).

Methodology

The methodology employed involved the following:

1. Professional Reading: a wide range of articles related to eLearning, 21st Century tools and fluencies.
2. Schools: discussion with fellow Principals, visits to schools in New Zealand and the United Kingdom.
3. Professional learning opportunities. These included:
    a. Attendance at professional workshops facilitated by international speakers, Wesley Fields and Lee Crockett.
    b. The Marlborough and Nelson Principals' eLearning tours.
    c. Attendance at ITL Masterclass National Conference 2011.
4. Spending time exploring the Web 2.0 tools available, developing an understanding of how they work, their pedagogical uses and evaluating how to use selected tools in my daily practice as a school leader.

Rationale

There are at least five global exponential Information and Communication Technology (ICT) trends to which school leaders need to pay close attention.

The first trend is Moore's Law, which states that technology is becoming increasingly more powerful and less expensive at an increasingly faster pace (Jukes et al, 2010). Hardware is becoming cheaper, smaller and more mobile. As a plethora of digital devices, such as MP3 players, smart phones, I Pads and e-Books flood the market, we are also seeing an ever-increasing convergence of digital tools and media. For example, cell phones have built into them digital tools such global positioning systems (GPS) and anywhere anytime access to the internet. This is possible because of the second trend, photonics, which states that data transfer rates per dollar is growing at a rate equal, and probably exceeding, Moore's Law (Jukes et al, 2010). As both students and teachers increasingly want to use their own mobile computing devices in the school, school leaders face issues such data storage, data backup, disaster recovery and the burgeoning demand for / use of wireless local area networks and band width.

The third trend is the move towards ubiquitous computing. Wireless, mobile devices and 'cloud computing' enable learners to create, edit, store, manage and process data; they can share and collaborate with others anytime anywhere.

The fourth trend is social-based activity. That is the increasing use of online environments such as Facebook, Twitter and Second Life to connect, communicate

and collaborate. (Gurr, 2010; Moore and Berry, 2010; Project Tomorrow, 2010). Facebook, the domain of girls, has until recently seen very little educational interest in comparison to the research and development that is associated with games. As Spender (2010, pg 24) argues, 'teachers who explore social networks as educational tools will not only engage girls and promote their skills – they will provide a very real counter to the male culture of the web'.

The fifth trend is the promotion of digital technologies to inform teaching and learning and make learning itself more meaningful and transformative (Crook et al, 2010). The key aim being to equip students with both the fluencies and learning competencies that are necessary for living and working in the 21st Century. This trend is realized in *The New Zealand Curriculum,* which states that eLearning 'has considerable potential to …

- 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' (Ministry of Education, 2007, pg 36).

Research indicates that there are five emerging developments that leaders and teachers need to incorporate into their planning and practice.

- *Technology as a critical friend*. Digital technologies are expanding the range of ways students engage with information. These new realities demand that we prepare students with new fluencies, such as how to solve problems, how to search for information and how to evaluate information when it is found, how to create effective multimedia communications and how to collaborate with virtual co-workers (Juke et al, 2010; McDowell, 2010; Wright, 2010).

- *Collaborative learning (networking.* Collaboration is quickly becoming a key competency for success in the 21st Century. As gaming and virtual world technologies become increasingly sophisticated, tie to real-life issues and require higher order thinking, they potentially have a lot to offer education (Graves et al, 2010; Wright, 2010). Global collaboration projects, such as Skoolaborate use a blend of technologies, including blogs, wikis and 'virtual worlds' to provide collaborative learning experiences. Virtual learning environments (VLE) and videoconferencing enable students and staff, who

reside in different locations, to participate in broader range of learning opportunities and collaborate with their peers. This could be one key in reducing the achievement gap - digitally-rich educational environments, where peer and collaborative learning opportunities support learning appear to suit many students, including Maori and Pasifika (McDowell, 2010; Tiakiwai and Tiakiwai 2010; Wright, 2010).

Furthermore, it is not just about student collaboration. The professional isolation experienced by teachers employed outside the big cities is increasingly being broken down by the access to professional learning through online conferences, webinars and online tertiary qualifications. The ICTPD Regional Cluster programmes are helping schools shift from the existing paradigm of 'relative isolation (even competition) to being more collaborative and working as a node on the education network' (Wenmouth, 2011, http://www.core-ed.org/lab/ten-trends-2011/networked-schools).

