

21st Century Learning in New Zealand: Leadership Insights and Perspectives

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Abstract

Schooling in New Zealand in this, now the second decade of the 21st century, a time perceived to be one of significant change. School leaders (and their school communities) are currently challenged by the focus on 21st century learning, which demands a shift to digital pedagogies, increasingly enacted in flexible learning spaces, and the demand for the the curriculum to be a vehicle for developing new skills and competencies.

*The research question guiding this study highlights the problem of leadership in this particular time of change. **What is the influence of the concept of '21st century learning' on leadership in a selection of New Zealand schools?** This article grows out of a larger, Auckland University of Technology-funded study, and focuses on the insights and perspectives of two school leaders on 21st century learning. The larger study is particularly interested in the influence of '21st century' teaching and learning initiatives on school strategic statements and practice, an area currently under-researched and analysed in New Zealand. This research seeks to address this gap, and make a contribution to New Zealand academic scholarship. This article analyses data from two principal participants. The participants demonstrate that certain characteristics of exemplary leadership remain constant even in the face of some of the most radical challenges to the ways in which the work of teachers, school leaders and schools is conceptualised and conducted.*

Key words:

21st century learning; futures education; change leadership

Introduction: The New Zealand government 21st century learning strategy

In its 2013 Budget, the current government outlined a 'Quality Teaching Agenda', "a package of interconnected initiatives designed to lift the quality of teaching and strengthen the teaching profession" (Ministry of Education, 2013). This agenda includes the intent to better understand "the nature of teaching and learning in the 21st century" (2013). What precisely does '21st century teaching and learning' refer to?

In its report to the New Zealand parliament, the Education and Science Committee took 21st century learning "to mean the changes to teaching and learning in schools that result from digital technology" (New Zealand Parliament, 2012, p. 9). A wider understanding is required, we are convinced, to reflect the complexity of the phenomena that are associated with the 21st century, particularly if we accept that these phenomena are fluid and unpredictable (see for instance, Bolstad and Gilbert, 2012). We recognise too that schools must attend to the development in their students of a skill-set appropriate to successful living in the current century. Wagner (2008, cited in Saavedra & Opfer, 2012, p. 8), a Harvard University innovations expert, has detailed the 21st century skill set as: critical thinking and problem solving; collaboration and leadership; agility and adaptability; initiative and entrepreneurialism; effective oral and written communication; accessing and analysing information; and curiosity and imagination. This list resonates with the list of key competencies outlined in *The New Zealand Curriculum* (Ministry of Education, 2007), and

reflect a shift away from arguable 'outmoded' transmission models of teaching that persist in global compulsory education systems, and which fail to adequately develop these skills and competencies (OECD, 2009). What is required, the argument goes, is a radically new approach to the way teachers and school leaders go about their work. This transformation will be evident in the tools they use, and the space in which they work, as they focus their energies on developing 21st century skills.

This transformation is now a central focus for the New Zealand Ministry of Education, which seeks to achieve "a world-leading education system that equips all New Zealanders with the knowledge, skills, and values to be successful citizens in the 21st century." (2014). This policy emphasis is evident in modern, flexible learning environments provided for in new schools, and, retrofits, or upgrading of older schools. Enhanced digital technology is a further priority in these projects (Mediaworks TV, 2013; New Zealand Government, 2012; Western Springs College, 2013).

The Education and Science Committee Report referred to earlier noted that its inquiry found insufficient New Zealand data and research concerning a range of issues, and identified the urgent imperative to create a research base that included "the impact of digital technology on teaching and learning ... improving collaboration, [the] pedagogy of digital learning, distributed leadership, teacher development ... and digital equity" (New Zealand Parliament, 2012, pp. 16–17). This article, and the research project on which it is based, contributes to this research base, and widens the available knowledge base for scholars, policy-makers and practitioners in schools. What follows is a review of current literature across a range of themes, including 21st century discourses, consequent pedagogical shifts, influences on school leadership and relevant concepts of e-learning and digital citizenship. The particular methodological focus and approach of this article and the research it reports on will be outlined, followed by an analysis of relevant findings and associated discussion.

The discourse of a 21st century future

Western education systems have traditionally fulfilled the requirements of an industrial age society (Canada, 2013; Meyer, 2010; Robinson, 2013) providing school-leavers with a general knowledge base for responsible adulthood, and a foundation for future employment (Bolstad & Gilbert, 2008; Potter, 2012). The 20th century system is characterised by some as a 'one size fits all', industrial-age model (Bolstad & Gilbert, 2012), which, it has been suggested, while serving most well, also features student disengagement and a drop out crisis, with unacceptable failure rates in international education (Canada, 2013; Meyer, 2010; Robinson, 2013). These commentators are participants in a growing body advocating the replacement of industrial age schooling with a system that emphasises innovation and creativity, provides an individualised response to diverse learning needs, and is able to build teacher professional enrichment (Loveless & Williamson, 2013).

