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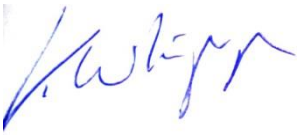
Candidate Signature:  Date: 27.11.15

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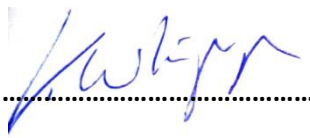
Signature of author: 

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Evaluating the implementation of an e-learning innovation in a South Auckland secondary school

Keir Whipp

A thesis submitted in partial fulfilment of the requirements for the degree of Master of Educational Leadership and Management

Unitec Institute of Technology, 2015

Abstract

Increasingly, schools across New Zealand are responding to a growing demand to implement modern learning practices, which include the adoption of a 'bring your own device' policy or the implementation of a 1:1 ratio of digital devices to students. This study will research problems faced by one secondary school in the course of changing pedagogy through the introduction of digital technology. The research aims to investigate the imperatives to implement e-learning, evaluate the implementation of innovative change, and make recommendations to strengthen future implementations.

This is practitioner research, which employs the qualitative methods of interview and focus groups. I conducted four interviews with senior and middle leaders, and one teacher focus group interview and one student focus group interview. These methods were used to investigate perceptions of how the school currently implemented change in teaching practices what it did that helps and what it did that hinders their implementation, and what it can do to improve in the future.

The key findings show that leaders, teachers and students agree e-learning has the potential to increase student engagement, and that it develops in students the skills for further education and the workforce. Leaders and teachers recognise professional learning can be improved when it is part of an inquiry and can be linked to performance appraisal. Both teachers and students value how e-learning privileges student-centric and discursive teaching practices.

This research has implications for the practice of executive leaders, teachers and students. Executive leaders have to develop a shared vision for e-learning, teachers have to include e-learning pedagogies in their teaching programmes, and students have to adopt digital devices and digital citizenry in their learning both at school and at home.

This research recommends practitioner-research models for the evaluation of future innovation implementations. Furthermore, professional learning should be inquiry-based and linked to performance appraisal. It also recommends every student has the opportunity to engage in e-learning in each year of their schooling.

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CHAPTER ONE: INTRODUCTION

Introduction

All sectors of the education system in New Zealand are being challenged to improve pedagogy through the implementation of digital technologies and online tools. The expectations to implement e-learning pedagogies are particularly aimed at primary and secondary schools and these expectations are clearly articulated in the New Zealand Curriculum (NZC) and a plethora of supporting Ministry of Education documents. My school, a South Auckland secondary school, is responding to external and internal expectations by implementing digital-based pedagogy and technology in the classroom to improve teaching and learning practices. The implementation involves the introduction of a web-based learning management system (LMS) and a 'bring your own device' (BYOD) policy, which will enable students to use digital devices, including smartphones, in class to supplement and transform learning. It "forms part of a conscious choice" of school leaders to provide the "best and most appropriate ways of promoting effective learning" (Ministry of Education, 2015c). My school recognises that it is the teacher who has the power to affect pedagogical practice, not technology, therefore this implementation concerns changing people more than it concerns changing technology (Bolstad & Gilbert, 2006; Fullan, 2013; Higgins, Xiao, & Katsipataki, 2012). This practitioner-research evaluates the implementation of this type of e-learning at my school. In this chapter, I describe the New Zealand context for this study, followed by a rationale, research aims and questions, and a summary of the thesis chapters.

1.1 The New Zealand Context

The position of e-learning in New Zealand's education system has grown in prominence since it was included in the NZC in 2007. e-Learning has become an expectation of many school communities, as digital practices become commonplace at home and in the classroom. A Ministry of Education website, Te Kete Ipurangi, defines e-learning as:

> Learning and teaching that is facilitated by or supported through the appropriate use of information and communication technologies (ICTs). Whatever the technology, however, learning is the vital element. 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 (2015c p. 1).

The emergence of e-learning in education can be placed in the wider context of New Zealand's international relations. Once a country reliant on the export of primary agricultural resources, New Zealand's strongest export commodity today is its people, and digital technology is considered a tool that will make people commercially viable to the rest of the world (New Zealand Trade and Enterprise, 2015; Powell, 2011). Interventionist economic policies of the 1970s and 1980s sheltered New Zealand's economy from overseas influences, creating social and economic isolation. However, the era of free market reforms in the mid to late-1980s, and the dawn of the digital or information age in the early 1990s opened the door to greater economic and social participation with the wider world. Nevertheless, it was not until the late 1990s that a strategy was developed to advance the use of ICT in schools, which was published in the document *Interactive Education: An Information and Communication Technologies Strategy for Schools* (Ministry of Education, 1998).

Following this was the Catching the Knowledge Wave project in 2001. This project was promoted as a way to transform New Zealand's economic prospects so that a fair quality of life expected by New Zealanders could be sustained. Former Prime Minister Helen Clark, in her speech to open the conference, emphasised the role of smart technologies in New Zealand's efforts to regenerate an ailing economy: "While others have been fast transforming their economies and societies through knowledge and innovation, we haven't been fast enough. Our export profile resembles that of a developing country, not a developed one" (Clark, 2001). The knowledge wave was expected to have major implications for the education system, including the emergence of 21st century learning for 21st century learners (Gilbert, 2005). The ominous question in the title of Gilbert's book

Catching the Knowledge Wave? can suggest either a challenge to educators or a statement of how challenging it is for educators to catch the wave. To extend the metaphor, it is arguably very difficult to catch the wave if you do not have a surf-board. Despite the attention given to e-learning in the literature, government documentation and in extensive government funding (Ministry of Education, 2006a), very few schools at that time were equipped to implement digital-based teaching and learning practices that would meet the aspirations held by proponents of the knowledge wave. The digital age is challenging schools to undergo major change. To prepare students as 21st century learners, schools are changing in a myriad of ways, from the introduction of new pedagogies and digital technologies to professional development programmes. Furthermore, schools are changing how jobs are described, budgeting is carried out and buildings are designed.

My school is implementing digital-based pedagogies and technologies to prepare its students with 21st century learner skills. In this thesis, e-learning refers to the pedagogical application of digital technology in teaching and learning programmes. It is referred to as an innovation because it is change that intends to transform teaching and learning practices. The tenets of 21st century learning include personalisation, collaboration, critical thinking, information literacy, digital citizenry, and inquiry-based learning; therefore schools have to innovate to implement 21st century pedagogy and technology, which in most cases necessitates the adoption of e-learning practices. Implementation of digital-based pedagogy and technology, however, is a complex process for which there is no blueprint. In New Zealand, schools are autonomous and self-governing (Openshaw, 2009), and each school can choose whether or not to implement e-learning. Consequently, no one secondary school is alike, and no one school is akin to another in terms of its capacity to offer a 21st century curriculum to 21st century learners. The expectation that New Zealand schools develop digital pedagogy through the use of ICT, though, is evident in a vast array of documentation published by or for the Ministry of Education over the past fifteen years. Complementary to this is the New Zealand Curriculum's (NZC) vision of "our young people as lifelong learners who are confident and creative, connected, and actively involved" (Ministry of Education, 2007 p. 4). It also espouses e-learning will enable teachers and students to "traverse distance and time; facilitate shared learning experiences; create

supportive learning environments; and, enhance opportunities to learn" (Ministry of Education, 2007 p. 36). This is a vision of a 21st century learner.

The New Zealand education system, with regards to the use of ICT, is cited as innovative and more open to change than international standards (Powell, 2011). Nonetheless, this presents a limited view. The main findings from a national survey conducted by the New Zealand Council for Educational Research (NZCER) in 2012, showed teachers in New Zealand secondary schools agree that the use of ICTs in the classroom improved student learning experiences (Wylie, 2013). However, teachers also stated they were hampered by limited access to technology, poor quality equipment, and lack of teacher knowledge or a knowledgeable leader. The findings also showed the collaborative uses of ICT was not improved since 2010 (Wylie, 2013). Despite there being no single co-ordinated national strategy for the implementation of e-learning in New Zealand schools (Powell & Patrick, 2006), there are numerous initiatives that have been running since the late 1990s and a vast array of resources available to schools including the e-Learning Planning Framework (Ministry of Education, 2015b) and the digitised resources provided by Te Kete Ipurangi (Ministry of Education, 2015d).

Some of the most successful and long-standing digital initiatives have persevered because of New Zealand's geographic isolation. Online clusters between groups of small schools have prospered amongst small communities for over a decade (Learning Communities Online, 2011). These partnerships benefit from professional networking, resource sharing and online instruction provided to students where distance would otherwise make learning difficult to access. The Distance Education Association of New Zealand (DEANZ) and the Digital Opportunities Project (DigiOps) are two examples of initiatives created to develop digital learning partnerships across the country (DEANZ, 2014; Ministry of Education, 2015a). Moreover, Te Aho O Te Kura Pounamu - The Correspondence School enrolled over 24,000 students in 2014, many of whom accessed online courses (Roberts, 2009). Many of these students enrolled to overcome geographic isolation so they could receive instruction otherwise unavailable to them at their local school.

Two phenomena in New Zealand have made online learning a possibility for practically all students: ultra-fast broadband and the smart-phone. The N4L (Network for Learning) Managed Network provides a robust, safe and secure internet connection which is fully funded by the government (Network 4 Learning, 2014). According to their website, N4L has to date connected 2176 of New Zealand's 2532 schools, supplying to each school Wireless Fidelity (Wi-Fi) powerful enough to allow all students to be online concurrently. In consequence, most schools are now adopting a BYOD policy and as a result, more of the curriculum is being delivered online. The second phenomenon is the smartphone. Its ubiquity has accelerated exponentially over the past few years. A 2015 research found that 92% of 18-34 year olds either owned a smartphone or had access to one (Research New Zealand, 2015). According to Jackman (2015), Census At School Project statistics show that on average 90% of secondary school students in New Zealand own a smartphone. Schools can either resist the devices or utilise them. Furthermore, according to the Organization for Economic Cooperation and Development, New Zealand has the second highest ratio of computers to students in the OECD (OECD, 2015). The access to ultra-fast broadband and the pervasiveness of digital devices, including smartphones, has created a scenario where schools are able to provide online programmes more easily than ever before.

In addition, the New Zealand Qualifications Authority (NZQA) has plans to introduce online assessments as part of the National Certificate of Educational Achievement (NCEA), the official secondary school qualification. This will have implications for a school's online preparedness, and makes the assumption that most secondary school students will have access to a digital device and an internet connection so they can sit the assessment "anywhere and at any time" (*Digital Assessment*, NZQA, 2015). An NZQA survey of school capacity to offer online assessments found that 94.5% of New Zealand secondary schools will have some form of BYOD programme in place by the end of 2015 (*Digital Assessment*, NZQA, 2015). Implementing an e-learning innovation in a New Zealand secondary school has never been as pertinent as it is today.

