Teachers and Curriculum

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Acknowledgement of Reviewers

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DIGITAL TECHNOLOGIES: FROM VISION TO ACTION

STUART ARMISTEAD
Principal
Silverdale Normal School.

Abstract

The interest and uptake in utilising digital technologies in education appears to be exponential. With the rollout of ultrafast broadband and the development of the Network for Learning in New Zealand, school leaders face the challenges and opportunity of deciding when, what and how they go about implementing digital technologies in their schools. Based on evidence from an interpretive study involving three school leaders of new schools, the alignment of their organisation's vision for teaching and learning and use of digital technologies is explored. This study suggests that digital technologies have significant potential to enhance learning opportunities within an explicit and shared vision of what a learner needs to be successful in their lives.

Keywords

Digital technologies; shared vision; leadership; student voice

Introduction

In New Zealand and across the world there is widespread interest and uptake in the use of technologies. The term 'digital technology' encompasses the wide range of devices being used in schools. These technologies are defined in *The New Zealand Curriculum* (NZC) as being tools that can effectively "find, analyse, create, communicate and use information in a digital context" (Ministry of Education, 2007, p. 7). The use of these technologies differs from school to school from the devices used through to the software and hardware solutions selected by the school. In this paper I particularly focus on the role of principal, as educational leader, in leading and managing a school. I recognise that some aspects of educational leadership incorporate the school leader's work in association with others, such as the school's Board of Trustees, in New Zealand primary schools.

My personal passion in this area has been the motivation for developments in the primary schools where I have been principal and, as a focus for further study. As a teacher and leader I have always attempted to maintain a 'big picture' view of what it is that I wanted to achieve for learners. Figure 1 (below) shows the seven dimensions of the Stanley Avenue Learner that formed the school's vision created through consultation with the local community whilst I was the principal. This became the 'filter' for decisions made across all facets of the school including the uptake of digital technologies.

School leaders and teachers are struggling to come to terms with the pace of change through digital technologies. Jukes, McCain, and Crockett, (2010a) suggested that changes possible via digital technologies have been fully embraced by students, but not by all teachers or all school leaders. School leaders and teachers that I have spoken to have highlighted issues such as lack of professional development opportunities for themselves and staff, financial constraints, poor school technology infrastructure, and pressure from parents as being the major barriers for schools in implementing the successful use of digital technologies. Flanagan and Jacobsen (2003), explained:

> Leaders in schools are facing the huge task of reinventing schools and classrooms in a society that has been transformed by digital technologies, and many feel overwhelmed by the mandate to integrate computer technology. (p. 13)
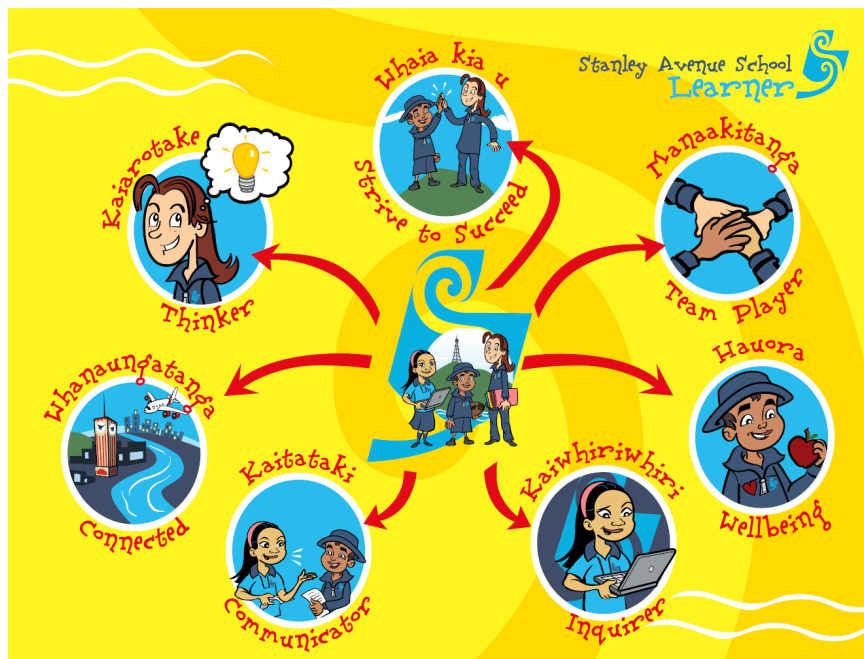
Figure 1:   Stanley Avenue Learner

These all led me to believe that more support for leaders in investigating the effective use of digital technologies was needed.