- *Personalised online independent learning.* "There is a growing awareness that one-size-fits-all approaches to school knowledge and organisation are ill-adapted both to individuals' needs and to the knowledge society at large' (Wenmouth, 2011, http://www.core-ed.org/lab/ten-trends-2011/personalisation). Schools will need to adapt their teaching and learning programmes to cater for the increased personalisation that is enabled by ubiquitous technologies. For example, the range of opportunities offered by virtual learning[2] needs to be explored further: gathering data through survey applications, such as *Survey Monkey* or *Google Forms*, interviewing specialists using SKYPE, virtual field trips; and for students who would not otherwise be able to access a programme of learning in their current school access to specialist music tuition, gifted and talented programmes, scholarship coaching, Gateway and / or STAR courses.

  Schools also need to consider / accommodate learning that is occurring seamlessly outside of school hours. Research shows that learners in the United States of America are 'seeking out other students for collaboration, information sharing and tutoring by Facebook, taking online assessments and tests to evaluate their own status in the knowledge acquisition process on a particular topic, using cell phone applications for self-organisation and increased productivity, taking online classes not for a grade but to learn more about subjects that interest them, accessing podcasts and videos, such as

[2] the range of teaching and learning activities which take place in an online environment, utilising a mix of synchronous and asynchronous technologies (Wenmouth, 2011)

those in Khan Academy, to help in those classes where they are struggling and finding experts (including other students) to connect with online to exchange new ideas and explore content in a myriad of new ways' (Project Tomorrow, 20110, pg 2; Richardson, 2010).

- *The Process of Learning*. The move towards open content (e.g. Wikieducator and the Creative Commons licensing initiative) reflects a growing shift to a view that is more about the process of learning than teaching content.

Table 1: Education 3.0 Paradigm

Education 2.0	*Education 3.0*
Selective and divisive	Learning for all
Teach the fundamentals	Cultivate 21st Century capabilities
Institution centred	Learning centred
Pedagogy for conformity	Pedagogy for engagement
Supply side driven	Student co-creation
Mass standardisation	Mass personalisation
Bounded by school	Learning unleashed

(http://www.simonbreakspear.com)

Where learners are creating, critiquing and editing information, rather than accumulating and reproducing existing knowledge, they are developing life-long competencies in learning (Gilbert, 2005; Richardson, 2008; Robertson, 2010; Spender, 2010).

- *Citizenship.* As the virtual world evolves so does our concept of 'citizenship' – the rules, boundaries, rights and responsibilities of global, digital and cyber citizenship all need to be incorporated into teaching and learning programmes.

Change is now the norm. Emerging Trends and new technologies are an on-going challenge for us as leaders and learners. The challenge is not just in adopting these new ICT tools, but in changing our pedagogy to focus on developing student-centric teaching and learning programmes to meet the needs of our 21st Century learners.

How do classroom teachers make effective use of Web 2.0 and Web 3.0 in engaging learners to increase achievement? What are the qualities, knowledge and skills that make their digital pedagogy effective?

A number of phrases have been invented to describe today's learners – "digital natives", "the Net generation", "iGeneration","screenagers" (Prensky, 2001: Rosen, 2011). Whilst today's leaners often know more about social networking and mobile technologies as tools for 21st Century day-to-day life than most of their teachers, a

gap exists between their use of technology and its application in teaching and learning (ACOT^{2,} 2008; Jukes et al, 2010; Lee 2010; Wright, 2010).

Today, the internet is used in the classroom mostly as a tool for uploading and downloading information thus reinforcing traditional teaching methods (Lin and Bolstad, 2010; Project Tomorrow, 2010, pg 12). However, the rate at which technology is changing, the amount of information in the world and the speed at which new information enters our lives, makes it more and more difficult for teachers to continue to rely only on these traditional methods (Jukes et al, 2010; ACOT^2, 2008).

As Sir Ken Robinson states, now is the time for education to changes its paradigm. Schools need to incorporate the learning styles of today's learners and to use their interest and understanding of the digital world. 'A crucial first step in helping students negotiate the Web is for the teachers to become part of world of Web 2.0 themselves' (Kist, 2010, pg 71). The literature talks about the importance of teachers using eLearning tools daily to support learning, to model to learners how integral technology is to constructing knowledge (ACOT^2 , 2008; DeGennaro, 2010; Pierson, 2011; Richardson, 2010; Wright, 2010). As Robertson (2010) states, teachers need to be co-learners, who daily model their own use of eLearning tools, understanding and explaining the practical implication of digital technologies and the thinking behind their thinking.