In a local context, this project is situated in my secondary school in South Auckland, a school typified by its culturally diverse community, a passionate and proud student body, high achievement across the curriculum and strong involvement in extra-curricular activities. It is also typified by literacy levels below the national mean, and a disproportionate cohort of priority learners; learners "who have been identified as historically not experiencing success in the New Zealand schooling system. These include many Māori and Pacific learners, those from low socio-economic backgrounds, and students with special education needs" (ERO, 2012 p. 4). The community has high aspirations for its students, and the digital age presents new opportunities. Via the internet, a student has access to digital resources equal to any other student anywhere else in the world. Digital citizenry and information literacy are key skills afforded by e-learning, and are skills that will enable our students to participate socially and economically world-wide. Leaders at my school are interested to find out how e-learning can improve opportunities for our students locally and globally. A characteristic of the post-industrial digital economy is "the capacity to create and apply knowledge" (McAuley, Stewart, Siemens, & Cormier, 2010 p. 5). Twenty-first century learning through e-learning may afford students greater opportunities to participate in and contribute to the digital economy, regardless of geographic location or socio-economic position.

1.2 Rationale

The purpose of this research is to evaluate the implementation of a current e-learning innovation with a view to strengthening change implementation in one South Auckland secondary school. e-Learning innovations are supported in Ministry of Education literature espousing a need for a digital curriculum. This topic will be of particular significance to my school as it is currently in the process of implementing e-learning innovation. My school has faced numerous challenges implementing e-learning, and despite the many successes, a problem has been identified in the ways innovation is implemented in this school. This research will identify problems and their cause, investigate the ways problems are overcome, and evaluate what can be done differently next time.

The e-learning innovation at my school

In 2014, a professional learning group at my school investigated how to implement e-learning, and an e-learning leadership team began the implementation in 2015. The e-learning leadership team consists of senior and middle leaders and assistant teachers. They formed a team because of their experience, expertise or enthusiasm for e-learning.

e-Learning at my school consists of three elements: providing infrastructure, changing pedagogy, and introducing new technology. The first element, providing infrastructure, necessitates an upgrade of existing infrastructure to provide Wi-Fi access in all teaching spaces, the adoption of Ultra-Fast Broadband, and a switch to a new Learning Management System (LMS), Google Applications for Education (GAFE). The switch of management systems requires technical support and training for staff unfamiliar with its functionality. The second element, improving pedagogy, involves a programme of professional development in digital classroom pedagogy. Its aim is to challenge teachers' values and beliefs and move teaching towards student-centric discursive practices. The innovation includes training in a range of digital technologies and web-based tools for learning. It also involves integrating new technology into teaching programmes, which has implications for new classroom management strategies and the promotion of digital citizenship in the curriculum. The third element, introducing new technology, relies upon the procurement of digital technologies that will enable equitable access to e-learning for all teachers and students. It includes the introduction of a BYOD scheme, which will permit students to use their smartphones in class to supplement and transform learning, as well as investment in Google Chromebooks to achieve a state of 1:1 (one digital device per student). The innovation is formed by these three elements, infrastructure, pedagogy and technology, and this project is an evaluation of its implementation.

Innovative change is valued by leaders and teachers at my school where there is evidence it can raise achievement levels and prepare students for higher education, the workforce and participation in their wider community. My school is implementing e-learning as a tool to shift the curriculum from traditional practices towards discursive, personalised and

collaborative student-centric learning (Christensen, Horn, & Johnson, 2008). Digital pedagogy and technology, supported by a web-based learning management system, is a means to achieve a student-centred curriculum which privileges personalisation and collaboration. In general, teaching at my school is discursive, but in most cases, it only occurs face-to-face and in the classroom. The innovation aims for teaching and learning to continue when students are not face-to-face with their teacher, and not in the classroom. Before the implementation began in 2015, e-learning practices were occurring in isolation by only a few teachers. Now the implementation of e-learning has begun, most teachers are using GAFE, and many teachers and students are collaborating online to share resources and engage students with feed-back and feed-forward about learning. In addition, more students are using digital technologies in class to supplement their learning.

e-Learning is being implemented to improve student engagement and learning outcomes at my school. e-Learning enables students to collaborate online with their peers and teachers, and continue their learning anywhere, anytime. Furthermore, it develops skills students require to meet the government's vision for 21st century learners.

Why adopt practitioner-research?

My school is investing substantial resources in the implementation of e-learning and has drawn on the enthusiasm, experience and expertise of a number of teachers over the past two years. Therefore, it is important to the success of this innovation that we learn from our decisions and actions, and that future innovation implementations are strengthened. Practitioner-research provides leaders and teachers with an evaluation of the ways this innovation is being implemented at my school, and can be drawn upon to support its progress and the implementation of innovation in the future.

In 2014, the professional learning group designed the innovation's tripartite structure: infrastructure, pedagogy and technology. It also devised a vision and goals for the innovation. However, the group's limited resources and lack of authority to enact change caused the implementation to stall. The group was hampered by limited time and

knowledge. Time consisted of one hour per week for teachers already time-constrained by other core responsibilities. The group also lacked knowledge of practitioner-research or project planning, both of which would have benefitted the group's progress. It was at this point a significant problem was identified with the ways new innovation is implemented at my school. What was found lacking was an investment in time, implementation leadership knowledge, and consultation with senior leaders. Practitioner-research can evaluate the implementation and provide recommendations leaders may apply to current and future innovation implementations.

1.2.1 Research aims and questions

The aim of this practitioner-research is to find out what is driving my school to adopt e-learning. It also aims to evaluate how my school implements an innovation so that it becomes sustainable, and to propose ways future implementation strategies can be strengthened. This research aims to benefit practices of individuals and the organisation. By evaluating the ways in which innovations are implemented, this study will draw conclusions and form recommendations that could inform future implementation practices. This research will also inform the current e-learning innovation which may lead to the identification of other issues and instigate further research.

The aims are:

1. To investigate the expectations and aspirations held of one secondary school to implement e-learning.
2. To evaluate the implementation of e-learning.
3. To identify strategies that could strengthen future change implementation.

Research questions

1. What government, staff and student expectations and aspirations are held of my school to implement an e-learning innovation?
2. In what ways is this innovation implementation perceived by staff and students as successful?

3. In what ways is this innovation implementation perceived by staff and students as challenging?
4. What would strengthen future change implementation at this school?

1.3 Thesis outline

Chapter one – Introduction

In chapter one I have described the local and global context within which this study is placed and I have described the e-learning innovation. I have also explained the rationale for the research, set out the research aims and questions, and concluded with an outline of the thesis.

Chapter two – Literature review

In the literature review, I have provided a theoretical base for this research and I have described, summarised, evaluated and clarified the literature. The themes searched for in the literature are the imperatives to introduce e-learning in secondary schools, implementing pedagogical change, and evaluating change.

Chapter three – Methodology

In chapter three I have described practitioner-research employed in this project. I have also provided an explanation of my theoretical perspectives and a description of data collecting methods and analysis techniques. Following this I have explained how validity is achieved and how ethical issues are addressed. Finally, I have reflected on the strengths and limitations of this practitioner-research.

Chapter four – Findings

Significant findings have been presented by sample: interviews, the teacher focus group, and student focus group. Findings from each sample have been sorted by category and theme as identified in the data.

Chapter five – Discussion, conclusions and recommendations

In chapter five I have discussed, with reference to the literature, significant findings in two parts: first, evaluating leadership in the implementation of an e-learning innovation, and second, evaluating how learners' needs are met in the implementation of an e-learning

innovation. Conclusions and implications for practice, drawn from my discussion, have been presented under these headings. Following this, several recommendations have been made to the senior leadership team for ongoing and future change implementations. The chapter concludes with considerations for further study, and recognition of the strengths and limitations of this research.

CHAPTER TWO: LITERATURE REVIEW

Introduction

This chapter is a review of the literature relevant to the implementation of e-learning in secondary schools. The three themes explored in this chapter are: 1) the imperatives to introduce e-learning, 2) implementing pedagogical change, and 3) evaluating change. The first section investigates why secondary schools are compelled to use e-learning practices in their teaching programmes. This review discusses the social, economic and pedagogic imperatives placed on schools to implement e-learning, in order to better meet learners' needs. It is important in this study to find out why secondary schools in New Zealand and overseas are adopting e-learning pedagogies. The second theme, implementing pedagogical change, investigates strategies effective in the implementation of e-learning. It considers how changes in teaching practices are implemented in secondary schools in general, and how changes are implemented specific to e-learning practices. I discuss how leaders plan for change, what motivates teachers to change, and how change can be embedded and sustained in a school. I also discuss how leaders implement change to support e-learning practices in secondary schools. This includes the implementation of infrastructure and new digital pedagogy and technology. It is important this research investigates how pedagogical change is implemented in secondary schools to find out which strategies are effective and what motivates practitioners to change. Finally, the theme evaluating change draws upon literature that evaluates the effectiveness of the implementation of e-learning in schools in New Zealand and overseas. Evaluation of change is important because it may show what has worked and what has not, and inform future implementations.

2.1 Imperatives to introduce e-learning in secondary schools

The Ministry of Education has supported the better use of digital technologies in education, as highlighted in several key policy documents. The New Zealand Curriculum (NZC) sets a clear pathway for education to develop 21st century learners (Ministry of Education, 2007). When the NZC was published in 2007 the Secretary for Education, Karen Sewell, promoted a vision of "our young people as lifelong learners who are confident and creative, connected,

and actively involved" (2007 p. 4). It also introduced e-learning as an effective pedagogy that may enable teachers and students to "traverse distance and time; facilitate shared learning experiences; create supportive learning environments; and, enhance opportunities to learn" (p. 36). The vision is encapsulated in a document, backed by strong and clear principles and key competencies. The NZC describes the 21st century learner as having core competencies, such as collaboration, digital literacy, critical thinking, and problem-solving (Education Week, 2010). Similarly, Sheninger (2014) espouses a digital leadership in schools that will "create a teaching and learning culture that provides students with essential skill sets: creativity, communication, collaboration, critical thinking, problem solving, technological proficiency, and global awareness" (p. 23). The NZC also suggests "schools should explore not only how Information and Communications Technology (ICT) can supplement traditional ways of teaching but also how it can open up new and different ways of learning" (Ministry of Education, 2007 p. 36). The Ministry of Education sets clear imperatives for schools to use technology as a cognitive tool to develop 21st century learners not just in the curriculum document, but in a range of policy documents dating as far back as 1998.

2.1.1 Social and economic imperatives

Subsequent to an international survey conducted in 2006 by the International Association of K-12 Online Learning (iNACOL), which found New Zealand to be at the high end of the scale for implementing innovative e-learning initiatives, Powell (2011) was prompted to conduct a case study research of e-learning implementation in New Zealand secondary schools. In her research she conducted 19 interviews, which included Education Ministry officials, principals and teachers. Recognising its isolation and limited resources, New Zealand's best resource, Powell stated, is its people, and so to compete in a knowledge economy, education is critical for "economic growth and improving economic outcomes for individuals" (p. 2). Powell identified four key documents that show the development of the implementation of e-learning in the New Zealand education system.