Support from the Ministry

New Zealand's Ministry of Education has been active in considering the role of digital technologies in schools over past years. Their strategic intent has been documented in a range of publications such as *Digital Horizons: Learning Through ICT* (Ministry of Education, 2002), *ICT Strategic Framework for Education* (2006b) and *Enabling the 21st Century Learner* (Ministry of Education, 2006). Key dimensions of the *Digital Horizons* strategy included considering curriculum and learning resources, infrastructure and professional development whilst the *ICT Strategic Framework for Education* had the vision of improving learner achievement in an innovative education sector, fully connected and supported by the smart use of ICT. The Ministry has not directed schools into making decisions on the management of their own networks or as to what devices to purchase and use, although a recent report completed by a working group for New Zealand's Ministry of Education *Future Focused Learning* (Ministry of Education, 2014) suggests ten strategic priorities in preparing learners for the future including innovative leadership. Leaders under pressure from government policies, coupled with a lack of familiarity in utilizing technologies can lead to poor decisions being made. Atkin (1996) suggested that the ability for school leaders to have a clear vision for their learners and then consider what decisions need to be made as a result of this vision is crucial.

A Vision for learning

It is argued by a range of researchers that education today must focus on the development of learners' dispositions, capacities or competencies to deal with new situations and environments, including those with high degrees of complexity, fluidity and uncertainty (for example see Claxton, 2002; Costa, 2008; Gilbert, 2005; Jukes, McCain & Crockett 2010b). Current high stakes assessment trends in New Zealand and Australia such as the National Standards in *The New Zealand Curriculum* (Ministry of Education, 2007) and *National Assessment Program—Literacy and Numeracy* (NAPLAN) can leave less time for 21st Century skills. Jukes et al (2010b) write of such skills as critical thinking, problem solving, being innovative and working in teams, which are also reflected in *The New Zealand Curriculum*'s (Ministry of Education, 2007) key competencies.

So what does a learner need to be successful in life in and out of school? *The New Zealand Curriculum* (Ministry of Education, 2007) expresses the vision that students emerge from schools as,

"people who will be confident, connected, actively involved, lifelong learners" (p. 7). This vision of a New Zealand learner, is defined in five key competencies for living and lifelong learning: thinking; using language, symbols and texts; managing self; relating to others; and participating and contributing. These key competencies were based on the work on an OECD working group that wrote the report *Learning: The Treasure Within* (Delors, 1996) and the definition and selection of competencies. The report named four pillars of education essential for learning throughout life:

1. Learning to know (selected subjects as a foundation for learning for life).

2. Learning to do (competence to allow people to work as part of a team with a variety of situations).

3. Learning to live together (developing an understanding of other peoples' histories, traditions and cultural values).

4. Learning to be (exercising independent judgments).

What is necessary to prepare learners for their futures is the subject of ongoing review and there is also debate about what constitutes core learning. Is it performance in the core curriculum areas of reading, writing and mathematics, or the development of dispositions, or a combination of the two?

Future focused learning

New Zealand's National Education Goals (NEGs) (Ministry of Education, 2016) set goals for the education system of New Zealand. NEG3 shows the importance of investigating digital technologies in it's statement that the "Development of the knowledge, understanding and skills needed by New Zealanders to compete successfully in the modern, ever-changing world" (Ministry of Education, 2016). Two recent reports funded by New Zealand's Ministry of Education, *Future Focused Learning* (Ministry of Education, 2014) and *Supporting Future-oriented Learning and Teaching* (Bolstad et al., 2012) suggest that schools need to rethink their ideas about how learning systems are organised, resourced and supported. The reports both recognise that the role of new technologies in transforming teaching and future focused learning is heavily dependent on educators' abilities to see the affordances and capacities of ICT in relation to all of the features of 21st century learning.