The advent of the digital age has afforded these calls greater currency and significant momentum in the first decade of the 21st century. Castells (2010) reported that global access to the Internet increased from under 40 million in 1995 to about 1.5 billion in 2009, with growth in developing countries outstripping the rate of growth in developed states. Meanwhile, Internet World Stats (2013) reported the global figure to have reached 2.4 billion by June 2012. The most recent upsurge, however, is in the use and availability of mobile devices. The 'smart phone' places a powerful personal computer in the hands of the user, and increasingly, school-goers have access to these devices. The widespread digitisation of, and open access to, high level content means that, at a minimal cost, users can gain access to university-level knowledge without ever attending one (Beetham & Sharpe, 2013).

The social and economic transformation growing out of these technological developments requires educational policies, structures, and strategies to provide students with the knowledge and skill to obtain best use of a digital future (Amos, 2013). While we disagree with the technical determinism of this view, we agree with Potter's (2012) questioning of the growing gap that is emerging between the digital and scholastic experiences of students. In the evolving context of the digital revolution, knowledge is increasingly recognised as incomplete, unsettled, provisional, and culturally constructed to suit the interests and positions of its users (Beetham & Sharpe, 2013). Disciplinary knowledge is therefore deeply challenged by the calls for education to reposition its focus to preparing young people for a workplace and society that is at once global and local. The digital revolution has dramatically altered our concepts of time, space and place, and consequently, the organisation of work (Castells, 2010). Education should thus respond to this revolution.

Pedagogical shifts: 21st century learning

The educational futures literature is particularly interested in 21st century pedagogy and in particular in the role of teaching and learning in preparing children and adolescents for the indeterminate realities of 21st century life. This relationship to learning has been phrased as 'prospective' (forward-looking) in contrast to 20th century 'retrospective' (backward-looking) pedagogies through which the learner was initiated into existing and privileged practices (Loveless & Williamson, 2013).

Should the roles of teacher and student then be re-envisioned to meet the challenges of the digital age? New opportunities have arisen for participatory practices, collaboration among teachers, self-directed student learning and the use of multimodal tools in schools (Garcia & Morrell, 2013), however, while devices and technology can improve results for those characteristically marginalised by schooling, this marginalisation will continue, argue Garcia and Morrell if school policies and teacher practices reject digital opportunities (2013). Closing the gap between the social worlds and structured learning environments of students has benefits for both them and their teachers. Not only should children's pre-existing skills and learning be acknowledged, but new, relevant and transferable 21st century skills and competencies must be

developed if students are to become empowered digital citizens, with a sense of community and global social positioning (Coates, 2010; St. George, Brown, & O'Neill, 2008).

The World Wide Web (WWW) and Internet that make resources and help readily accessible, encourages shared learning, placing schools and technology at odds. Teachers and their textbooks have traditionally presented knowledge to students (Collins & Halverson, 2009), but the WWW has transformed teachers into learning facilitators (Davidson, 2011), arguably undermining the status of disciplinary knowledge in schools (Beetham & Sharpe, 2013; Bolstad & Gilbert, 2012). Shifts in pedagogy (the thinking that underpins teachers' beliefs about teaching and education) and classroom strategies thus seem inevitable. While digital technology is capable of disrupting conventions and norms and can lead to a dramatic overhaul of pedagogical attitudes (Beetham & Sharpe, 2013), it is, however, short-sighted to suggest that new digital devices alone will provide learning experiences geared to preparing school-aged students for participating in the digital world. Devices cannot act as mere props to conventional approaches to teaching and learning, but should make an educative difference (2013).

Change

The potentially debateable participatory democratising effect on schools of the digital revolution (Collins & Halverson, 2009) was foreshadowed over a decade ago, when Murphy (2002) suggested that the practices of effective 21st century schools would require that they reflect the changes prompted by the digital revolution. (We argue, however, that thinkers such as Ivan Illich and Paulo Freire fundamentally foreshadowed these changes in the 1970s). What would leadership look like, asked Smythe (2001) if it moved away from a traditional, functional hierarchical structural model towards one of empowerment, democracy and self efficacy? A consequence of the democratising effect of the digital age is that 21st century schools must create new power structures. These demands have implications for school leaders in particular, who have for some time been encouraged to devolve leadership responsibility, and share initiative management (Bell, 1995; Murphy, 2002; Smythe, 2001). As Nausbaum-Beach and Ritter Hall have suggested: "Transformational leaders understand that leading is a shared responsibility" (2012, p.128)

Technology has changed the way individuals communicate, with impacts for learning, teaching, and the management of social groups and systems. Industrial-age leadership reflected limited and hierarchical communication, but as technology enables communication to expand and change, leadership is required to reflect those changes. Not only are educational leaders expected to devolve responsibility through their staff, but student participation in their own learning decisions is also a component of this new democracy (2012). Distributed leadership also requires that leaders involve themselves in response to government initiatives, sometimes even openly challenging decisions; a situation that can give rise to personal and professional risk (O'Callaghan, 2013).