The first document was released in 1998 at a time when the government began developing

infrastructure and school capacity to support the development of ICT. ICT was considered pivotal in a strategy to maintain a competitive edge in the world market and international educational rankings. The government's policy document, *Interactive Education: An Information and Communication Technologies Strategy for Schools* (1998) promised investment in equipment and asked school principals to submit budget proposals for the procurement of technology to help them meet ICT goals. This was followed four years later with the launch of the Digital Horizons strategy. *Digital Horizons, Learning Through ICT, 2002-2004* (2003), which promoted learning through ICT, advising schools to create a vision, develop professional learning opportunities (including clusters of professional learning networks), and advance the digital literacy of its students. The third and fourth documents were released in 2006, starting with the *ICT Strategic Framework for Education* (2006b), a framework which set the goal for schools to "improve learner achievement in an innovative education sector, fully connected and supported by the smart use of ICT" (p. 2). Alongside the framework was an action plan, *Enabling the 21st Century Learner: An e-learning Action Plan for Schools 2006-2010* (2006a), which placed the student at the centre of education to provide a "flexible system where teachers, schools, communities, and other groups can identify the needs of their learners and be provided with the tools and support to meet those needs within the broader curriculum" (p. 3). The action plan also provided goals and direction for schools preparing to implement e-learning. The intent of the two documents released in 2006 was to enable modern learning practices to shift schools from an industrial age model to a knowledge economy model by placing the student at the centre of the learning experience within a traditional school and a traditional classroom (Ministry of Education, 2006a). *The e-Learning Action Plan for Schools 2006-2010* (2006a) also aimed to provide students access to courses that may otherwise be unavailable to them for various reasons and to provide a more level playing field across the country in terms of the quality of education a school can provide.

Further to these documents released by the Ministry of Education, the Ministry of Economic Development released the *Digital Strategy 2.0* (2006) policy document, which set out the government's plans to develop an infrastructure to cater for online and e-learning practices in each education sector. Targets included high-speed, reliable broadband to all educational

institutions by 2012, universal digital literacy, school digital capacity and capability to meet the demands of a globally competitive market, the promotion of digital careers by developing employer knowledge, and the implementation of "Digital Technology Guidelines for teaching years 11–13, to ensure that more students leave secondary school with specialist digital technology skills to start them on the ICT practitioner career pathway" (Ministry of Economic Development, 2006 p. 38).

Since Powell's doctoral thesis in 2011, the Ministry of Education has published further documents that advance its vision to realise 21st century learning and teaching through the smart use of ICT tools. *Inquiry into 21st Century Learning Environments and Digital Literacy* (2012) sought recommendations across each of the education sectors about how to prepare students and educators for 21st century knowledge and skills. In its *Statement of Intent 2013-2018* (2013), the Ministry of Education attests there are seven government education agencies working collectively to create "a world-leading education system that equips all New Zealanders with the knowledge, skills and values to be successful citizens in the 21st-century" (p. 7). Further to that it [will equip schools] to realise the transformational power of digital literacy" (p. 22) and "will support the adoption of digital technologies to ensure high student interest, engagement and motivation" (p. 25). *Investing in Educational Success* (2015) includes an investment in Network for Learning (N4L) which is a managed network that can assist communities of schools to collaborate through the use of ICT in order to meet digital literacy targets.

2.1.2 Pedagogic imperatives

The NZC (2007) promotes e-learning pedagogies as a means to develop 21st century knowledge and skills. The government has invested a lot of research in e-learning and espouses it as vital to creating a generation of learners fit for the 21st century. e-Learning is a major part of the government's plans for education so it is important schools understand its pedagogical benefits and develop knowledge of how to integrate it in the curriculum.

Blended learning, which provides students with content and instruction via digital and online media combined with face-to-face methods, is a common way in which e-learning is being incorporated into the curriculum across many schools in New Zealand. Blended learning affords student-centred and personalised learning (Christensen et al., 2008; Fullan, 2013; Ministry of Education, 2012) and maintains some traditional elements, such as a conventional class structure. In a study of blended learning in New Zealand secondary schools, Boyde (2012) found blended learning enables teachers to shift from traditional didactic practices to learner-centric pedagogy (Rhode, 2009). A blended approach supports 21st century learning skills, better prepares students for a knowledge-based society (Boyde, 2012), and helps students learn "new ways of working and communicating…learning to learn independently, collaboratively, and autonomously, skills that will serve them well far beyond school and into their adult life" (p. 49). Boyde found that even though access to the internet has increased since 2007, the use of the web as a teaching tool has not. She recommends schools need leadership that will provide infrastructure and model the use of technology in the classroom (Boyde, 2012).

In a case study of blended teaching and learning in a New Zealand secondary school, Zaka (2013) found that teachers in a blended classroom tended to prioritise face-to-face instructional time and favoured asynchronous learning opportunities within the classroom ecology. The teacher assumed the role of facilitator, allowing students to work in a differentiated and personalised environment, either independently or in collaboration with their peers. Similarly, in a study of online learning communities (clusters of virtual learning networks in New Zealand) teachers in a blended classroom shifted from traditional didactic teaching methods to discursive methods by limiting direct instruction and providing a blend of face-to-face and online interaction. Teacher feed-back and feed-forward was available to students synchronously or asynchronously, either face-to-face or online, via a learning management system or repository (Barbour, Davis, & Wenmouth, 2011). A blended approach is a more viable way for teachers to adapt to new ways of teaching.

In a 2006 survey of 15 countries for the North American Council for Online Learning (iNACOL), Powell and Patrick (2006) found that common and significant reasons to

implement e-learning were to reform and modernise schools, and increase access to quality education. The United States and China, for example, employed online learning to increase the number of subject options and provide equity of educational opportunity for their students. The capability to provide a greater range of courses to a greater number of students was the top response in a survey of US high schools in 2008 (Picciano & Seaman, 2009), which asked what the potential benefits of e-learning were. A later study by Picciano and Seaman (2010) in the US found that:

> Online and blended learning [were] becoming integral to a number of high school reform efforts, especially with regard to improving graduation rates, credit recovery, building connections for students to their future college careers, differentiating instruction, and supporting cost-efficiency for instruction (p. 135).

e-Learning is considered across the globe a pedagogical strategy to confront issues of low student achievement while affording more equitable opportunities and outcomes in education.

In a literature review for the Ministry of Education on the implications of e-Learning for New Zealand schools, Wright (2010) found e-learning prepares students as 21st century learners, but using technology in educational and purposeful ways requires a programme of learning for both teachers and students. e-Learning necessitates a competence and confidence using digital technologies for pedagogical purposes (Ministry of Education, 2006a). Not only will these skills enable students to access all parts of the NZC, they also "contribute to the development of the [key] competencies" (2006a p. 8), especially critical and creative thinking, participating and contributing, and managing self. Furthermore, teachers who routinely use ICT in their classroom are more likely to be attuned to the students' learning needs (Wright, 2010). Technology will be the key if education is to shift from a focus on standards and assessment towards a focus on student-centric pedagogy (Fullan, 2013). e-Learning supports collaboration and co-construction, and privileges a student's prior knowledge (Bishop & Berryman, 2006; Ministry of Education, 2008); "there is a clear trend linking co-constructive and student-centred pedagogies and e-learning" (Wright, 2010, p2).

Computer-based learning is one way existing school architecture can move towards a student-centric model of learning.

2.1.3 Learner imperatives

Schools are populated by digital learners receiving instruction from traditional teachers. Wright (2010) cites research from the past decade that shows how students' use of technology at home is vastly different to their use of the same technology at school. Lewin, Mavers and Somekh (2003) found from interviewing students that their use of technology for personal use was far more transformative and challenging than what was demanded from them at school. An important factor of e-learning is it not only provides a combination of face-to-face and online learning, but it also affords students control over the time, place, path, and pace of learning (Christensen, 2015; Powell & Patrick, 2006; Spark, 2015). Furthermore, students may be more engaged "utilising spaces they are already using outside of school" (Kajder, 2007 as cited in Boyde p. 45). Teacher capacity to use ICT tools to transform learning outcomes for students has improved significantly in recent years, but nonetheless, the prevalence of digital technology in the lives of young people has accelerated much faster than teacher capability or confidence to use it in the classroom.

In their book, *Understanding the Digital* Generation, Jukes, McCain and Crockett (2010) illustrate differences between digital generation learners and non-digital generation teachers. They create a divide between digital citizens and non-digital citizens where one does not actually exist. From a vast array of research they summarise that digital learners, for instance, prefer to learn "just in time" but non-digital teachers prefer to teach "just in case" (p. 35). They summarise a list of differences that illustrate a chasm in education between learners and the teaching they receive. Despite citing experiences living in a non-digital world as the main reason for a teacher's preferred way to teach, they claim the structure of the organisations in which teachers predominantly work also reflect a non-digital world and will not actively encourage a teacher from teaching any other way. Take, for example, a digital learner's preference for "instant gratification with immediate and deferred rewards." The educator's preference, however, is "for delayed gratification and

delayed rewards." Or consider "learning that is relevant, active, instantly useful and fun" compared with "teaching memorisation in preparation for standardised tests" (p. 35). In each case, the educator's preference is influenced by the structures and processes extant in the education system. In this example, however, the digital learners' preferences align more easily with learning for the 21st century economy.

However, the intention in New Zealand is to integrate digital learning by applying modern learning practices within traditional learning environments (Ministry of Education, 2006b). Digital learning presents a shift from a monolithic standardised teacher-centric approach that privileges following directions, mastering pre-defined objectives, performance on highly structured tasks, and intellectual obedience (Christensen et al., 2008; Gee, Hull, & Lankshear, 1996). Despite organisational structures, digital practices, such as online collaboration between teacher and student, can occur if teachers modify and redefine pedagogy to cater for digital learners. This is one of the advantages of open source, online, digital technologies. It is not that traditional organisational structures are actively blocking progress toward a digital curriculum, but rather traditional pedagogy persists where more student-centric pedagogy will arguably produce better outcomes.

The three imperatives explored in this literature review confirm the relevance of the first aim of my study, which is to investigate the expectations and aspirations held of one secondary school to implement e-learning. The policy documents confirm the relevance of my research to investigate social and economic imperatives that all schools implement e-learning. The government mandate for schools to implement e-learning practices is clear. Current literature into e-learning pedagogy and its impact on digital learners also confirms the relevance of this project to investigate the imperatives to implement e-learning, and find out how it is being implemented in a New Zealand secondary school.

2.2 Implementing innovation

Leadership is the greatest influence on change in schools. Pedagogical change has an increased chance of success when leaders align it with an organisation's vision and goals or

long term plans (Hopkins, 2001). When this vision is shared and embraced, teachers can work collectively on its implementation. Eventually, new pedagogical practices can become part of a school's culture, and this begins with ownership in a shared set of beliefs, understandings and goals (Russell, 2003; Stoll & Fink, 1996). Sharing a vision and building teacher capacity is realised through leadership (Fullan, 2005; Hargreaves & Fink, 2004; Harris, 2002). Shared leadership that includes the wider community is a key factor in the successful implementation of change (Schagen, 2011). Implementing pedagogical change in a secondary school is an inclusive activity involving the participation of key staff. Leaders and teachers have a moral obligation to implement pedagogical change where it intends to shift teaching and learning practices to improve student learning outcomes. A moral purpose can be developed by a learning community "through collaborative work cultures that respect differences and constantly build and test knowledge against measurable results" (Fullan, 2001 p. 44). However, implementing change in an organisation is problematic when the change requires a shift in thinking or when it challenges shared norms and beliefs (Argyris, 1977, 2010; Schein, 2010). An organisation skilled in productive reasoning and model two behaviour, or double-loop learning (being able to reject or modify a behaviour after testing its efficacy), is more able to confront and manage problems that may be hampering change (Argyris, 2010; Cardno, 2012). When individuals in an organisation align their espoused theory of action (what they say they do) in relation to their actual theory-in-use (what they actually do), change can be implemented and an organisation can learn (Senge, 1990). A clear vision and goals will inform a rationale for change, and when teachers understand why the change is being adopted by the school, resistance may diminish (Cuban, 1993; Fullan, 1991). Supporting a new innovation with professional development will build teacher capacity (Bolstad & Gilbert, 2006) to attain the school's goals.