Despite the resources being allocated to school infrastructure in New Zealand there was no recent New Zealand-based research or literature for school leaders on how to support the use of digital technologies in schools. The report compiled by a reference group entitled *Future Focused Learning* (Ministry of Education, 2014) suggested that, "The government establish an education innovation hub, supported by the Ministry of Education to provide future-focused leadership" (p. 31). The report states that digital competencies are essential foundation skills for all students and states that:

> Digital technologies change the way students learn, the way teachers teach, and where and when learning takes place. Increasingly, mobile devices equip students to take charge of their own learning in a context where learning occurs anywhere, anytime, and with access to a wealth of content and interactive tools. Digital technologies can excite and engage educators, students, their whānau and communities in learning. (p. 34)

Whilst it is encouraging that the reference group has produced a report that considers the role of technologies in schools, it is disappointing that outcomes of this research point to the importance of growing New Zealand's economy, rather than focusing on preparing students for success in their lives. Whilst the report acknowledges the important role leadership will play in integrating the use of digital technologies into schools, it fails to state how leaders of schools would be supported in working with their schools.

What does this mean for leaders?

There are already Principals implementing technology projects in their schools, which other Principals could learn from. There are also examples of strategies and key leadership frameworks being developed in this area.

Eric Sheninger, (2014) principal at New Milford High School, New Jersey, and author of the recently published book *Digital Leadership*, *Changing Paradigms for Changing Times* states that:

> Leadership is no different today than it was years ago. The only difference is that the style and focus need to change with the times if we are to accomplish the lofty task of preparing students for a dynamic world that is more social and connected as a result of technology. (p. 23)

Sheninger goes on to describe a framework named the 'digital pillars' that he believes led to significant change at New Milford High School. I recommend this book.

Research conducted by Bolstad et al. (2012) on behalf of the New Zealand Council of Educational Research (NZCER) examined what strategies leaders were utilising to turn schools into digital technology-rich learning environments. Findings suggest that four strategies are required in order to support meaningful change: providing enabling tools and infrastructure; providing inspiring ideas and opportunities to connect ideas; enhancing capability; and supporting innovation. These ideas align with the International Society for Technology in Education Framework (ISTE) (International Society for Technology in Education, 2016). The ISTE has created Standards that act as a framework for successfully implementing digital strategies to positively impact on teaching and leading and act as indicators of effective leadership for technology. The *School Administrator* standards (International Society for Technology in Education, 2016) are separated into five categories: visionary leadership; digital age learning culture; excellence in professional practice; systemic improvement; and digital citizenship. These standards provide an excellent beginning point for school leaders to stock-take the positioning of their school in the use of digital technologies.

One thing beyond debate is that the quality of leadership can make a substantial difference to the achievement of students. Both the leadership frameworks and standards in New Zealand (Kiwi Leadership for Principals, 2008) and Australia (Australian Professional Standards for Principals, 2011) highlight the important role of leaders in leading teaching and learning. Hargreaves and Robinson (2011) and Robinson (2007) state that the more leadership is focused on the core business of teaching and learning the greater the impact on learning will be.

This project

The discussion that follows is based on research that explored primary school leaders' perceptions of the role digital technologies play in enhancing learning opportunities for their students in the 21st Century. Three principals of new schools were interviewed. I classified a new school as less than six years old. This was a deliberate decision. Firstly the majority of existing research and writing sourced on the introduction of digital technologies focuses on the barriers to implementation, such as change management, staff issues, property, network and financial constraints. From my research, observations and experience, new schools in New Zealand are being constructed with very robust infrastructures, including wireless networks, cloud based server options and learning environments conducive to the use of a wide range of digital technologies. Principals of new schools also have the privilege and responsibility of recruiting and appointing staff members. By choosing to interview leaders of new schools it was intended that the study will be less focused on change management and school infrastructure factors so that the vision, beliefs and actions taken by principals will be clear.