Further changes stemming from the digital revolution are the pedagogical implications related to online safety, digital citizenship, and new competencies including digital literacy (Collins & Halverson, 2009). Curriculum evolution and the development of more appropriate and effective pedagogical strategies will follow, although, as Abbey (2012) has noted, a combination of old pedagogy and new technology will achieve middling improvement. What is required, he suggested, is to develop new pedagogies with the new technology, if high-level improvements are to be attained.

Teachers—and leaders—should be models of the qualities students are expected to develop. It has been suggested that teachers and leaders are required to develop 'situational competence' to manage change as a complex and unpredictable process (Alvy & Robbins, 2010, p. 91). Major challenges present themselves for teachers, especially those trained in earlier decades, who could rely on their long experience and well developed classroom expertise and not necessarily have to rely on technology (St. George, Brown, & O'Neill, 2008). Developing competencies in their students while their own competencies are weak may mean they are operating outside their comfort zones (Levin & Schrum, 2012). For the less flexible teacher, the options are limited. (Picciano, 2006; Sallis & Jones, 2002).

These rapid changes demand flexibility in planning and in developing relationships across teaching teams, with students, and with the wider community. Smythe (2001) encouraged teachers to actively assist each other to find meaning through reflection on their practice, leaders required to invest in them both the capacity and capability to change, improve and transform their practices. Such collaborative and participatory reflection and discussion requires a managed process aimed at ensuring consistency between the individual mission of the school and the expectations of the stakeholder community, while still maximising the benefits of the technology revolution (Levin & Schrum, 2012). Strategies to strengthen staff development include using staff feedback and self-evaluation, providing opportunities to work collaboratively on shared issues, questions, ideas or follow up activities (Picciano, 2006).

Enabling reflective activity, curriculum advancement and pedagogical overhaul in light of the digital revolution demands a break in leadership approaches. As Murphy suggested at the turn of the current century, "the ways of thinking about school administration that we relied upon for most of our history provide an inadequate platform for educational leadership in the 21st century" (2002, p. xi).

Some new pedagogical concepts: e-Learning and digital citizenship

A range of definitions of e-Learning suggest it is a debateable area: "It is arguable that there are really no models of eLearning per se—only enhancements of existing models of learning" (Beetham & Sharpe, 2007, p.13); and: "there have been some wild statements from opinion formers about technology revolutionizing how students will learn in the 21st century, but the research based fundamentals of what it takes to learn have not been challenged" (Laurillard, 2013, p.27). Others suggest that e-Learning is transforming those

who use it (Carr, 2010; Loveless & Williamson, 2013; News.com, 2013), possibly even that e-Learning is more effective than traditional methods for some learners (Garcia & Morrell, 2013; Massey University, 2013; Moir, 2013a). The New Zealand Ministry of Education opts for this definition: “learning and teaching that is facilitated by or supported through the appropriate use of information and communication technologies (ICTs)”, hastening to add, however, that “e-Learning is not simply associated with modes of delivery or the functionality of a particular technology, but forms part of a *conscious choice of the best and most appropriate ways of promoting effective learning* (2010. Emphasis in the original).

As much e-Learning occurs online, the question of safety is a priority for school leaders and teachers, who have a duty of care and responsibility for their young learners. Parental doubts and concerns can block the implementation of technology in schools, as evidenced by recent concerns as to the safety of Wi-Fi exposure (Moir, 2013b). Nevertheless, inculcating the relevant understanding and awareness of the positive, participatory collaborative qualities of online interaction forms a large part of digital citizenship skill development (Jenkins, Purushotma, Weigel, Clinton, & Robison, 2009).

Borrowing from the idea that citizenship of a particular city, state, or country confers rights and privileges on the holder in return for certain duties and obligations, ‘digital citizenship’ refers to the individual interacting safely, positively, constructively and respectfully with other digital users. Rather than civil society, the meeting ground for digital citizens is the shared community linked via the Internet to the World Wide Web, and the various media devices that provide access to the Web (Netsafe, 2009; Potter, 2012).

Given that there are both strong claims and a clear government agenda for the development of ‘21st century’ schools that are able to shape teaching and learning and be environmentally appropriate (New Zealand Government, 2012), and at the same time resistance to these claims as elements of technologically deterministic economic policy, it is critical for school leaders to have space and time to make sense of the different arguments and to work closely with their community to make shared decisions about their school’s participation in the digital world. This research looks to share the voices of principals who are actively engaged in this process. What follows is an expression of the methodological orientation taken up in this article.