Student-centric innovations such as e-learning concern the whole school, yet many secondary schools in New Zealand are made up of departments which, even with a skills-based curriculum, essentially work in silos. This architecture largely determines how a school is able to change, making it particularly difficult to implement curriculum-specific change school-wide. A school needs to work across the organisation in order to implement

a change in pedagogy: a shift from monolithic, subject-based practices to student-centric, learning-based practices (Christensen et al., 2008). If schools are to successfully implement e-learning they may need to move from what Christensen et al. (2008) describe as light-weight teams to heavy-weight teams. Light-weight teams are teams with a specific function (such as a curriculum department in a secondary school) that can fulfil their role by working independently of other light-weight teams in the organisation. A heavy-weight team may consist of various staff from across the school formed for a particular purpose beyond that of a single department. When its core business is disrupted by innovative change, a light-weight team cannot function effectively on its own. A leader may have to adopt what Christensen terms 'a tool of separation' – forming a new team comprised of members from various other established teams. The reasoning behind the tool of separation is that by creating a divide, ironically, a heavy-weight team can work more purposively to "transcend the boundaries of their functional organisations [departments] and interact in different ways" (p. 204). School leaders may have to use the tools of power and separation to create a heavy-weight team that can act autonomously to implement a disruptive change within the organisation. When timely, the innovation can be distributed to other parts of the organisation conversely moving from separation to unity.

2.2.1 Motivating change

Intrinsic motivation is a driving catalyst for change (Scheninger, 2014). For an organisation to implement innovative change it needs staff not only to accept it, but to embrace it. Teachers need to see the reason why change is necessary and understand how it will lead to the outcomes it espouses to meet. To meet the demands of the 21st century learner, teachers need to meet change creatively and collaboratively (Scheninger, 2014). Effective leadership can create an environment where teachers are intrinsically motivated by providing autonomy to direct their own lives, mastery to become better at something that matters, and purpose to contribute towards something larger than themselves (Scheninger, 2014). According to Pink (2011), where creativity and collaboration is required to implement 21st century learning innovations, extrinsic motivation does not work. Pink's model of autonomy, mastery and purpose is an alternative that centres on intrinsic motivation. Teachers are more likely to work productively as a collective if a leader creates

an environment that promotes McGregor's (1960) theory Y assumptions, that people are self-motivated, ambitious, autonomous and agentic, in contrast to theory X that workers are lazy and unmotivated.

However, even the most effective leadership will need to motivate some teachers extrinsically. Where change is outside a teacher's zone of acceptance, that is it may be considered irrelevant to teachers or beyond their level of expertise (Hoy & Tartar, 2003), a programme of professional development can promote awareness, understanding and confidence with a new innovation. It can encourage collaboration amongst peers; creating a professional learning community can be a productive and empowering way to solve problems for the betterment of the organisation (Argyris, 1977). Change can be threatening, but it is essential staff are open to recognising and confronting problems that need to be solved (Fullan, 2001). Often only when we feel discomfort will learning progress (Argyris, 2010; Cardno, 2012). The inclusivity of collaboration is a powerful way to solve problems to achieve educational success (Bush & Middlewood, 2005).

The extensive literature on change leadership in secondary schools, coupled with case studies around the implementation of e-learning practices, confirms the relevance of this research. It is important the implementation of e-learning in this project can be compared and contrasted with implementation practices in the literature.

2.2.2 Evaluating change

There is extensive literature on the implementation of e-learning in education, but literature evaluating its implementation in New Zealand secondary schools is not so plentiful. However, literature about how to evaluate organisational change in general is relevant to my study. Using evaluation to improve practice can be motivating, but evaluation methods are only useful when applied appropriately and for the right purpose (Razik & Swanson, 2001). This research intends to close the gap in the literature on the evaluation of e-learning innovations in New Zealand secondary schools.

Razik and Swanson (2001) provide an open and non-restrictive definition of evaluation that does not adhere to a particular method or model: “evaluation may be defined as a systematic collection and interpretation of evidence leading to a judgement of value with a view to action” (p. 225). Evaluation is concerned with solving a problem and it should lead towards a decision that will prove useful to the people within the organisation, in fact, evaluation is judged by its utility and credibility (Razik & Swanson, 2001). Attewell (2006) explains the purpose of “learning-orientated evaluation approaches” (p. 22) is to develop organisational learning because organisations learn best when they are able to “detect and correct” errors (Argyris, 1977, p. 116). Razik and Swanson (2001) describe two functions (formative and summative) and two purposes (motivational and corrective) of evaluation. Formative evaluation lends itself to improving programs or processes while they are occurring, whereas summative evaluation lends itself to summary judgements (Razik & Swanson, 2001). In practitioner-research, formative evaluation may occur at any stage of an implementation, and therefore credibility and validity must be a prime concern to maintain rigour (2001).

Learning-orientated evaluation is a social constructivist approach and develops as the research progresses. Similar to a Kaupapa Māori approach, “the evaluator’s role is to represent multiple realities and values rather than singular perspectives” (Attewell, 2006). Evaluations are individualistic, influenced by the perceptions, values and beliefs of individuals. Different approaches are adopted due to individual preference or taste, (Razik & Swanson, 2001) but they will lead evaluation towards a cyclic process of inquiry; a model that would enable evaluation to be better applied to strategic management. As long as it is fit for purpose, the method or model chosen as an evaluation tool is less of an issue than whether the tool is used fully or not (2001). Boyd (2002) concluded that longitudinal case study evaluations of computer-based learning programmes were valid and valuable methods for researching the emergence of digital technology in learning. She recommends research inquire into the ‘how’ and ‘why’ rather than the ‘what’ with regards to technology’s impact on learning.

2.3 Implementing e-learning

2.3.1 Implementation strategies

There is no conclusive evidence that it is the 'e' in 'e-learning' that does or does not improve student learning outcomes (NZCER, 2004). e-Learning's effectiveness, however, does depend on how it is implemented and the training and support teachers receive (Barbour et al., 2011; Bolstad et al., 2012; Boyd, 2002; Venezky & Davis, 2001; Zaka, 2013). In research into e-learning environments in New Zealand secondary schools, Boyde (2012) cites Rogers (2003), who suggests that an implementation is more likely to be successful when teachers perceive the innovation as contextually specific and consistent with the organisation's values, experiences and needs. Boyde (2012) identifies strong leadership as instrumental to guiding the learning community towards a shared vision (Barbour et al., 2011). The successful implementation of a digital-based pedagogy is not just about meeting the technical demands but requires a vision with specific educational goals (Barbour et al., 2011; Venezky & Davis, 2001). It needs a strategy (Boyd, 2002). Higgins et al. emphasise the importance of context because one size will not fit all. For instance, early adopters of e-learning innovation (Rogers, 2003) may select a technology to address a pedagogical concern but late adopters may select a technology not to serve a particular problem, but because of the success experienced by early adopters, and therefore the benefits will not be the same. It is not the quantity of technology or the 'how much', rather it is the 'what, how and why' (Lei & Zhao, 2007).

Improving pedagogy and student learning outcomes are central to an e-learning innovation, and mechanisms for viewing and reviewing progress of its implementation (Schagen, 2011) are essential. Change must be sustainable, and if e-learning becomes embedded and enables transformative student learning outcomes, the distinction between "computers and professional practice [will] evaporate" (Weston & Bain, 2010 p. 10). Computers will cease to be technological tools and instead be seen as cognitive tools (2010). Then the 'e' in e-learning can be removed. Progress will often be by small steps but problems can become opportunities to learn. Recognising small gains, or achieving milestones is a way of turning individual perspectives towards a shared group goal (Kotter, 1996). Using technology to

improve pedagogy requires a paradigm shift in thinking from a traditional memory-based, teacher-centred model to a student-centric, critical thinking, information and knowledge seeking model. Teachers need to be ready to act as facilitators, and students need to be ready as self-directed learners (Ya'acob, 2005 p. 7) in what Prensky (2010) terms "partners in learning". Sheninger (2014) proposes we should be asking how we can use available technology to improve what we do rather than asking why we should use technology in the first place.

Implementers of e-learning can use the "stages of adoption" model developed by Knezek and Christensen (1999). Many school ICT professional development (ICTPD) initiatives are based on this model of teacher learning that develops "stages of adoption" ranging from 'awareness' and 'creative application' to 'new contexts' (Bolstad & Gilbert, 2006). However, a professional development programme should be matched with the capabilities of the teacher, otherwise their ability to implement innovative change may be reduced (Schneiderheinze & Russell, 2005). Building capacity in a school takes time, and often begins with enthusiasts or competent professionals who model new practices (Fullan, 2008). Leaders can engage these teachers in peer learning by tutoring early adopters. Eventually, laggards become a conspicuous minority and can more easily be provided the support they need. Rogers (2003) shows how this pattern "commonly takes the form of a sigmoid curve, as the early adopters take up the technology first, followed by the majority, until the technology or innovation becomes common" (Bolstad & Gilbert, 2006 p. 11-12).

According to Bolstad and Gilbert (2006), implementation initiatives in New Zealand are more sophisticated than a stage-theory approach like Rogers', and they cite inspiring teachers and leaders, a range of Ministry funded support resources, enabling tools (such as technological infrastructure) and professional development capabilities (Boulton, 2008) as drivers of successful e-learning innovations. Included in this, Bolstad and Gilbert recognise the values of school-led pilot schemes to trial e-learning on a smaller scale before implementing it more widely within a school. However, a stage-theory model like Rogers' may be a useful tool for reviewing the progress of an innovation, that is as a way to check that 'laggards' become 'late adaptors' and join the new majority. Bolstad and Gilbert offer a

theoretical loop model for ICT innovation which illustrates how teachers need supporting, inspiring, enabling and improving so that their pedagogy will be 'transformative' in creating 21st century learners (p. 13-14). What Bolstad and Gilbert found is that a school will fail in its implementation if it neglects one of the four parts of the loop model. For instance, where teachers are not skilled in ICT, or lack support or access to technology, it is found they are less likely to use or want to use digital-based learning pedagogies (Dupagne & Krendl, 1992; Hadley & Sheingold, 1993; Rosen & Weil, 1995; Winnans & Brown, 1992). Teachers need to understand the rationale for educational change and have a sense of what it means for their practice, and this, Fullan (1991) maintains, takes time. Change needs to be managed, and where teachers may not see intrinsic rewards, they need to understand the rewards for the organisation (*Synergies for Better Learning: An International Perspective on Evaluaton and Assessment*, 2013).

Early adopters of e-learning often work independently or in isolation of the wider school culture (Tubin, Mioduser, Nachmias, & Forkosh-Baruch, 2003; Zhao, Pugh, Sheldon, & Byers, 2002), in which case, change may necessitate a change in school culture. If the culture cannot change quickly enough, understanding current culture and how to negotiate within it (Bolstad & Gilbert, 2006) may help early adopters implement new pedagogy. Once a minority, early adopters may soon form the majority. Nonetheless, a strategy must be applied to shift teacher practices, which will mean challenging beliefs. Teacher beliefs are critical for implementation. Mumtaz (2000) identifies "three interlocking frameworks for change: the teacher, the school and policy makers" (p. 319). Peck, Cuban and Kirkpatrick (2002) recognise four factors other than the teacher involved in the implementation of e-learning. They are school structure, time constraints, technological issues, and competing educational priorities. Regardless of these factors, though, if teachers do not believe in the innovation, motivation to participate in its implementation will be low.