Vision, beliefs and values about learning

When asked about their beliefs about learning all three principals highlighted their belief in putting learners first. The idea of being responsive was reflected in each school's vision, which empowers students to contribute confidently and responsibly in 'our changing world'.

Beliefs and values of learning are detailed in Principal B's school vision principles. These include four underpinning vision principles—building learning capacity, collaborating, making meaning, and breakthrough. At the core of these statements is the vision of creating resilient, dispositionally strong learners who can get themselves unstuck when in challenging situations. These values and dispositions were closely linked to research from Art Costa, Guy Claxton, Daniel Pink and James Nottingham and reflected in the principal's approach toward strategic planning across the school and including digital technologies with a school-wide focus on innovative practice to enhance creating

and sharing opportunities for learners. Principal B sums up their beliefs of school clearly in this statement:

> I want every single learner that wakes up and goes to school to be fulfilled…. It is a school's role to grow strength, passion, curiosity and interest, rather than schooling it out. Our ultimate goal is that they leave school being self-regulated in their learning.

The three school leaders were asked at interview to share key policies or documentation to provide further detail and a further source to their interview answers. The three schools curriculum documents and charters (the guiding document of the school) all had common threads to them:

- An emphasis on the 'front end' of *The New Zealand Curriculum*—vision, values and beliefs of learning.
- Clear vision of the aims for their learner.
- A learner centred philosophy and approach.
- A focus on developing learning capacity. Learner efficacy. A learning to learn curriculum.
- Intent to personalize learning and be responsive to individual needs, passions and interests.
- A focus on making connections to real-life contexts.
- Valuing coherence throughout the school.
- Powerful visual metaphors to 'play out' the vision for students, teachers, parents and community.

All three leaders spent a large percentage of the interview either describing their school's vision for their learner or referring to the vision when answering other questions and sharing stories of what the vision looks like in practice. Two principals shared the research and methods of Julia Atkin, (a leading Australian educationalist) in moving from *Beliefs and values (the vision of their learner) to principles and practice* (actions taken to enhance the learning environment). One principal spoke of meeting with Julia several times a year with their lead team where they were challenged on any incongruence between the school's vision and actions. Atkin's philosophy was evident in two of the schools highly detailed strategic planning and intent.

As foundation principals of new schools, each leader spoke of the considerable amount of time they had to form the vision for their learners. The nature of new schools is that principals generally have nine to twelve months before the opening of the actual school and they are able to appoint other leaders approximately six months before opening. Whilst there are a considerable number of tasks to complete in this time the opportunity to visit other schools, speak with educationalists and connect with community is less interrupted than in established schools. All three principals believed that the construction of this vision was crucial in connecting with and establishing a new learning community.

The research of Guy Claxton (2002) influenced two of the schools thinking in creating the vision of their learner with both schools' learner profiles reflecting Claxton's four Rs of resilience, resourcefulness, reflectiveness and reciprocity. Claxton's approach to learning being more than just reading, writing and mathematics and concentrating on the acquisition of key dispositions was inherent in all these schools' visions.

Whilst each school's vision for their learners was unique, all schools involved in this research had a key goal of their learners becoming more self-regulated in their learning as they progressed through the school. This was described and played out in different ways, but in all cases the intent of *The New Zealand Curriculum*'s Key Competencies was at the core of the vision. Principal C below outlines an example of their school's philosophy on learning:

> Learning is a dynamic, fulfilling process of actively building on what we know; by questioning, thinking and connecting to make meaning, expand knowledge and deepen understandings. We believe that all members of our school develop learning capacity, actively interact and contribute as effective members of our community, problem solve, question, investigate and discover and build on their own strengths and interests.

Analysis of the schools' charters shows that at the heart of each of the school visions for it's learners were *The New Zealand Curriculum* Key Competencies. These had been described in different ways depending on the school's context. Key findings from Lucas, (2013) were also evident in the vision of the school's learner. An example of this is the shift from valuing right answers as the purpose of learning, to knowing how to behave when we don't know the answers.