To successfully integrate eLearning into their practice, teachers need to become collaborators in learning and use appropriate student-centered pedagogies and eLearning affordances. Learners 'see the use of relevancy-based tools, content and resources as a key to driving learning productivity' (Project Tomorrow, 2010, pg 3; Robertson, 2010; Wright, 2010). Therefore, effective eLearning affordances allow learners to advance knowledge through trial-and-error, use eLearning tools in authentic ways, communicate, collaborate, cooperate and problem solve. These affordances should also be fit for purpose, that is support the key competencies, values and achievement objectives of the New Zealand Curriculum. Hence teachers need to be constantly evaluating both the appropriateness and effectiveness of eLearning tools, digital resources and their pedagogical decisions about when and how to use them with students (Erb, 2010; Wright, 2010, pg 21).

Similarly, integrating cell phones into learning programmes can engender student engagement and ownership of their own learning (Chajecka, 2010; Erb, 2010; Wright 2010). For example, using programmes such as Poll everywhere, a text-messaging polling system which turns mobile devices into 'responders', teachers can create surveys that students can respond to immediately. Results can be displayed and updated in real time on a data projector. Furthermore, integrating cell phones into learning means that many technology- based activities can occur outside the classroom - on fieldtrips or for homework. Students can collect images, make videos

and podcasts on their cell phones for review and / or send them to the teacher or class Moodle site.

Using open source software enables learners to access their digital information and learning activities using any computer connected to the internet, anytime, anywhere. Schools are increasingly turning to software such as Google Docs, Moodle, ePortfolios and Twitter for these reasons.

Learning Management Systems, such as Moodle, can act as a dynamic course content repository, serve as a site for problem-solving activities and integrated projects, as well as integrating lower order activities, such as completing homework quizzes. Blog and forum functions lead to more equal participation as discussions are slowed down and students take an active role in directing their own learning by answer one another's questions. Students who are shy, or who struggle to formulate ideas quickly, can participate fully. Learners who are used to engaging at a superficial level find themselves forced to expand on their comments and those learners used to dominating discussions have to listen to their peers. The teacher, as facilitator, using well-placed open-ended questions can encourage students to collaborate to solve higher level thinking problems (Ferriter, 2009; Kitsis, 2010). For Moodle to work well, the teacher must invest time regularly (Dunn, 2011).

The use of ePortfolios also promotes student learning. As with learning management systems, where teachers have a clear understanding both of the school's pedagogical beliefs and the purpose of the application as well as having integrated the ePortfolio into the learning process, there is much greater likelihood that the implementation will be successful (Fox et al, 2009). Both progress and attainment become more visible to teachers and students where the collection of work within the ePortfolio is used in authentic contexts to identify strengths and weakness and reflect on future learning pathways (Fox et al, 2009).

The growth of online education is following the pattern of disruptive innovation (Jones, 2011; Jukes et al, 2010). One of the most significant ways that online education could transform learning is through 'reverse learning' or 'flipped classroom instruction', where teachers record lessons that students can watch for homework and repeatedly review the parts that they didn't understand. Thus class time is freed up for asking / answering students' questions, practical activities or individualised instruction.

With Twitter, teachers can set up what are known as 'backchannels'. Real-time digital streaming allows learners to voice opinions and pose questions to be answered either by one of their peers or the teacher. Not only do students have more opportunity to learn from each other, teachers have also found that there is more accountability and students who are reluctant to speak up in class, often readily participate online (Jones, 2011). Whilst sceptics often argue that introducing

backchannels will distract both students and teachers, and lead to off-topic, inappropriate comments or even bullying, proponents argue that, as with the introduction of any new digital tool, it is about educating learners as to the appropriate use and actively monitoring student contributions.

As technologies continue to evolve, we will never be able to keep-up with all the digital tools. Our task as educators is to focus on pedagogy whilst keeping up-to-date and selecting the appropriate digital tools that support best practice and engage learners. Fisher and Frey (2010, pg 197) argue that 'we have to stop thinking of technology in terms of nouns (Goggle, YouTube or Twitter) and instead think in terms of verbs (presenting, sharing and communicating'. In other words, as educators, we should be focusing on the functions of technology.

Table 2: Functions with Current Tools

Functions	Tools
Communicating	Forums; Messaging; Chat; Texting; Video conferencing; video calls; Skype; Twitter; back channelling; polling.
Listening	iTunes, YouTube, Podcasting.
Networking	Facebook, MSN, Linkedin.
Presenting	PowerPoint, ePortfolios, Google Sites, Youtube.
Producing	ePortfolios, Twitter, Software Applications
Searching	Search Engines, Google Earth.
Sharing	Moodle, Google Docs, Google Site, blogs, wikis, Youtube, slideshare, Globster, Picasa, Flicker.
Storing	IPods, MP3 players, flash drives, phones, ePortfolios, Skydrive, Box, Google Apps, Cloud Applications (Youtube, Picasa etc).
Collaborating	Wikis, Google Apps.