2.3.2 Implementation challenges

The real challenge for e-learning implementation is not in saturating education with technology, referred to as 'technological determinism' (Brown & Murray, 2003; Cuban,

2001; Oppenheimer, 2003; Robertson, 2003; Warshauer, 2003), but in changing the "cultures of our schools to be organised around learning instead of the current form of social control" (Squire, 2005 p. 7). A tension is introduced, however, when a teacher is asked to change their practice in ways that contradict their values, beliefs or cultural norms (Schneiderheinze & Russell, 2005). Therefore, this tension needs to be addressed at the initiation of implementation. When e-learning is understood as a pedagogical tool that can improve student learning outcomes, and teacher capacity is developed to enable its confident use in teaching and learning, a new set of shared values, beliefs and cultural norms begin to emerge.

In a case study of blended learning in a New Zealand secondary school, Zaka (2013) describes the potential of e-learning to improve student engagement and motivation, support independent learning, and reform practice and access to a world-class education (Powell & Barbour, 2011). However, Zaka recognises the implementation of e-learning is fraught with challenges including student readiness to become more independent, teacher readiness to change practice, and leadership capability to implement a vision and strategy. Zaka focussed her study on three levels of the organisation: the classroom, the school and the wider community. In the classroom, Zaka concludes that students need to be gradually transitioned from traditional methods towards independent learning practices; students need to be provided with clear learning goals and objectives; and, there needs to be clear parent-teacher communication. A school's supportive culture is conducive to building capacity through internal professional development, which can foster teacher confidence through autonomy and guidance. Zaka also recommends opportunities for externally provided professional development, "financial support and visionary policies" and "affordable, reliable tools, incorporating 21st-century learning affordances" (p. 36). Zaka's findings support those by Gilbert (2007), whose research found that ICT has the potential to enable collaboration between students and teachers, develop digital literacies and build knowledge. Zaka stresses the need that commercial enterprise or "Open Educational Resources (OER) continue to develop affordable, reliable and easy-to-use tools that are compatible in and across schools in New Zealand, and to consider the needs of today's schools and teachers' level of confidence" (Zaka, 2013 p. 37).

In a qualitative evaluation of interviews and focus groups, Pack (2012) found staff readiness to change, staff workload, and staff turnover inhibitors to embedding change. Leaders can enable early adopters to identify and assimilate new technologies and be the difference between a high-performing and low-performing school. Furthermore, high-performing schools using digital technologies to assist learning showed greater gains because of a range of other positive factors that also support learning, whereas poor-performing schools using digital technologies did not generate such gains (Higgins et al., 2012). The impact is greater where leaders worked directly with teachers in planning, delivering and evaluating programmes. Professional development was found to have an average effect size of 0.84 (Robinson, 2007) and will impact on student learning outcomes when it is promoted and participated in by the leader. The effectiveness of implementing, coordinating and evaluating innovation can be significantly enhanced by the collaboration between teachers and leaders (Robinson, 2007), which can be a highly motivating interaction.

Literature about implementing innovation and implementing e-learning, reviewed in sections 2.2 and 2.3 above, confirm the relevancy of the second aim of my research, which is to evaluate the implementation of e-learning. The literature abounds with research on implementing change in schools, and there is a growing body of research on implementing e-learning in schools. However, despite a strong body of research on evaluating change in schools, there is less research on evaluating e-learning implementations, and even less situated in New Zealand.

2.4 Evaluating e-learning implementation

In their meta-analysis of 48 studies, Higgins et al. (2012) made several evaluations of the effects of using digital technologies to assist learning. They found that digital technology works better when students use it to work collaboratively rather than individually (Lou, Abrami, & d' Apollonia, 2001) and when it is used to supplement educational activities rather than replace them (Cheung & Slavin, 2011). They found that more effective schools use technology more effectively. Moreover, in a controlled environment with all other

things being equal, the group learning with technology generally outperforms the group learning without it (Higgins et al., 2012). Also, it appears to be more effective when used more frequently over a short-term rather than over a long-term. Higgins et al. found a trend that the implementation of any new innovation aimed at addressing a problem, regardless of whether it uses digital technologies or not, will usually initially have a positive effect on learning anyhow. The greatest effect size always appears at the beginning of an innovative change, and is difficult to gauge longer term benefits (Cronbach et al., 1980). To avoid an implementation dip (Fullan, 1991), which "is literally a dip in performance and confidence as one encounters an innovation that requires new skills and new understandings" (Fullan, 2001 p. 6), monitoring and adjustment processes are used for "assuring or improving educational quality" (Razik & Swanson, p. 222). Furthermore, to be successful an organisation will collect data and create feedback-rich environments (Razik & Swanson, 2001). Evaluation can lead to school improvement where evidence is discussed and argued in an open and robust manner. As evaluation is heavily value-laden, many interpretations of the same data can be validated from various perspectives, so open discussion, where assumptions are suspended, forms an inquiry far more likely to lead to improvement, rather than accepting only one interpretation of the same data.

When evaluating Kaupapa Ara Whakawhiti Mätauranga (KAWM), Waiti (2005) found students engaging in online distance learning enjoyed whakawhanaungatanga (relationship building) with on-line teachers and collaboration with other students. They felt they could learn things otherwise unavailable to them and they felt connected. Tiakiwai and Tiakiwai (2010) stress the learning environment is highly important to Māori learners (Bishop & Berryman, 2006; Bishop, Berryman, Tiakiwai, & Richardson, 2003; Tiakiwai & Tiakiwai, 2010). The learning environment includes culturally appropriate online content, infrastructure, quality relationships, and face-to-face interactions (Bishop & Berryman, 2006; NZCER, 2004; Tiakiwai & Tiakiwai, 2010; Waiti, 2005). This is reinforced by the notion that the learner will not care what the teacher knows, until they know the teacher cares (Bishop et al., 2003; Waiti, 2005). However, a report written by the New Zealand Council for Educational Research (NZCER, 2004) does point out that although face-to-face interaction is highly valued particularly by Māori, quality feed-back and feed-forward is more easily

accessed using online tools. So, regardless of trends towards digital technologies and their use "in kaupapa Māori classrooms, the key areas [quality relationships and face-to-face interaction] establish the conditions by which enhanced teaching and learning opportunities occur" (Tiakiwai & Tiakiwai, 2010 p. 30). Interestingly, a 2009 OECD (Organization for Economic Cooperation and Development) Pisa study shows that 96% of New Zealand high-school students had access to a computer at home, and 92% had access to the internet at home (Kirkham, 2009). However, some Māori students enrolled in distance learning commented it was preferable to have a teacher in class who they could talk to directly, in the moment, and many agreed that a mixture of both online and face-to-face teaching would be best (Waiti, 2005).

In their research of a 1:1 laptop programme in classrooms, Blackley and Walker (2015) question whether initial outlay and maintenance costs of the devices are being justified by generative change in teaching practices. Wright (2010) in a literature review of e-learning and its implications for New Zealand schools, also cautions against giving in to the hype around e-learning without a considered plan, or without recognition of a specific problem the new technology serves to solve. It is teachers who drive the pedagogy, technology is simply a tool. Attewell (2006) shared similar concerns that programme and policy makers were being seduced by the notion of e-learning and spending money on resources without having a clear vision on how learning will be improved by its implementation. When planning an e-learning innovation Blackley and Walker recommend ongoing professional development and consideration of the following: that teachers understand the ways technology can improve student learning outcomes; that technology on its own will not support the desired change; and finally, that teachers "identify and assimilate aspirational practice and digital pedagogies" (p. 114). It is more effective when teachers choose to adopt digital technology as part of a process of inquiry (Somekh, 2007) rather than when it is adopted for its own sake and where it displaces or replaces pedagogy which may have been as (or even more) effective (Higgins et al., 2012).

Powell (2011) found New Zealand to be innovative in its implementation of e-learning in a number of ways. From the outset in 1998, the Information and Communications

Technology Professional Development (ICTPD) program was offered to all secondary schools and was largely taken up by rural schools, which formed clusters and provided distance learning opportunities for students who would otherwise miss out in a curriculum limited by geography or access to resources. To support the professional development programme, a Teacher Laptop (TELA) program subsidises a lap-top for each teacher in perpetuity. Schools were, and still are, able to act autonomously in how they introduce and develop e-learning within their organisation. Furthermore, the implementation strategy was perceived by interviewees in Powell's study as largely being from the ground up, which encouraged innovation and initiative on the part of schools. e-Learning was found to be driving student-centred pedagogy and personalised learning. The government has invested extensive funds to install ultra-fast broadband (UFB) nationwide through the Ultra-Fast Broadband in Schools (UFBiS) initiative. Online resources, such as Enabling e-Learning on Te Kete Ipurangi web-site, are content-rich and provide strategies and frameworks to support schools implement and develop e-learning programmes.

Interestingly, Powell concluded the barriers to the implementation to be the adverse of the benefits listed above. Schools are hampered by infrastructure and a lack of quality technical support. Lee (2006) argues that access to an adequate infrastructure is essential to effectively implement e-learning. There is a lack of professional development (the ICTPD programme only lasted for three years) meaning many teachers in many schools lack confidence and competency. Implementation is inconsistent due to poor leadership, funding and support. Pedagogy is not changing enough, with a particular need to shift teacher attitudes towards student-centred and personalised learning. And finally, there is a lack of research, especially mapping implementation and tracking effects of e-learning practices on student learning outcomes (Powell, 2011). Similarly, despite calls for reform in the US education system, many educators are concerned with the lack of research around the effectiveness of online learning to transform student learning outcomes (Picciano, Seaman, Shea, & Swan, 2012). There is a strong body of practical research into e-learning but research with theoretical foundations is limited (Drysdale, Graham, Spring, & Halverson, 2013). According to Drysdale et al., e-learning needs theoretical frameworks and must be grounded in theory. There is a need for theoretical frameworks which deal directly with e-

learning. Implementation exceeds research. Further studies of a theoretical nature on how students are learning in a blended environment and how this environment affects student motivation and engagement are needed. Furthermore, there needs to be research into organisational policy and implementation methods (Drysdale et al., 2013). Zaka (2013) agrees further research is necessary, especially since the New Zealand government is investing heavily in UFBiS.

Powell's suggestions for further study include an investigation into "organisational cultures that foster" innovative digital learning; a thorough "look at the ICTPD program and other teacher preparation and professional development programs that support career-long development of teachers"; and a "study of leadership and management practices that support quality and innovation" (2011 p. 228). However, as in the case for the US, Powell and Barbour (2011) found a lack of empirical research "beyond the Ministry's own reports and e-learning plans" (p. 85) in New Zealand, and they recommend research be conducted into the design, delivery and effectiveness of e-learning programmes.

The literature review confirms the relevancy of my project. There is not a strong body of research that evaluates e-learning practices in New Zealand secondary schools, but this practitioner-research will provide an evaluation of the experiences of one school. Far more literature exists on tertiary and distance learning providers, and even that is only at an emergent level. This literature review shows there is a limited but growing body of research into the implementation of e-learning in secondary schools in New Zealand and around the world. Further research is recommended, especially of the evaluation of e-learning practices. Questions remain unanswered on how and why schools implement pedagogical change through the introduction of new technology; how the use of new technology is educationally advantageous; and how schools are evaluating the implementation of e-learning practices.