Methodology

This article reports on the early stages of a larger qualitative research study, which is informed by the insights of both critical theory and critical hermeneutics. Critical hermeneutics draws on the critical theory of the Frankfurt school, and hermeneutics, which has been strongly influenced by Heidegger and especially Gadamer (1975). Despite some differences, there is a strong overlap between critical theory and critical hermeneutics.

Hermeneutics is concerned with the nature of human interpretation and

understanding. It allows participants to interpret what is perceived and to make sense of their perceptions (Ramberg & Gjesdas, 2009). Hermeneutic theory posits the *hermeneutic circle* (Ramberg and Gjesdas, 2009; Weinsheimer, 1985), which means that (a) all interpretation is biased by one's previous experiences, world-view and personal history, (b) new perception and interpretation leads to new understanding and the creation of meaning, which (c) shapes a person's beliefs, world-view and self-concept. The place of interpretation in hermeneutic processes means language is significant (Kinsella, 2006; Ramberg & Gjesdas, 2009). Hermeneutics as a research method embraces the contextualised nature of interpretation and understanding. Research findings are always dependent on the context of the research study, as well as the researcher. (Kinsella, 2006; Roberge, 2011).

Members of the Frankfurt School (Horkheimer, Adorno, Marcuse and Habermas) initially developed critical theory in response to the rise of fascism in Europe. Influenced by Kant, Marx and Hegel, one of their challenges was to develop a practical philosophy, which they achieved by creating a close link between philosophy and other human and social sciences (Bohman, 2005; Bohman & Rehg, 2011). This allowed critical theory to bring together "empirical and interpretive social sciences... [and]... normative claims of truth, morality and justice" (Bohman, 2005, p.5), with a focus on supporting a social re-constructive perspective and a commitment to social justice. According to Bohman, (2005), critical theory must be explanatory, practical—in a moral, not instrumental sense—and normative.

Based on these overlaps and the background given for both traditions above, a description of *critical hermeneutics* as method can be formulated: critical hermeneutics is a dialectical method that (i) moves from interpretation to action, and (ii) requires an active researcher who creates understanding that might lead to social action and change towards more equity and democracy in society. (iii) Critical hermeneutic researchers are also required to be aware of their personal history, beliefs and assumptions, as well as being aware of their social and cultural context. Further, (iv) the researcher must be self-reflective and contextualise his or her research findings adequately (Roberge, 2011). A desirable approach to data collection in which critical theoretical and critical hermeneutical interpretations can be applied, especially in highly contextualised and complex research settings in the humanities, is the case study approach.

According to Rosenberg and Yates (2007), case studies need to be considered as approach instead of being a method in their own right. The data collected in a case study approach does not speak for itself, but must be analysed in light of the underlying method, such as critical hermeneutics, to lead to research outcomes.

Case studies specifically enable the researcher to contextualise the phenomenon of interest, and are most commonly applied where the phenomenon of interest is complex and highly contextualised, with multiple variables unsuitable for control (Yin, 2003). There may thus be multiple levels of analysis within a single study. Case studies provide the researcher the opportunity to develop a deeper understanding of the way individuals operate (Berg 2007). Of particular interest

in this study is the view of Ary, Jacobs, Razavieh and Sorenson (2006), who see in case study design the opportunity to understand how and why individuals respond to changes in their environment.

Case studies offer multiple sources of data (Ary et al., 2006; Yin, 1993), deepening researcher understanding. Full and accurate descriptions of cases are possible once all case study data are subjected to systematic collection and analysis (Wilson, 2009). This rigour will permit coherent comparisons among cases, and thus provide some level of general explanation, in addition to providing the possibility for study replication by other researchers (Berg, 2007).

This article reports on the first two schools that agreed to participate in a larger, university-funded study. One of these has previously participated in a small-scale case study conducted by the author (Benade, 2012). **Principal 1** leads a Decile 3 state Year 1 to 6, co-educational primary school. It has an ethnically diverse roll in the mid-300s. This school's history dates to the late 19th century, and is located in a long-established suburb. The principal has been principal of this case study school for approximately five years. His school is designed in a traditional cellular arrangement. It was selected as its positive Education Review Office reports indicate it to be a school where teaching is effective, and particularly because the principal is known for his commitment to school-wide reflective practices (citation withheld to maintain anonymity). Some 25 kms to the East of his school, **Principal 2** leads a Decile 8 state-integrated Year 1 to 6, co-educational primary school. It has an ethnically diverse roll that is rapidly approaching the 300 mark. The school was established four years ago, and is located in a fast-growing, newly-established suburb. The principal is a well-experienced educator who has been principal of this case study school since its establishment. Her school is designed in a traditional cellular arrangement, although additional classroom buildings, added in the past year, have been designed as flexible spaces. This school was selected for this reason, as its strategic direction is now focused on the development of pedagogies suited to flexible spaces. Additionally, the school is committed to embedding e-Learning across the curriculum, and developing school-wide reflective practices.