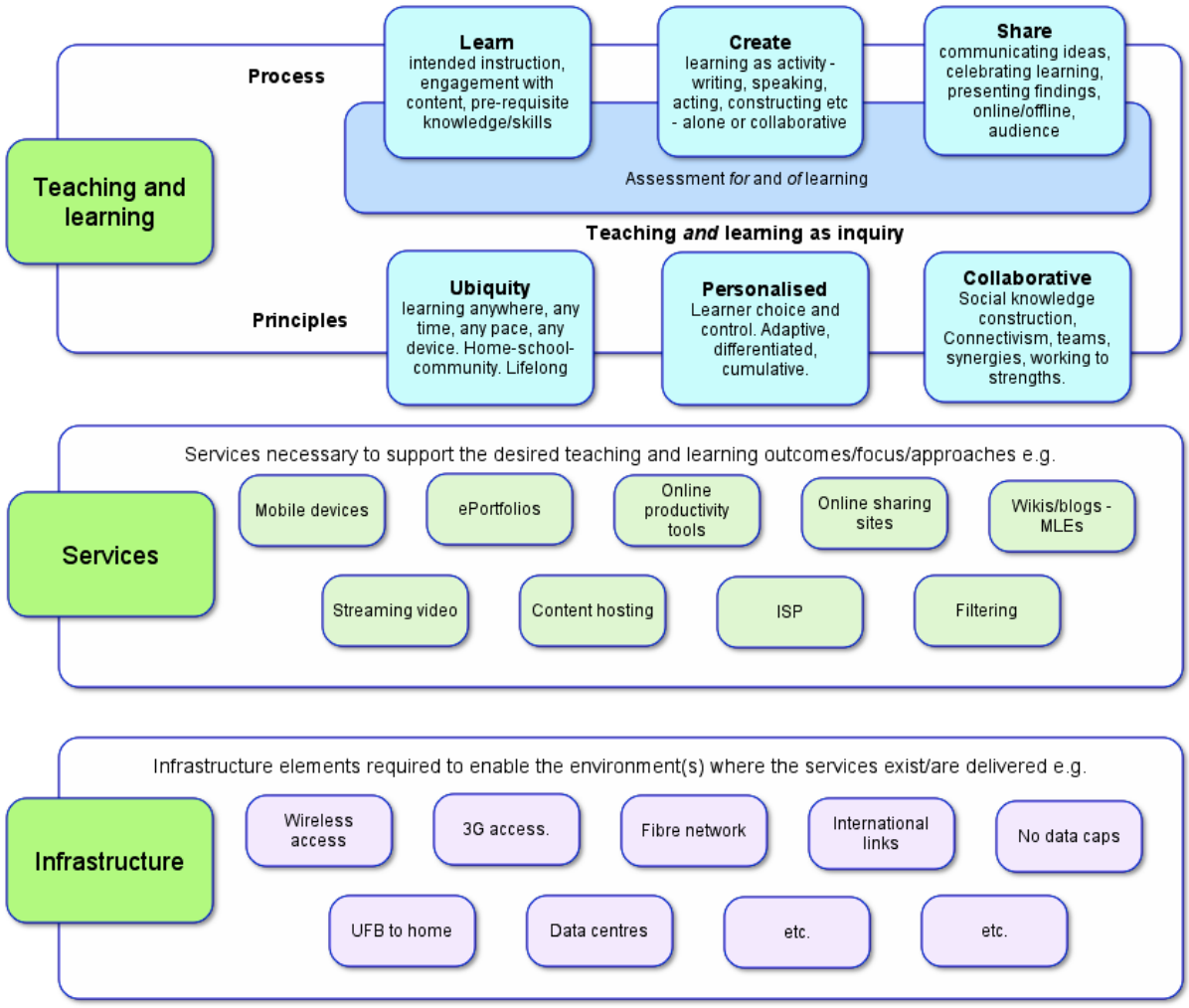
(After As Fisher and Frey (2010))

How do schools' leaders support and develop professional conversations that engage teachers and give them the confidence to explore and adopt innovative digital pedagogies that meet students' learning needs and increase achievement?

McLeod (2011, pg 10) unequivocally states that 'the key to successfully integrating ICT into the classroom lies in bold and inspired leadership'. Our role as leaders is not only to initiate dialogue about how teaching and learning can be appropriately supported by which digital tools, but also to lead the change management required when embedding eLearning and establishing a sustained, evolving strategic vision across the institution and region (Crook et al, 2010; Graves et al, 2010). The reasons for this are transparent - there needs 'to be significant changes, not only in the ICT infrastructure, but also in the finance, staffing, professional development,

curriculum, assessment and models of pedagogy that are constituents of the ecosystem of the school, (Crook et al, 2010, pg 2010; Lee, 2010).