CHAPTER THREE: METHODOLOGY

Introduction

This chapter describes the methodology adopted in this project. This is practitioner-research, situated in a secondary school where e-learning innovation is being implemented. Practitioner-research methodologies are explored in this chapter, beginning with theoretical perspectives. This is followed by a description of the data collection methods, the data analysis process, validity and finally, ethical considerations.

3.1 Theoretical perspectives

Epistemology

My epistemological assumptions inform my methodological decisions, which influence the design of my data collection instruments (Cohen, Manion, & Morrison, 2007a). This research is founded on the epistemological belief that the knowledge necessary for me to research how to improve practice in a New Zealand secondary school can be found within the social world of that organisation. Knowledge can be constructed by a community, it is collectivist and seeks to benefit all participants (Bishop, 2005). Schools in New Zealand are self-governing, therefore to implement a major change in its strategic direction, a school relies upon its people and the knowledge they hold. It is knowledge held by practitioners that will effect change within a school. This research focusses on knowledge utilised by practitioners involved in the implementation of e-learning practices at my school, and also investigates how teachers and students perceive the implementation process. Implementing e-learning is a major change, and even though it only involves some staff and some students at its current stage, the innovation will ultimately impact on the teaching and learning practices of all staff and students, ergo the knowledge generated by this project will be valuable in informing future implementations. To be able to form conclusions and make recommendations that are relevant and consequential towards strengthening future innovation at my school, I have investigated the beliefs, experiences and opinions of the school's practitioners, and the perceptions and expectations of its students.

Interpretive paradigm

I have employed an interpretive theoretical perspective in my research, which has focussed on people's behaviours and actions, so it is important data is understood within its particular context (Cohen et al., 2007a). This study has relied on my school's leaders, teachers and students as a community of participants to generate knowledge on how we implement change and what we can do to strengthen future implementations. According to Guba and Lincoln (2005), "a goodly portion of social phenomena consists of the meaning-making activities of groups and individuals around those phenomena" and through consensus, forms a criteria of reality (p. 197). The findings in this study are based on socially constructed, subjective data because it involved inquiring about the experiences and beliefs of people and can never be anything but subjective and naturalistic (Cohen et al., 2007a). Research situated in a social context "[relies] as much as possible on the participants'" views of the situation being studied. Meanings are "formed through interaction with others" and this research reflexively "acknowledges how [my] interpretation flows from [my] own personal, cultural, and historical experiences [to help] make sense of the meanings others have about the world" (Creswell, 2002 pp. 8-9).

Moreover, participants are 'actors' and as an interpretive practitioner-researcher, I have examined "situations through the eyes of participants" (Cohen et al., 2007a p. 21) rather than through my own eyes. I have been reflexive and self-aware (Diller, 1997) about the subjective nature of my involvement in the project. Interpretive methodology sees a person as autonomous and their "behaviour can only be understood by the researcher sharing their frame of reference" (Cohen et al., 2007a p. 19). Understanding has to come from the inside, not the outside. Furthermore, to "make the world visible" to its participants (Denzin & Lincoln, 2005), this study has promoted a mutuality and reciprocity of understanding and participation (Bishop, 2005). The subjectivist concept of social reality recognises diversity in world views (Davidson & Tolich, 2003), therefore I acknowledge and accept the conflicting and varying views, needs, and ways of looking at the world (Cohen et al., 2007a) held by a range of people who participated in this project.

Qualitative data

The data in this study are yielded from two qualitative data-collecting methods: interviews and focus groups. In the social world of a school, data is derived more easily from the 'human instrument' (Guba & Lincoln, 2005). Meanings are generated in the interactions between participants and the practitioner-researcher, who engage and make sense of the world in an inductive process (Crotty, 1998). The world of the qualitative researcher is "socially constructed and given meaning by people" (Easterby-Smith, Thorpe, & Lowe, 1994 p. 78).

Analysis involves a transformative process in which the raw data are turned into "findings" or "results" (Lofland, Snow, Anderson, & Lofland, 2006p. 195). The findings have formed a holistic description and analysis of the e-learning implementation (Merriam, 1998). The data has been comprised of various perspectives on how the school is currently implementing e-learning, what it does well, and what it could do better. The perspectives are personal, subjective, and unique (Cohen et al., 2007a) to the participants but when collected, form part of a whole. Cochran-Smith and Lytle (1998) liken teacher research to feminist research in that it is for teachers more than it is about teachers.

My school profile

My school is a secondary school located in South Auckland. It has a roll of approximately 1500 students of various ethnic backgrounds, predominantly Pasifika, Māori, and Indian. It was decided to conduct research at my school so an evaluation could be made of the implementation of an e-learning project I was involved with. The innovation is a major change for my school, and this research aims to evaluate how e-learning is being integrated into the curriculum, and to make recommendations on how the implementation of change can be strengthened in the future.

Practitioner-research

As a practitioner involved in its initial scoping and planning, I decided to conduct practitioner-research to evaluate how the change process was being managed. Implementing change is problematic for any organisation, and with a growing trend to adopt modern learning practices, implementing e-learning successfully is a challenge shared by many schools across New Zealand. This research investigates why people at my school perceive a need for e-learning, evaluates how well it is being implemented, and recommends what we can do to strengthen the implementation of change in the future. If this innovation is worth the resources my school is committing to it, then it needs to be fostered so that change becomes embedded in the school's culture.

Practitioner-research seeks to understand and improve practice (Robinson & Lai, 2006). It seeks to understand how change becomes sustained and embedded in practice so in the long-term it contributes to improving student learning outcomes (Cardno, 2003; Coleman & Lumby, 1999; Robinson & Lai, 2006). The process of school improvement is the main concern of this study, "the end point may not in itself be related directly to student achievement, but will indirectly promote it" (Middlewood, Coleman, & Lumby, 1999 p. 3). Practitioner-research can be empowering and emancipating, providing an element of social justice and responsibility. Practitioners can focus locally on concerns and issues relevant to the betterment of their students, which in turn, may provide a useful story for neighbouring organisations (Cochran-Smith & Lytle, 1998).

This practitioner-research is, by definition, context specific. The participants' perspectives are unique to my organisation, and it is only in this organisation that the findings and conclusions drawn from the data have relevance (Robinson & Lai, 2006). It is an activity situated within a community or organisation in a particular time and place. Its temporal nature gives it temporariness; the findings and consequential conclusions and recommendations strive to be generalizable, yet are particular to a certain time and place in which the study was conducted (Cohen et al., 2007a). Practitioner-research provides a framework, which serves the people doing the research as well as the people having the

research done to them, and it is advantaged by its subjective and personal intimacy (Middlewood et al., 1999). Sharing the findings, conclusions and recommendations of this research will benefit my organisation (Strachan, 1993).

Despite this, there are concerns about practitioners questioning teacher-expertise in research, which include a perceived lack of efficacy to solve problems posited by the research and a lack of quality in the findings: scope, size and scale deemed too small and too site-specific (Hargreaves, 1996; Hillage, Pearson, Anderson, & Tamkin, 1998; Tooley & Darby, 1998). Wagner (1997) also points out a political dimension in traditional, academic research which holds power over the practitioner and subject populations who are bound by a system in which they cannot affect change despite their actions. Additionally, Cochran-Smith and Lytle (1998) suggest practitioner-research is considered low status and possibly trivial. However, this study is an inquiry that uses a practitioner-research framework, because regardless of efficacy and scope, this inquiry can help inform practice at my school, and contribute to school improvement.

Moreover, school improvement implies change (Middlewood et al., 1999) and Hopkins (1994) argues change can only occur where strategies are implemented to "directly address the culture of the school" (p. 77). Practitioner-research of this kind can only be successful if it complements the organisation's culture, or is strong enough to change the culture in order to accommodate subsequent change (Coleman & Lumby, 1999). My school's e-learning leadership team espouses openness to learning, and this practitioner-research tests if the espoused theory is a theory of action, or whether an alternative theory of action is required (Robinson & Lai, 2006).

Evaluating practice

Evaluating practice in practitioner-research is concerned with finding a solution to a problem that will prove useful to the people within the organisation. It should be developmental, motivating and productive (Sinemma & Robinson, 2007). Evaluation is judged by its utility and credibility and "may be defined as a systematic collection and

interpretation of evidence leading to a judgement of value with a view to action" (Razik & Swanson, 2001 p. 225). Evaluation in practitioner-research seeks to improve practices or processes concurrently; hence it is formative and ongoing. Formative evaluation is less formal and carries less rigour than summative evaluation (Razik & Swanson) therefore, Piggot-Irvine (2009) suggests, findings rely on trustworthiness to maintain their 'utility and credibility'. There is a tension between publishing findings to see if they stand up to public scrutiny (Piggot-Irvine, 2009) and reserving findings for an audience to which they make most sense, an audience firmly situated within the localised context from which the data derived. Even though Piggot-Irvine (2009) is referring specifically to action research, trustworthiness in practitioner-research means convincing the audience that the findings are credible, coherent, and worth taking note of.

Open discussion can lead evaluation towards a cyclic process of inquiry, a model that would enable evaluation to be better applied to strategic management. Practitioner-research is a method of inquiry. In the action research cycle, evaluation and reflection follow planning and action before a new iteration of inquiry begins (Cardno, 2003). Problem-based methodology also offers a model to evaluate practice. This model asks if the proposed solution is accurate, effective, coherent and improvable (Robinson & Lai, 2006). After evaluating the solution, practitioner-researchers can seek an alternative theory of action (2006), which is part of a new cycle of inquiry. After all, successful organisations collect data and create feedback-rich environments (Razik & Swanson, 2001). Findings may not be generalizable, but they ought to be applicable within the setting from which they derived. However, it is the evaluation of practice in practitioner-research, in this case an e-learning practice, that may be of interest to other researchers and practitioners, hence findings may be transferable to other settings. The ultimate aim of practitioner research is, however, to change practice in the researcher's own school. My role as a researcher was to ask questions, gather data, and from my conclusions make recommendations to my senior leadership team about how we can improve the ways we implement change.

3.2 Research questions

The questions in this research seek to firstly, investigate the expectations and aspirations of my school to implement e-learning; secondly, evaluate the ways the implementation is perceived as successful or not; and, finally, find ways to strengthen future change implemenation. The questions are:

1. What government, staff and student expectations and aspirations are held of my school to implement an e-learning innovation?
2. In what ways is this innovation implementation perceived by staff and students as successful?
3. In what ways is this innovation implementation perceived by staff and students as challenging?
4. What would strengthen future change implementation at this school?

These questions are socially and professionally relevant, and are most likely to be answered in a qualitative paradigm. Descriptive and exploratory methods are value-laden and attempt to "seek answers to questions that stress *how* social experience is created and given meaning" (Denzin & Lincoln, 2005 p. 10).

Responses to the first research question about the expectations and aspirations to implement e-learning vary between stakeholders depending their value position. In this research, I have gathered the perceptions of leaders, teachers and students to gain "insight [and] discovery, and [to form] interpretations rather than hypothetical testing" (Merriam, 1998 pp. 28-29). With reference to the second question, I have evaluated challenging and successful elements of the implementation. Participants' experiences have provided a range of perspectives on change implementation strategies, but it is the social rules and values of the researcher and the organisation that has informed the interpretation of the participants' responses (Pring, 2000).