Data collection for this article is based on interviews of the principals in the two case study schools (interviews were also conducted with other senior leaders and teachers, but these have not been considered for the present purposes). The interviews were audio-recorded and transcribed. Analyses of themes were done by utilising NVivo, a professional software tool to analyse qualitative research data. The transcribed data has become a text that it is possible to analyse, in order to better understand the context of the cases, as well as the motivations and actions of the participants. The critical hermeneutic method means the repeated passes are made over the text, seeking to unravel, from the language, the intentions and impressions of the participants.

Findings

The interviews of the principals focussed on their understanding of the term '21st century learning' and futures education; the attributes required of practitioners in the 21st century (here too, questions were posed concerning the link between the adoption of relevant 21st century practices and reflective activity); and the strategic steps taken by principals. They were also asked to indicate how they personally were managing the required changes to practice. The following three themes emerged in the transcribed data: the concept of 21st century learning; strategic planning; innovative leadership.

(a) 21st century learning: a principal's perspective

Principal 1 characterised 21st century learning as "a generic approach to learning", and **Principal 2** believed it required more "incorporating ... knowledge and doing". Teachers must thus focus less on knowledge transfer and more on giving students the capabilities required to source their own knowledge. For **Principal 1** the real knowledge focus should be on teachers' self-knowledge, as they now require the "awareness of the new learning...[and]... knowledge of themselves as learners". Teachers must rise to the challenge of engaging with 21st century students, but **Principal 2** noted that teachers "have difficulty letting go of being in control all the time and letting the children take ownership".

This finding points to the pedagogical shifts the principals saw as critical to the success of teachers and schools in the 21st century—shifts that require teachers to have the ability and willingness to give up their position of authority. **Principal 2** insisted however that teachers have to plan for the changes demanded by 21st century learning so that the change is successful and beneficial to student learning. One such change is the use of flexible learning spaces or modern learning environments (FLE/MLE). The FLE/MLE emulates a model of real work open-plan situations. These environments are so different from what teachers are used to, noted **Principal 2**, that they must not only develop new ways of teaching in these spaces, but they "actually have to look at things differently". In this vein, **Principal 1** urges his teachers to be more creative and broad-minded by thinking, for example, of students being assessed on their reading and writing of blogs. He reported, however, that it is not easy to encourage teachers to shift their thinking in this way.

These pedagogical shifts indicate, in the findings, that 21st century teachers will develop and display in themselves the specific attributes they must encourage. **Principal 1** seeks these in principals and teachers: "We want our kids to have it, we have to have it". Moreover, as noted above, the genericism and flexibility of 21st century learning implies a loss of structure, thus requiring teachers to develop coping capabilities. **Principal 1** suggested several, such as flexibility and innovation ("look [for] information in a whole range of places"), and open-mindedness and resilience, while **Principal 2** added to the list of attributes the ability of teachers to be self-initiated and self-motivated learners. She placed a high premium on collaboration among teachers, especially in the context of

FLE/MLE.

On the relationship between technology and pedagogy, **Principal 1** was clear in his mind that technology not simply be added on top of existing teaching practices. He has found, however, that technology is challenging to some teachers. One of these challenges stems from teachers lacking technological understanding (or perhaps the desire to engage) and complaints that technology is "...not user friendly... Some teachers saying, "I didn't like my picture being on Facebook". He noted, however, that these tend to be isolated cases. He saw his task as alleviating fears and anxieties. There are, however, many opportunities and possibilities opened up by technology. One of these is the possibility to develop collaborative practices through shared online forum experiences such as *The Ariki Project* (2013), which his staff engaged in during 2013. An obvious opportunity is for teachers to enhance their relationships with students, by interacting with them in an area they find engaging. For **Principal 2**, technology not only provides students the opportunity to engage in 'hands-on' learning experiences, but provides teachers a powerful route to personalising learning for students.