Diagram 1: A Model of ICT Implementation



(Wenmouth 2011 http://blog.core-ed.org/derek/files/2011/06/Teaching-and-Learning-UFB.png)

Wenmouth also stresses the importance of 'visionary policy development, people anticipating what might happen and creating policy, and then, enablers with funding to allow that to happen'. (Erb, 2010, pg 9). For example, although empirical research is limited on the effectiveness of one-to-one programmes on student achievement and engagement, research in the USA suggests promising results (ACOT^2, 2008; Bebell and Kay, 2010). Therefore, in planning for implementation of a one-to-one programme, as leaders we need to be working with students, parents and teachers to educate and gain buy-in, whilst at the same time seeking funding to assist low income families so that their child is involved in this new initiative.

One-to-one programmes are only as effective as the teachers' adoption of the new pedagogy and acceptance of the need to invest time and effort in adapting their teaching practice and resources to make the one-to-one environment effective and relevant (Bebell and Kay, 2010). Teachers need to experience the benefits of new tools and pedagogies. Therefore, school leaders, particularly the Principal and

senior managers, need to be digital learners and model how new technologies change the way we interact with information and other learners. To encourage a culture of reflective practice, they must also lead in the use of data to inform instruction and in the movement from teacher-led to student-centred instruction. They need to empower teachers to take risks when integrating new digital tools and pedagogies (Ferriter, 2009; Kinane, 2010; MCleod 2011; Wright, 2010).

Leaders also need to insist that all staff use the digital tools at least for the essentials. They can promote this through the introduction of tools such as e-notices and online surveys to collect student voice and feedback. Professional learning and development (PLD) programmes should not only focus on developing teachers' proficiency in using these tools, but also in helping teachers to gain a clearer understanding as to how the new technologies can be integrated into teaching and learning programmes, better engage students in authentic learning opportunities and supporting the development of 21st Century skills in line with the NZ Curriculum Document. (Fox et al, 2009).

It is also important that PDL programmes provide the opportunities to explore the potential of online professional learning. Web 2.0 technologies, such as Learning Management Systems, ePortfolios and RSS feeds, can be used to create sustained and collaborative professional online learning communities. By using a Twitter account linked to Moodle, for example, teachers can shape professional conversations as they 'follow' particular educational thinkers. At conferences, teachers can use their Twitter account to update their colleagues in real time on their learning as it takes place. Forums in Moodle can be set-up for discussion about a variety of topics, such as 21st Century fluencies, personalised learning and cybersafety as well as posting relevant resources.

Google Docs enable teachers to collaboratively build meeting agendas, to record the ideas, questions and resources as the meeting progresses and post comments both before and after meetings. The blog, forum and wiki functions in Moodle can not only be used in response to emerging issues or developing new guidelines (e.g. revising ICT policies) but also to assess interest and build a collaborative agenda when planning an upcoming professional learning opportunity. Stuart (2011) strongly recommends that before schools introduce e-portfolios to students, school leaders encourage teachers using e-portfolios to reflect on their own professional learning. ePortfolios used as part of schools' Performance Management System, give staff more active control of their PDL, encourage reflective practice, and help teachers understand more fully the implications for students.

Exploring these new technologies enables teachers to make informed decisions as to how they can be used, by whom and for what purposes in their classrooms. As

schools move towards blended learning[3], leaders need to organise time for teachers to collaborate on implementing the new digital pedagogies. Appointing and training lead teachers, who are willing to promote, coach and mentor others, is one avenue we have used to extend opportunities to explore online learning and reflect on these implications for students.

However, 'the issue that overwhelms any talk of Web 2.0 classroom applications is the issue of keeping our students safe' (Kist, 2010, pg 47). Teaching internet safety and how to protect digital identities in authentic situations is crucial. Another barrier for many teachers is the fear of plagiarism. The shift from the old paradigm of 'knowledge owners' to creative commons licensing provides opportunities to educate students and initiate dialogue with them about what is and is not fair (Kist, 2010).

Teachers also need to be aware of the risks of 'constructionism fatigue' where learners are tired of seeing the same digital tools, such as PowerPoint, being used to produce the same kind of product. Leaders need to provide opportunities for teachers to share with their colleagues how they are using ICT, to ensure a wide variety of learning activities (Crook et al, 2010; Richardson, 2010).

When teachers express frustration over issues such as slow internet response times, the inability to use web resources such as YouTube due to broadband constraints and the lack of regular access to a well-resourced multimedia classroom or computers, as leaders we need to remember that these frustrations are being expressed by innovative and creative teachers, who have understood the changing education paradigm (Crook et al, 2010, pg 60). Hence, leaders whilst acknowledging these barriers to implementation, need to generate from the latter opportunities to explore with teachers possible solutions, which in turn inform strategic planning.