Finally, interpreting data and making recommendations for future change implementation has provided a "powerful foundation for practice and decision-making" (de Lansheere, 1997 p. 15). The interpretative paradigm sees things operating as part of a whole and not in isolation; it rejects reductionism and is open to forever changing methods during a research project. It is adaptable and flexible (Davidson & Tolich, 2003). Therefore, recommendations have been based on data that informs a wider view of the organisation and its practices to introduce new innovation. In other words, it has provided a context for the data, rather than treating it in isolation.

My choice of methodology has led me to select two qualitative methods, semi-structured interviews and focus groups. I believe we can only improve practice by asking questions of people in the organisation. Interviews and focus groups provide a setting where leaders, teachers and students can share their beliefs and values about e-learning and change leadership, and discuss what we currently do well and what we can do better. Implementing pedagogical change of this nature (that is, digital-based pedagogy) at my school is challenging the values and beliefs of the community, from trustees, parents, senior leaders, teachers and students. The school has e-learning enthusiasts, cynics, experts and novices. Interviewing leaders and conducting teacher and student focus groups is a means to hear from this range of people. The enthusiasts and experts are beginning to use e-learning practices with their students, and the students appear to be responding positively. Due to the initial positive response from students, the school aims to implement e-learning school-wide. The challenge for leadership is to support the novices and convert the cynics so when a policy to implement e-learning practices is introduced, the school will be ready.

3.3 Methods of data collection

3.3.1 Semi-structured interviews

The interview sample comprised of four leaders: two senior and two middle leaders, each of whom has some responsibility for the implementation of innovative change. The Interview Schedule is attached as Appendix A.

The interviews were intended to find out about expectations and aspirations placed on leaders to implement e-learning in their practice. Interviewing a deputy principal leading the e-learning innovation and a deputy principal responsible for professional development in the school provided insight into the challenges and successes of implementing change at this school. Gaining the perspectives of interested practitioners with responsibility for the innovation benefits this study. Interviews with heads of department involved with e-learning also provided an understanding of the impact this implementation is having on the wider school body.

The interview schedule had a structured element of set questions, and further questions were asked to seek clarification or more information. This allowed me to explore further and gain a deeper understanding of the interviewee's values and educational theories of e-learning and their perspectives on how innovation is fostered at my school (Hinds, 2000). The participant's voice is integral to social research (Guba & Lincoln, 2005). It also allowed for the right questions to be asked and despite it being a subjective act to control the questions (Guba & Lincoln, 2005), providing an opportunity for embellishment and exploration allowed participants to make a full and clear contribution about how e-learning is being implemented.

The interview treats the relationship between researcher and participant as a human one, preserving the "sacredness" of the interaction, and participants were invited to address "any theoretical or methodological concerns" (Fontana & Frey, 2005 p. 697) they may have. An interpersonal approach involves the researcher and participant, and induces an empathy which "emphasizes taking a stance, contrary to the scientific image of interviewing" (Fontana & Frey, 2005 p. 696). Taking a stance, as opposed to being cold and removed from the subject elicits richer and more meaningful data. It helps build a "contextually bound and mutually created story" (Fontana & Frey, 2005 p. 696), and allows for a greater scope of responses and improvisation. Interviews with my colleagues took place in their office, and were conducted more like a professional discussion, as is common-place amongst us, albeit one-sided. The rationale for the research was shared in advance, so that during the

interview we could focus on only the questions. Questions were used to guide the interview and allow the interviewee to extend and advance responses, so that they could share more deeply their thoughts, opinions and beliefs on the subject of innovation implementation.

Interviews do have limitations. For instance, it is difficult to authenticate subjective statements presented as fact in face-to-face interviews, or to make judgements and form conclusions about subjective material. Also, data entry is laborious, and sample size is limited to only a few because of time constraints, making participation and collaboration less convenient, and generalizability more contentious (Cohen, Manion, & Morrison, 2007c).

The interview questions were devised around the research aims: What is driving this implementation? In general, how is change implemented in this school? How is the e-learning innovation being implemented? What is successful and what needs to be improved in the way we implement change? Questions devised under these broad headings meant the interview would cover the major concerns and prompt detail as required. Beforehand, the questions were trialled with a colleague to check clarity and suitability.

3.3.2 Focus groups

The teacher focus group provided useful information about the worth and success of the implementation. The group comprised of six teachers with various levels of involvement in the implementation of e-learning. The focus group questions (the Teacher Focus Group Schedule is attached as Appendix B) encouraged open discussion about how well the school has managed the e-learning implementation, and the successes and challenges teachers have experienced using digital-based pedagogy and technology with their students. Also, the student focus group (the Student Focus Group Schedule is attached as Appendix C) aimed to evaluate the impact the innovation is having on student perceptions of teaching and learning. This group comprised of six students from mid-band Year 9 classes with varying experiences of e-learning at this school.

Focus groups are useful tools "to gain information relating to how people think" or to "explain perceptions of…an experience" (Hinds, 2000 p. 50). Both teacher and student focus groups provided a platform for participants to talk about the way e-learning is being implemented and the impact it is having, directly or indirectly, on student learning. Participants were able to share and build upon each other's ideas in a way that would not occur in a one-on-one interview. The types of questions employed are crucial to how data is gathered. Questions were open-ended, with uncued questions first followed by "cues to prompt additional discussion" (Krueger, 1994 p. 60).

In one-on-one interviews, gems of data may be exposed in the final serendipitous phase of the discussion, but in a focus group the richness comes from the dynamic where participants can feed off each other's responses. The focus group enhances further exploration of the topic because, as Krueger (1994) points out, the group dynamic ignites certain "cognitive processes" and "the responses spark new ideas…providing a mental cue that unlock[s]" (p. 54) further responses in a manner not possible in an interview. Implementing innovative change is complex and abstract, so a group dynamic was an ideal forum to foster a shared discussion based on teacher and student perceptions.

One disadvantage of a focus group is 'groupthink' (Fontana & Frey, 2005). The phenomena groupthink arises where participants are influenced by each other's responses to the extent where they limit their own responses to marry with those already expressed in the group. It is important that each member of the group has an equal opportunity to be heard therefore, basic rules were laid out before the discussion began. In my focus groups, this was a good time to stress to participants that it is okay to agree with each other and it is also okay to share differing or contrasting perceptions, because this is how we can gain the best possible data. The questions for my teacher focus group were devised around four broad areas. The first section asked about how the school currently implements change. The second section was on the expectations teachers had of e-learning, and the third section asked about how e-learning is currently being implemented. The final section asked what can be done to improve future implementations. The teacher focus group was facilitated by a colleague, with whom I trialled the questions first. I also prepared my

colleague to allow the group to elaborate in the discussion, and to allow the group dynamic direct the discussion where appropriate. As a result, the focus group went on for over 90 minutes. The prompts my facilitator used included questions such as, "Would anyone like to respond to… add to… take another view of… elaborate upon what was just said?" The prompts aimed to advance and extend the discussion, and stimulate the discussion to avoid 'groupthink' by asking for more ideas, or alternative points of view. The focus group took place in a meeting room during a time set aside for professional development, therefore it did not coincide with a teacher's non-contact time, nor was it 'after hours'. It was set in a neutral place during a neutral time.

3.4 Data analysis

The design of the data collection instruments were based on the themes identified in my review of the literature. The three literature themes are: imperatives to introduce e-learning in secondary schools; implementing innovative change; and, evaluating change.

The data collection instruments reflect these literature themes by broadly asking:

1. What are the expectations and aspirations of my school to implement e-learning?
2. How does this school implement innovative change?
3. What does it do well and not so well?
4. How can it improve what it does in future implementations?

Coding

A coding scheme is used to categorize information and identify patterns (Lofland et al., 2006). In my project, codes derived from 'semantic chunks' that I had identified in the transcripts. To create codes, I would read through a transcript (data origin) and each time an idea emerged, either in the form of words, phrases or paragraphs, I would place it into a memo along with similar data. Whenever I identified a new 'semantic chunk', I would simply create a new memo. Instead of assigning a number to each code, each memo was given a title that represented the selected data, and these became my codes. The code labels are verbal tags, or identifiers (Lofland et al.) that provide a context for the data

contained in the memo, for example, one recurring idea in the transcripts revolved around the idea of trust between leaders and teachers, so each instance this idea recurred it was coded and then placed in a memo, which formed the sub-theme 'building trust'. Codes were systematically applied to each data chunk and then grouped and combined, merging categories to reduce and standardise codes. Codes were then defined and could be applied in a standard way across the data.

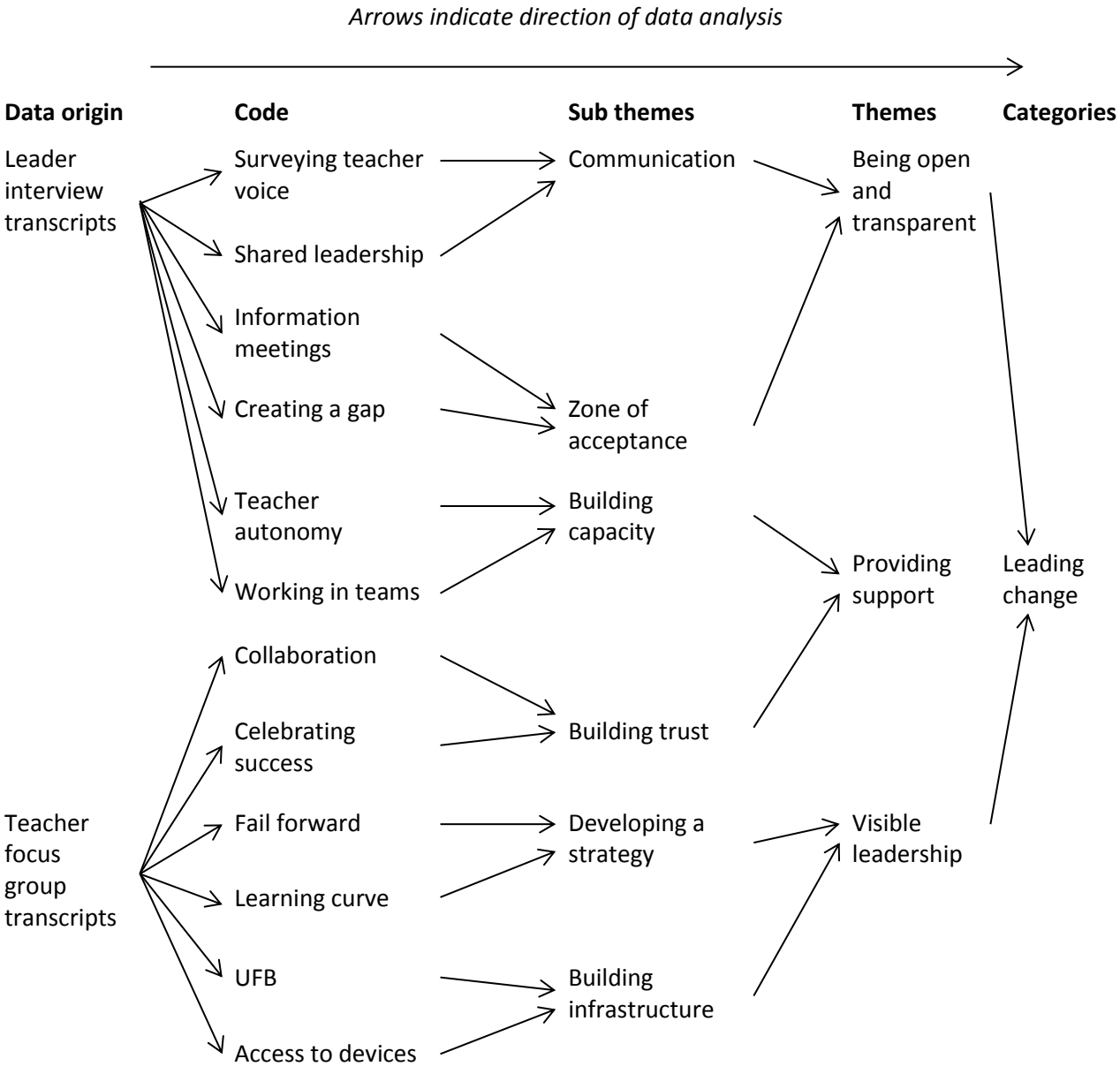

Figure 1 Stages and direction of data analysis

Once the coded data was applied to a sub-theme, clearer themes emerged. Emerging themes are patterns in the coded data, which can be recurring words, phrases, ideas, images, linguistic connectors, metaphors or symbols (Bryman, 2012). For example, the sub-theme 'building trust' was combined with other sub-themes, such as 'developing a strategy' and 'building infrastructure', to form the theme 'visible leadership'. 'Visible leadership' merged with other themes to form a category entitled 'leading change'. A category is a larger abstraction of the component parts: the codes, sub-themes, and themes. Repetitious and redundant codes were then eliminated (Bryman, 2012).