Two principals had at the heart of their schools beliefs and values, a holistic view of learning which encouraged them to consider learner's passions, backgrounds and individual interests in the formation of the school's curriculum. This was reinforced by school systems, which gave learners time for independent inquiry. Principal A described their school community beliefs in learning programmes in stating:

> Learning is not isolated to teacher-planned events. Learning needs to be engaging, purposeful and related to the passions, interests and needs of each student. Staff need to provide opportunities for new learning in the 'world they don't know they don't know.

The use of visual metaphors to describe the learner and learning process of the school was a noticeable feature of all three schools. Significant planning and consultation with parents, students and staff into the creation of characters and analogies describing the learning process served to make the shared vision of the schools accessible to all stakeholders. The principals believed that the visual metaphors of the learner helped students articulate what it means to be a learner and assisted in the creation of a common vision and vocabulary throughout the school learning community. This intent was reflected in school blogs, parent evenings, learners showcasing of learning, use of twitter and detailed wall displays. Two schools provided detailed rubrics of their learner dimensions that played out the skills, dispositions and values and explained the growth in the development of their learner dimensions. These were regularly referred to, tracked in student interviews, self and peer assessment and, in the case of two schools, used as a school charter target.

Discussion and implications

Approaching a school's beliefs and values, before considering principles and practices, mirrors the research and approach suggested by Atkin (1996) and aligns with the research of Dexter, Seashore and Anderson (2002) in which they have found that a positive culture within a school is needed to maximize effective digital technology implementation. Of the five ISTE categories highlighted earlier, the *visionary leadership* and *digital age learning culture* strands were referred to most frequently during the interviews. The leadership and vision category is described by Dexter et al. (2002) as how leaders, "inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the community and … how they create, promote, and sustain a dynamic, digital-age learning culture that provides a rigorous, relevant and engaging education for all students" (p. 3). The ISTE framework acknowledges that the presence of technology alone seldom leads to widespread effective teacher and student use, but is far more powerful if it is accompanied by opportunities for staff, students and parents to develop a common vision and shared purpose that includes, but is not limited to, the integration of digital technologies (Flanagan & Jacobsen, 2003).

Each school involved in this study had a visual representation of their vision for learners. However, as an example and to preserve participants' anonymity I share here the diagram (see Figure 2) from Stanley Avenue School.
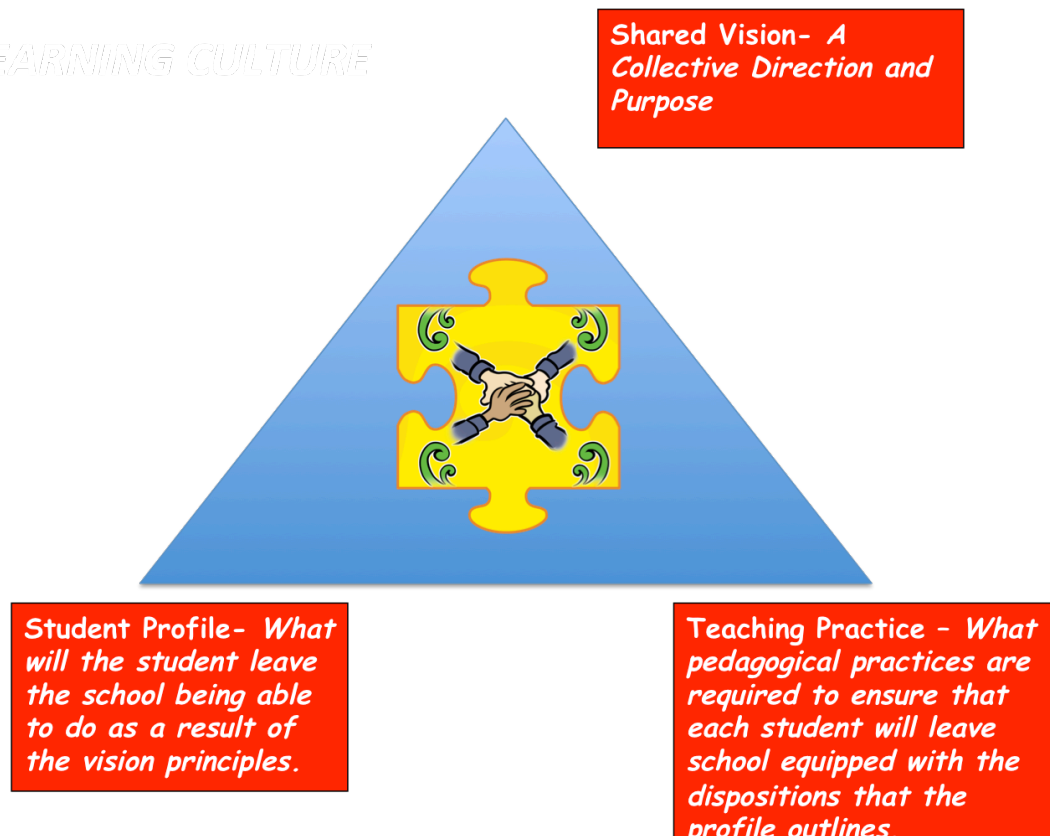
LEARNING CULTURE