Leaders also need to acknowledge tension between digital pedagogies and the fundamental ideas underpinning our education system. On one hand, teachers have to deal with the realities of a school system where they need to cover the curriculum and facilitate students through the qualification system and, therefore, feel that they don't have the time for implementing the new digital pedagogies. On the other hand, to be effective in times of exponential change, teachers must try to anticipate 'what students will need to operate in the world of tomorrow based on current trends' (Lin and Bolstad, 2010; Jukes et al, 2010, pg 32).

Furthermore, induction programmes need to be designed not only to inculcate new staff, but also to ensure the on-going sustainability of the paradigm shift. These can include interactive tutorials based on the key digital tools and pedagogies used in the school, capturing innovative teaching and learning programmes on video to create a library of PDL references. Exit strategies that include a check list of resources, tools and passwords will ensure that the school's intellectual property is collected and

[3] approaches that integrate elearning with other forms of teaching and learning

forms an accessible library of knowledge for the benefit everyone in the school community (Kinane, 2010).

In addition, as learning spaces are planned, consideration needs to be given to how they can best accommodate leaner-centred programmes as well as project-based and online learning (Crook et al, 2010; Pearman, 2010).

Finally, leaders need to educate staff that as the school seeks to make the best use of emerging, increasingly sophisticated digital technology for the school community, everyone needs to recognise the importance of being adaptive, for today's technologies quickly become the tools for yesterday's schools. Those patterns of thinking and pedagogies that worked well in the past may impede our adaption to the changes that are yet to occur. Indeed today's solutions could quickly become tomorrow's problem (Lee, 2011). For example, with such ubiquitous access to information, assessment will need to change from focus on the learners' ability to remember content, to focusing on how effectively learners access and constructively use information in critical and creative ways (Coogan and Wenmouth, 2011; Jukes et al, 2010).

How can Web 2.0 technologies be used to connect students, parents / whānau teachers and the wider educational community?

In order to successfully implement digital pedagogies, schools need a communication plan that focuses on educating whānau, parents and the school community about how the world has changed, how education has changed and the nature of the future our students are facing when they leave school (Graves et al, 2010; Lin and Bolstad, 2010; McLeod, 2011; Scott, 2010). If schools implement the use of digital pedagogies without the support of whānau, parents and the community, they may find that whānau and parents vote with their feet, moving their child to another school.

In a region such as Marlborough, where schools are working collaboratively, it is important that this collaboration extends to evaluating how the technology can enable the educators to work with the parents in enhancing learning cultures (Lee, 2010). Consideration could be given to:

- improving the provision of parent and student access to the school's information services. Portals, such as school's website, learning management system and student management system, have significant potential to enhance home-to-school communications and collaborations (Project Tomorrow, 2011). Recognising that parents and whānau are using social media tools, such as Facebook, Principals should also be harnessing the power of the feedback loop to collect valuable information about the wider community (Kinane, 2010).
- citizenship programmes that involve the parents, students and teachers. Informing parents and caregivers of the practices and guidelines that the school is taking to ensure a safe eLearning environment and publishing the standards of

behaviour and acceptable use of ICT that learners are expected to keep to when at school, help to reduce fears about new technologies (Becta, 2010, pg 13). An important part of engaging with families is providing advice on how to engage with their child about the importance of being safe and responsible in online environments. Citizenship programmes are more than just cyber-safety programmes; they should involve the whole community when developing technology-related school policies / guidelines.

- electronic newsletters that include key dates embedded in Google calendars, which interface with the parents' calendars on their computers or smart phones.
- on-line booking of Parent-Student-Teacher interviews appointments and school resources.
- email communication between teachers, students, and parents (Crook et al, 2010).
- providing innovative ways, such as access to ePortfolios or student blogs, for students to share their work in a meaningful way with parents, whānau, family and friends, increases the student's ability to self-assess (Rate, 2010).
- Investigating one-to-one programmes. Research shows that one-to-one programmes establish continuity between home and school (Crook et al, 2010). They also have a significant impact in the wider community, with students acting as mentors to parents, siblings and other community members and have seen marked improvements in parent-teacher interaction and parent attendance at school events (ACOT^2 ; 2008).
- involving the community (parents and social agencies) when planning the provision of access for all students. To make-up for their limited access at home, schools could, for example, allow access to school computer labs before or after school. Or source funding to support the purchase of computers by families. The Computers in schools programme and the innovative community project, Manaiakalani Education Trust, being two examples. More important than simply offering access, though, schools need to provide low-income children with more opportunities to use technology to its fullest capacity … focusing on teaching students strategic ways to use computers.