A final perspective of considerable significance is the view of the principals regarding reflective practice—what it might mean or entail, and how it is reflective of 21st century learning. **Principal 2** linked reflective practice to appraisals and the 'teaching as inquiry' cycle outlined in *The New Zealand Curriculum* (Ministry of Education, 2007, p.35), which consists of three separate processes: 'focusing inquiry', 'teaching inquiry' and 'learning inquiry'. These processes engage teachers in asking what their students need to know, what the strategies are whereby teachers can attain these learning goals, and whether these strategies have been effective in enabling students to learn. In contrast, **Principal 1** suggested a range of attributes, such as the ability to step-back. Reflective teachers have self-knowledge, and regard themselves as learners. They have inquiring minds, and think about what knowledge means to their students. Reflective teachers are risk-takers: "If you're not doing anything, you're not taking any risks, it's all very safe and well and good". Reflective teachers are affirming of others, a quality this principal thought was especially important as he regarded reflective activity to be a collaborative and shared exercise.

The content of reflective practice can be about practice, policy, or indeed, about one's thinking (**Principal 1**). For **Principal 2**, the content is focussed on what teachers are thinking of in terms of planning for targeted students. It also includes reflection at end of the term on what has gone before. Reflective practice enacted, suggested **Principal 1**, means having the courage to test ideas in public, and welcoming feedback: "You've got to have an idea. You've got to have a viewpoint that starts in an idea to be a reflective practitioner". Planning documents are turned into lived and living pieces of reflective activity in the school of **Principal 2**. Teachers are encouraged to make their thoughts explicit by inscribing planning sheets with their own reflective notes, and sharing these with others. Technology like Google Docs is used to support that process.

(b) Strategic planning

Both identified the combination of the principal as technology director and as leader of pedagogical innovation. **Principal 1**: “It’s about identifying big ticket things, in terms of money. Right through the middle of this is this whole thing about teaching pedagogical content”. Apart from being knowledgeable of a wide range of hardware solutions and options, the leader must be “keeping that one step ahead, so the teachers don’t get frustrated because they don’t have what they need and then the enthusiasm drops away” (**Principal 2**).

Principal 1 indicated that he and his deputy principal, who is responsible for IT development in their school, collaborated to create an IT strategic plan. This was done in association with a large provider of technical solutions to schools, which provided significant advice, of both technical and pedagogical nature. In the case of **Principal 2**, much of her learning includes close collaboration with her senior leaders, and frequent visits by her and her colleagues to a range of schools established as future-focus schools. In addition, her school has been engaged in an intensive period of contracted e-Learning, in a large cluster of schools.

Of the two case study schools under review here, only school 2 had the experience of FLE/MLE. **Principal 2** identified decisions regarding contemporary, 21st century approaches to furnishing classroom spaces as a further dimension of the technological changes a principal has to lead. She related the design, assemblage and arrangement of learning space furniture to an innovative and progressive understanding of how students learn. Innovative approaches to pedagogy have to be planned for, and it is an important task for leaders to ensure that structures are in place. The principal noted the challenge of shifting from a cellular model to a flexible model, which requires a shift to teachers’ thinking: “...do we have a big open space that can be shut off into ... three classroom spaces, or do we ... have it all open[?] ... we decided ... completely open so that [teachers] don’t keep reverting back ...”.

Strategic planning includes principals’ planning of staff-wide strategies to allay staff fears of the unknown, such as those they associate with being thrust into the public digital domain, or having to collaborate in large FLE/MLE housing over eighty children. Both principals emphasised the importance and value of school-wide professional learning as way of bringing teachers around to seeing their role differently. **Principal 2** also discussed parent curriculum workshops as a strategy to familiarise parents and families to the concepts around 21st century learning, reflecting on the changes since parents were at school.

Strategic planning documentation has a significant role to play in supporting both the principals, and their schools, in coping with the changes impelled by 21st century learning. For both principals, the underlying vision and values provide the direction and stability required to navigate their respective schools through the changes. **Principal 1** suggested that it was critical for a principal’s personal change philosophy to guide the crafting of strategic planning documentation, but that the expression of this philosophy is “broad enough to go out and reach the kids and the community”. School strategic planning

statements, such as the values and the vision, in fact enhance and underpin the shift to 21st century learning, reported **Principal 2**. The move to flexible spaces places an even greater premium on the importance of developing competencies in students, such as self-management and the ability to participate and relate with others, which happen to be well-supported by her school's values. Both principals therefore reported that in their schools, the shifts required in the development of 21st century learning have not required an adjustment to the fundamentals of their strategic planning.

(c) Innovative leadership

Both cases reflected innovative approaches to leading 21st century learning change. These include: the recognition by the principals of the ability of appropriate technology to support teacher learning and appraisal, and using technology to support them in embracing and promoting change.

Principal 1 described, as noted earlier, the participation of his school staff in *The Ariki Project* (2013), a professional reflective project. This online digital tool requires collaborative sharing in groups of each teacher's progress against defined appraisal goals. **Principal 2** reported the definition of similar performance goals for her teachers, using 'Google Docs' (which enables collaborative, live online document creation and editing). Teachers use the tool to share planning and goal-attainment strategies and progress with each other. Thus, both principals have facilitated the intersection of digital affordances with teachers' collaborative reflection on their achievement of specified goals.