Shared Vision- *A Collective Direction and Purpose*

Student Profile- *What will the student leave the school being able to do as a result of the vision principles.*

Teaching Practice – *What pedagogical practices are required to ensure that each student will leave school equipped with the dispositions that the profile outlines.*

Figure 2:   Learning Culture Triangle Stanley Avenue School

The diagram was created after staff discussions at Stanley Avenue School (see Figure 1) and, as in two of the participant schools, considered the thinking of Atkin (1996) outlines the importance of the relationship between a school's direction, the needs of its learners and what this means for leaders and teachers.

In all three schools involved in this research, the interests of the learner were expressed as being at the centre of every decision made. A common theme voiced by all three principals during the interview process was "It's not about the technology, it is only a tool!" It became apparent that the beliefs and values of these leaders focused on the core purpose of encouraging learners to think creatively, critically, collaboratively, to problem solve, have technological proficiency and global awareness—commonly referred to as twenty-first century skills by educational researchers (for example, Claxton, 2002; Costa, 2008; Jukes, McCain & Crockett, 2010a; Sheninger, 2014). For each of these leaders this intent was reflected in initiatives for the development of a learning culture, which began with a shared vision of their 'graduate' learner. The use of digital technologies to enhance this vision was then investigated and utilized appropriately with strategic intent.

School leaders expressed the power of this shared vision. The vision became the filter for every decision made at the school. Examples of this shared during the interviews involved the acquisition of digital technologies, as well as curriculum and even property decisions. Mark Treadwell (2014) reinforces the power of creating a shared vision for supporting decision making in stating:

> Technologies must be chosen judiciously and for the sole purpose of improving learner outcomes in accordance with a clear mission and vision surrounding the purpose of the school. (p. 153)

Each school's appreciative inquiries into the use of digital technologies were closely linked to specific dispositions and skills that they were looking to grow. Outcomes of this included the selection of appropriate technologies that were identified by teachers and students to be effective in meeting their aims.

In conclusion

From this investigation, we can see the importance of a school's learning culture built around the vision of its learners. It has also highlighted the vital role of the key competencies for learners in using digital technologies. This is consistent with the OECD report *Are Students Ready for a Technology-Rich World* (2006) that claimed that the acquisition and development of key competencies are closely linked to the ability to effectively use digital technologies.

It seems in speaking to the leaders interviewed that the schools' student-centred cultures were the driving force in using digital technologies to enhance learning. The strong focus on the development of the key competencies created an environment in which learners are well prepared to use technology and teachers and leaders can see the relevance of this technology. Further research in a range of schools is required to determine whether the relationship between the development of the key competencies and the use of digital technologies is as crucial as it appears.

The schools involved in this study appeared to have a strong alignment between the vision of their learners and the decisions they had made regarding the use of digital technologies. It would seem that the development of a learning culture based around the shared vision of the learner was perceived by principals to be the single most important factor in supporting school decisions regarding all aspects of digital technology. Future studies could capture teacher and student voice that would add value to this initial research.

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