While many schools collaborate or share best ICT practice at a local level, fewer do so within their local community, nationally or internationally (Johnson et al, 2009). Schools need to collaborate more closely with local libraries and after-school programmes to ensure that computers are used efficiently to complete homework and other research assignments (Celano and Neuman, 2010).

Conclusions

We live in a culture where the ubiquity of digital technologies, and what appears to be a strong desire in students to learn collaboratively and socially, have the potential to change our current paradigm by putting students at the centre of the learning experience. Research shows that digital tools can not only motivate and engage students they may also be critical factors leading to improved educational outcomes.

The challenge for us as educators is, therefore, 'to prepare students for a world that doesn't exist, to equip them for solving problems that we haven't even begun to think about and to train them to use technologies that haven't yet been invented' (Jukes et al, 2010, pg 53).

Bibliography

ACOT^2 (2008). *Apple Classrooms of Tomorrow – Today.* http://ali.apple.com/acot2/global/files/ACOT2_Background.pdf

Adams, G. (2011). Is videoconferencing worth a look? *Interface*. No. 36.

Bebell, B. and O'Dwyer, L.M. (2010). Educational Outcomes and Research from 1:1 Computing Settings. *The Journal of Technology, Learning and Assessment*. Vol.9, No.1.

Becta, 2009. *Inspiring Learners*: *Discover how Technology can inspire learners to achieve more.* http://public.klp.rm.com/establishments/9310000/ICT/ICTWebsite/Resource%20Library/Becta%20Documents/inspiring_learners.pdf

Becta, 2010. *Engaging Families: Discover how technology for learning can benefit the whole family.* http://www.learn-ict.org.uk/intsafety/ks2_manage/engaging_families.pdf

Celano, D. and Neuman, S.B. (2010). Roadblocks on the Digital Highway. *Educational Leadership.* Vol. 68, No. 3.

Chajecka, E.V. (2010). Txting to M-Learn. *Education Review: ICT and Procurement 2010.*

Churches, A., Lee, C., and Jukes, I. (2010). *The Digital Diet: Today's digital tools in small bytes.* Victoria: Hawker Brownlow Education.

Coogan, P. and Wenmouth, D. (2011). Tech Tools and The New Teacher. *Education Review.* 11 March, 2011 .

Crook, C., Harrison, C., Farrington-Flint, L., Tomás, C., and Underwood, J. (2010). *The Impact of Technology: Value-added classroom practice*. http://www.becta.org.uk

DeGennaro, D. (2010). Opening Digital Doors. *Educational Leadership.* Vol. 68. No 3.

Dunn, L.S. (2011). Making the Most of Your Cl@ss Website. *Educational Leadership.* Vol. 66. No 3.

Erb, W. (2010). Stretching the Possibilities. *Education Review: ICT and Procurement 2010.*

Erb, W. (2010). Up in the Clouds. *Education Review: ICT and Procurement 2010.*

Ferriter, B. (2009). Learning with Blogs and Wikis. *Educational Leadership.* Vol. 66. No 5.

Ferriter, W. M. (2009). How to Become a Digital Leader. *Educational Leadership.* Vol. 67. No 2.

Ferriter, W. M. (2010). Cell Phones as Teaching Tools. *Educational Leadership.* Vol. 68. No 1.

Fisher, D. and Frey, N. (2010). Preparing Students for Mastery of 21st Century Skills. Bellanca, J. and Brandt, R. (2010). *21st Century skills. Rethinking How Students Learn.* Victoria: Hawker Brownlow Education.

Fox, I., Britain, S. and Hall, V. (2009). *ePortfolios – Celebrating Learning.* Wellington: Ministry of Education.

Gabriel, T. (2011). Speaking Up in Class, Silently, Using Social Media. *New York Times. May 12, 2011.*

Greaves, T. Hayes, J. Wilson, L. Gielniak, M. and Peterson, R. (2010). The Technology Factor. Nine Keys to Student Effectiveness and Cost-Effectiveness. MDR: www.schooldata.com

Gurr, D. (2010). Thinking about Leadership for Learning. *The Australian Educational Leader.* Vol 32. No 4.

http://www.mobilelearningsig.com/

http://www.skoolaborate.com/

Huber, C. (2010). Professional Learning 2.0. *Educational Leadership.* Vol. 67. No 8.

Johnson, M., Calvert, E. and Raggett, N. (2009). *ICT in Schools 2009: Information and Communications Technology in New Zealand Schools 1993-2009.* Wellington: Research New Zealand.