Technology and student-focussed approaches to learning has enabled both principals to demonstrate their positive attitude towards embracing change that supports 21st century learning. **Principal 1** provided an example of modelling behaviour from his own experience, showing that he not only permitted the use of YouTube by the students he was helping to supervise, but he participated with them. In so doing, he incidentally learnt something new about this group of students, namely that YouTube has become a vehicle for recording family socio-cultural life. **Principal 2**, in preparation for the shift of students from cellular to flexible learning space, encouraged the students, through their teachers, to articulate ways they might be expected to conduct themselves in the flexible learning environment, while teachers studied and discussed Ministry of Education Internet resources.

Discussion of findings

The following discussion reflects on the discourse of the two principals in relation to the concept of 21st century learning, pedagogical shifts and the subject of change. Although the principals work in quite different contexts, they are equally required to respond to Ministry of Education imperatives, which include its focus on e-Learning and the development of key competencies, as an example of 21st century skills. Their discourse shows each endeavouring to make the most of the opportunities offered to 21st century schooling by digital media. Yet, both noted that they rub up against some resistant teacher attitudes (teachers who

have “difficulty letting go of being in control” – **Principal 2**; the anxieties about technology reported by **Principal 1**). These attitudes among teachers run the risk, pointed out by Garcia and Morrell, (2013), of alienating their digitally-attuned students. In other words, their resistance to new media may affect the nature of the teacher’s credibility in the eyes of the learner. This concern may, however, be ameliorated by the shift from content knowledge to process knowledge that is closely associated with 21st century learning.

Both recognise the now tenuous position of certain, disciplinary knowledge, and emphasise instead the attainment of certain key skills by students, and indeed, teachers. This latter finding suggests that both principals see the impetus of 21st century learning is to shift the focus of schooling away from knowledge that must be imparted to students. They regard the present to be the time for teachers to use the opportunity to engage students in envisaging a new future for themselves, in a way that will better prepare them for a future that is different from the present or the past. Economic instrumentality is absent in their discourse, which emphasised instead the personal flourishing of their students in the future as important. While this flourishing would of course include, of necessity, individual economic success, the principals did not revert to the instrumental language of Human Capital Theory (HCT) that is often associated with the attainment of key competencies (see, for example, Brown & Lauder, 1996, on HCT; and Benade, 2008, for a critique of the economic orientation of the key competencies).

As the contexts of the two schools vary, it is evident that the pressures on both the principals and their teacher colleagues also vary. **Principal 2** leads a school where the pace of change has been accelerated by the provision of flexible teaching and learning spaces, meaning that the entire school community is having to adjust quickly to radically new arrangements, including three teachers team-teaching over eighty students in one area. This principal recognises that the required shifts are “not easy [and] you go down into that bit of a pit, where as teachers, as leaders, you're feeling confused and whatever. Then you try and sort it all out and then you start climbing up again.” Her strategy for dealing with this confusion is to ensure that changes are well-planned in advance, engaging community, students and all staff in the changes. This has helped to maintain a clear and consistent strategic direction and message, a factor Levin and Schrum (2012) identified. Furthermore, her insistence on creating a culture of staff-wide collaboration (and ensuring the leaders are equally involved) provides an opportunity for the reflection and collegial support that Levin and Schrum (2012), Picciano (2006) and Smythe (2001) have indicated as important in supporting teachers through change. More than this, the principal is in this approach presenting the very model of teaching that is being promoted.

Principal 1 demonstrated that the pressure to ensure currency with 21st century leaning requires that he responds accordingly, in part by supporting his teachers to develop 21st century competencies, attributes and attitudes, which he strongly believes are a pre-requisite if students are to develop these. If his teachers are to

be effective facilitators of a new future for their students, he recognises that they will have to develop the situational competence advocated by Alvy and Robbins (2010) so that they not only cope with bewildering change, but also are able to model the changed person. An example is his notion that a reflective practitioner is a risk-taker, willing to make ideas public, to elicit feedback. To make the point, he described a “reflective communication system” he had implemented. When he sought feedback, he discovered that, despite his frequent use of, and reference to, this system, some people simply never bothered to open and read the documents. This experience taught him that it is better to test an idea in public than it is to implement ideas with minimal feedback. He has learnt the value of explicit communication, and now models it to his staff. The experience has also helped reinforce his intent to model risk-taking behaviour.

Both principals have experienced some form of teacher resistance or at least uncertainty and insecurity in the face of crumbling certainty. In the case of **Principal 1**, this was evident in resistance by some to seeing any value in social media, such as Facebook and YouTube. As noted, Garcia and Morrell (2013) would regard this as an opportunity missed, and yet another example of alienating students. This principal however, in keeping with his intent to model good practice, showed by example how social media such as YouTube opens up possibilities for students to take pride in their cultural context and to engage with their teachers. The view that teachers have on ‘what counts as learning’ is critical here. Where play, games, and disorder are considered an anathema to good learning, then the 21st century learning space will be an uncomfortable place for a teacher.

Principal 2 drew attention to the difficulties teachers may have in relinquishing control. She recognised that shifts are slow, difficult, problematic (because “you don't know what you don't know”), and that some elements associated with shifting, such as developing reflective practice, are seen by some teachers as “an add-on”. She recognised that the addition of reflective practice was a source of stress for some of her teachers. Nevertheless, she noted many substantial signs that her teachers had shifted significantly, even if they did not recognise this themselves. Alvy and Robbins (2010, p. 96) quote Evans (1996, p. 59): “Although change usually represents loss, from such loss comes not only despair but also innovation. Indeed despair is often the root of innovation”. Alvy and Robbins go on to refer to first-order change (superficial or technical changes), which is distinguished from second-order change, demanding fundamental shifts not just to practice, but to thinking about practice. Clearly, what the evidence points to, is that **Principal 2** and her teachers and community are living through the despair-yet innovation-of second-order change.

An important element of change within the practices of both principals was the virtue of (or a penalty associated with) self-managing schools, namely that a school leader has to demonstrate an ability to remain abreast of new technological developments and innovations, *and* the pedagogies to match. Both principals demonstrated their recognition, as alerted by writers such as Abbey (2012) and Beetham and Sharpe (2013), that digital technology is not going to make much difference on its own—it must be supported by appropriate and

innovative pedagogical changes. **Principal 1** demonstrated a cautious approach, choosing to ensure that his teachers were building up to this new level of competence before committing his school board of trustees to committing significant funding to upgrade technology at his school. **Principal 2** also demonstrated strategic care, but is required to move at a much faster rate, given the trajectory of her school. Both demonstrated a commitment to sharing these burdens of leadership with their senior colleagues, reflecting the virtues of distributed leadership. Also reflected in the actions of both, was sharing through their commitment to various affordances of on-line tools, an innovative ability to bring together teacher development in using these tools with various strategic goals, such as targeting priority learners and teacher appraisal.

Conclusion

Richard Slaughter, a now-retired futures scholar and expert, writing in 1987, distinguished between futures *in* education, and futures *of* education. “The slide from ‘in’ to ‘of’ parallels the immensely greater investment in controlling the future as compared with the more convivial task of facilitating human development in order to create it” (p. 342). Borrowing from this distinction, it is possible that the distinction between the concept of 21st century learning and futures education performs similar work: the latter implies economic instrumentality and a notion of education for human capital, while the former points to the challenges and opportunities for holistic human flourishing the 21st century offers teachers, schools and students. The two principal participants reported here clearly demonstrated a commitment to flourishing, with no references to economic or human capital prospects.

There is a further refinement in this distinction to be made, namely the concept of ‘future focus’ in *The New Zealand Curriculum* (Ministry of Education, 2007, p. 9), which may relate in part to the economic notion above (especially the ideas of ‘enterprise’ and ‘globalisation’), where these can be seen as an education for competitive advantage in the global marketplace (see Benade, 2008). At another level, however, ‘futures focus’ in education can have the educative ideal of envisaging futures that may evolve in the lifetime of students or becoming better prepared for that future. In this regard, some of the key competencies and 21st century skills contribute to this notion of futures *in* education.

Certain ideas advocated as 21st century learning (such as empowerment of students, and the greater democratisation of the learning process) are not different from the points that were being raised by critical thinkers in the 20th century (such as Dewey, Freire, Illich and Postman & Weingartner). What differs now, however, is the power of digital tools that connect young people with each other and vast storehouses of knowledge in the wider world. A similar point can be made in relation to the attributes required of teachers in the 21st century. Many of these have had their proponents for decades (such as Fullan, Hargreaves and Sergiovanni), now however, the difference may be the extent to which technology opens possibilities for (and impels us towards) collaboration and openness.

Despite these critical thoughts, which indicate further directions and refinements for the larger research project, the two principal participants reported in this article demonstrate that, even in the face of some of the most radical challenges to the ways in which the work of teachers, school leaders and schools is conceptualised and conducted, certain characteristics of exemplary leadership remain constant. These include, placing the interests of students at the forefront, sharing leadership responsibilities, having a clear strategic plan based on strong and consistent values and vision, ensuring a coherent resourcing strategy and modelling the competencies required of students (and teachers) by considering innovative ways to encourage teachers to reflect on their practice. With such attributes girded to their practice, these principals will be well-prepared for the dramatic changes still to come .

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