Jones, S.A. (2011). Current Trends in Online and Blended Learning. http://www.onlineschoolforgirls.org

Jukes, I. McCain, T. and Cockett, L. (2010). *Living on the Future Edge. Windows on Tomorrow.* Australia: Hawker Brownlow.

Kinane, D. (2010). Don't Delegate to others the 'passion' for elearning. *Interface.* Issue 24.

Kinane, D. (2010). Go mining at the chalk face for elearning gold. *Interface*. Issue 28.

Kist, W. (2010). *The Socially Networked Classroom.* California: Corwin.

Kitsis, S. (2010). The Virtual Circle. *Educational Leadership.* Vol. 68. No 1.

Kolb, L. (2011). Adventures with Cell Phones. *Educational Leadership.* Vol. 66. No 3.

Lee, M. (2010). The home: The forgotten part of the educational equation? *The Australian Educational Leader.* Vol 32. No 1.

Lee, M. (2010). Pathfinding Schools move into the networked mode. *The Australian Educational Leader.* Vol 32. No 4.

Lee, M. (2011). One Size Doesn't Fit All. *The Australian Educational Leader.* Vol 33. No 1.

Lin, M. and Bolstad, R. (2010). Virtual Classrooms: Lessons for teaching and learning in the 21st century. *Set. Research Information for Teachers* 2010 (1).

Martinez, S. and Harper, D. (2008). Working with Tech-Savvy Kids. *Educational Leadership.* Vol. 66. No 3.

McDowell, S. (2010). Literacy teaching and learning for the 21st Century. Bridging the theory to practice gap. *Set*, No. 2.

McDowall, S. (2010). *Literacy Teaching and learning in elearning contexts.* Wellington: Ministry of Education.

McLeod, S. (2011). Losing Digital Control. *Education Review*. 11 March 2011.

McLeod, S. (2011). Are schools becoming irrelevant to today's society? http://www.core-ed.org/are-schools-becoming-irrelevant-todays-society

Means, B., Toyama,Y. Murphy, R. Bakia, M. and Jones, K. (2010). *Evaluation of Evidence-Based Practices in Online Learning: A Meta-Analysis and Review of Online Studies.* http://ctl.sri.com/publications/displayPublication.jsp?ID=770

Ministry of Education (2006). *Enabling the 21st Century Learner - elearning Action Plan for Schools 2006-2010*. Wellington: Learning Media.

Ministry of Education (2007). *The New Zealand Curriculum (NZC)*. Wellington: Learning Media.

Ministry of Education (2008) *Kiwi Leadership for Principals. Principals as Educational Leaders*, p 25

Moore, R. and Barnett, B. (2010). The Teachers of 2030. *Educational Leadership.* Vol. 67. No 8.

Pierson, K. (2011) Education Trends for 2011. *Principals Today*. Term 1, 2011.

Project Tomorrow. (2009) Creating our Future: Students Speak up about their Vision for 21st Century Learning. www.tomorrow.org/**speakup**

Richardson, W. (2008). Footprints in the Digital Age. *Educational Leadership.* Vol. 66. No 3.

Richardson, W. (2010). Navigating Social Networks as Learning Tools. In Bellanca, J. and Brandt, R. (2010). *21st Century skills. Rethinking How Students Learn.* Victoria: Hawker Brownlow Education.

Roberts, R. (2009). Video Conferencing in Distance Learning: A New Zealand Schools' Perspective *Journal of Distance Learning* 13(1).

Robertson, J. (2010). Looking at Learning. *Education Review. Leadership and Professional Development.* 2010.

Rosen, I.D. (2011). Teaching the iGeneration. *Educational Leadership.* Vol. 68. No 5.

Spender, D. (2010). Skating on Thin Ice: Girls and Literacy in the Digital Age. *In Alliance*. Vol. 45.

Stuart, C. (2011). The Changing Face of, Purpose and Use of ICT in our Schools. *New Zealand Principal.* Vol. 26.

Tiakiwai, S.J. and Tiakiwai, H. (2010). A Literature Review focused on Virtual Learning Environments (VLEs) and e-Learning in the Context of Te Reo Māori and Kaupapa Māori Education http://www.virtualeducation.net.nz/home/files

Virtual Education Networks Ltd (2010). *Otago Virtualisation Trial Stage 3 Report.* Virtual Education Networks Ltd http://www.virtualeducation.net.nz/home/files

Wenmouth, D. and Coogan, P. *Tomorrow's Web for Future Learning.* www.cognitioninstitute.org/index.php?option=com_k2&id...

Wright, N. (2010). *elearning and implications for New Zealand Schools: A literature review.* Ministry of Education.