The themes that emerged from my data were placed into one of three categories: leading change; nurturing teacher capacity; and, meeting learners' needs. Findings were then presented by category in accordance with its source sample; that is, either the interviews or one of the focus groups.

Figure 1 (above) illustrates the data analysis process conducted in my research. It is an example of how a section of my data analysis began from its original source sample (for example, a leader interview transcript) to its final category. The arrows indicate the direction of the data from its origin towards its destination.

3.5 Validity

3.5.1 Integrity and rigour

Validity asks if the methods "truly 'measure' the concepts that we are interested in" (Davidson & Tolich, 2003 p. 32). The reliability of data is the concern of positivist researchers, whereas "interpretive researchers emphasise validity" (p. 31). Qualitative research sets out to validate what a person said or how a group behaved. A social researcher builds towards a truth by adding to the evidence their own observations and consequent conclusions. There has to be an honesty and truthfulness to the methods, and the researcher needs to be accountable for this because validity, as Keeves (1997) asserts, involves "coherence of knowledge; a strong correspondence between the result and the

real world" (p. 279). This research needs validity rather than reliability and to achieve this it needs to have rigour. Locke (1990) attests research must be rigorous, the desire to make 'a better world' is predicated on the imperative to be "as right and truthful as possible" (p. 202).

Perspectives

Validity is also maintained in this research by gathering a range of perspectives representative of the school body. Perspectives were triangulated by selecting and inviting practitioners from across the school; from various levels of responsibility and involvement in the e-learning implementation. The interpretive research data in this study is my construction of my participant's constructions (Geertz, 1973). Included in this project are the perspectives of senior and middle leaders, teachers from various departments, and students. As a practitioner-researcher, I am aware of who my participants are. It is important to reject my preconceptions of what other's perspectives might be, despite the fact that, to garner a range of perspectives, samples are selected based on their role and experience. Participant samples have to be thought through because they will influence the design of instruments and protocols. Pilot or trial sessions beforehand, sound open-ended questions, an awareness of power imbalances, explicit description of independent variables, and appropriate participant representation are just some of the factors that can contribute towards the validation of methods. At all costs, bias must be minimized (Cohen et al., 2007c).

Samples

Purposive samples (Bryman, 2012) for this research have been selected from "essential and typical" (Davidson & Tolich, 2003 p. 35) groups. In the qualitative paradigm, researchers "analyse as they collect" and refine research theory as they progress (2003). The "essential and typical" groups are leaders and teachers with a responsibility for e-learning, and students in mainstream Year 9 because that is the cohort involved in an e-learning pilot class in 2015. Selecting staff at random would be counter-productive, as is illustrated in Guba and Lincoln's (2005) analogy of the futility of asking Catholic participants questions designed for Methodists. The data has to be fit for purpose (Cohen et al., 2007c) and

collected in a manner that promotes rigour and validity. There also needs to be an "on-going usefulness of the findings" (p. 279) to future research. The interview methods employed in the study were validated by how the findings were sustained by the data (internal validity) and how they were generalizable and transferable to further inquiry (external validity) (Cohen et al., 2007c). Guba and Lincoln (2005) recognise two forms of rigour: firstly, in the application of method, and secondly, in the plausible interpretation of data. Interviews and focus groups are human activities and "validity of research ultimately arises out of the differing values and perspectives about knowledge and learning" (Jahnke & Taiapa, 2003 p. 41). Validity comes from the meaning provided by the participants and the inferences drawn by the researcher (Cohen et al., 2007c) and this is why it is important to gather a range of perspectives, which is strengthened by triangulation. By sharing findings from each sample with practitioner participants throughout the process, research can maintain validity and rigour (Cardno, 2003). Once the interviews were transcribed, the scripts were shared with interviewees for verification. To achieve trustworthiness, data needs to be verified. Findings can be shared and negotiated in a reciprocal participative approach (Jahnke & Taiapa, 2003) between researcher and colleagues.

Triangulation

The data samples were triangulated concurrently (Creswell, 2002) in what Denzin and Lincoln describe as "the simultaneous display of multiple, refracted realities" (2005 p. 6). Dealing solely with human participants in qualitative research means the data is subjective: "infinitely complex, irreducible, socially situated and unique" (Cohen et al., 2007c p. 137). Therefore, its validity was tested by its generalizability, that is, its comparability to other data in the research and its transferability across sources. However, being practitioner-research, it has not sought generalizability as much as it has sought the ability to enable improvement; therefore validity is assured through 'credibility and utility' (Razik & Swanson, 2001). Despite using only two methods, it is the triangulation of this data that holds a researcher's confidence. Triangulation occurs by drawing similar conclusions (Robinson & Lai, 2006) from more than one of the three samples. Triangular techniques "help to overcome the problem of 'method-boundedness'" (Cohen et al., 2007c p. 142). As well as being faithful to the findings, a researcher needs to be faithful to the process: validity is

preserved by the preparation. In addition, to strengthen validity, perspectives were triangulated in the findings. A summary of findings at the end of each sample in chapter four compares the participants' various perspectives of the strengths and weaknesses of the way e-learning is being implemented. The key findings across all samples are consolidated at the end of chapter four.

3.6 Ethical issues

Doing research in one's school is fraught with issues around confidentiality and conflicts of interest. In this section I describe how this research attempts to appease potential issues at each stage of the process. To begin, participation is by invitation with informed consent.

3.6.1 Informed voluntary consent

The paramount principle of research is informed consent. Informed consent means asking a participant's permission and disclosing all relevant information so they can make an informed decision germane to their autonomy and well-being. It is the right thing to do and a respectful way to treat one another (Cohen, Manion, & Morrison, 2007b; Fontana & Frey, 2005; Wilkinson, 2001). Participation is on a voluntary basis. To recruit volunteers "imposes negative duties on researchers" (that is, to not coerce or use force) whereas, to gain informed consent, disclose all relevant information and ensure that it is understood "imposes positive duties on researchers" (Wilkinson, 2001 p. 17). Full disclosure will not negate the validity of the data, furthermore, the "more serious the implications of the research are for the subjects' autonomy and well-being, the more effort researchers should put into ensuring that subjects are aware of the project" (Wilkinson, 2001 p. 22). The potential risk posed by contentious data varies; therefore it was vital that each participant was provided with a full overview of the research, which includes the research problem, aims and questions, the methods used and the participants involved. Wilkinson (2001) identifies two "salient ways in which" (p. 18) a participant may choose against their well-being: for the betterment of society (sacrificial); or by mistake. Presented with the same benefits or burdens of a research, one participant's well-being may be affected quite differently to another's well-being (Wilkinson, 2001). Full disclosure allows participants to

make an informed decision with regards to their well-being, on which ultimately only they can decide. Where a subject is at risk, the potential benefit to the subject must outweigh the potential harm (Wilkinson, 2001).

3.6.2 Sample selection

Leader interviews

In the interviews, two senior leaders and two middle leaders were invited as a purposive sample. They were fully informed of the research design and its final audience (the Interview Consent Form is attached as Appendix D and the Interview Information Sheet attached as Appendix E). It was explained that anonymity cannot be guaranteed in practitioner-research of this nature, but all efforts would be made to ensure confidentiality. Therefore a pseudonym was allocated to each participant, and all data gathered in transcripts was shared with and verified by each individual. Any material not accepted by the participant was not used in the final thesis. This research intends to benefit my school, but where an individual perceived a conflict of interest, the issue was managed in order to minimise harm at all costs.

Teacher focus group

Six teachers were involved in the focus group. Participation was by invitation, voluntary and with informed consent (the Teacher Focus Group Consent Form is attached as Appendix F and the Teacher Focus Group Information Sheet attached as Appendix G). Where more teachers accepted the invitation than could be accommodated in the group, inclusion was by lottery conducted by a neutral party. Neither anonymity nor confidentiality can be guaranteed in this method, but every effort was made to minimise harm. The interview was conducted by a neutral third party, so the participants would remain anonymous to me, and I had no access to the data until after it had been transcribed by a confidential transcriber and all identifying labels converted to pseudonyms.

Student focus group

The same efforts to minimise harm were applied to the six students in the second focus group. Moreover, school policy was adhered to with regards to using students as participants in a research and parental consent was gained (the Student Focus Group Consent Form is attached as Appendix H and the Students-Focus Group Information Sheet attached as Appendix I). The students selected were a purposive sample of students enrolled in Year 9 mid-band classes. A pseudonym was used when making reference to an individual.

3.7 Reflecting on practitioner research

It is incumbent of the practitioner-researcher to be reflexive. In reflection, I would strengthen my methodological approach by collaborating with colleagues rather than acting alone. Conducting practitioner-research in collaboration with senior and middle leaders to identify a problem worth addressing would provide the school with greater ownership of the project and my study with greater substance. However, I acted alone, which I assumed was typical of a teacher-researcher, with no previous research experience, completing a thesis for a Master's degree. Practitioner-research is, after all, primarily about working with colleagues to identify and solve significant problems in the organisation (Cardno, 2003; Coleman & Lumby, 1999; Piggot-Irvine, 2009; Robinson, 2006). Nevertheless, this was a unique opportunity to conduct research that could benefit both my school and my degree.

After a problem was identified in the way my school implements change, I decided to use the current e-learning implementation as a topic for my research. Conducting practitioner-research is complex and offers many challenges. Firstly, I am researching an event in my own work-place. I go into the field with preconceptions, insider knowledge, and an awareness of the culture. I am familiar with others as they are familiar with me. It is a challenge to suspend the assumptions my colleagues and I hold about each other's role in the implementation, and the assumptions deeply rooted in our prior experiences working with each other. In order to be as faithful to the truth as possible, though, we have to suspend them. This challenge is exacerbated when interviewing colleagues.

Colleagues have preconceived notions of each other's perspectives, which have to be suspended at all stages of the research. During data analysis, and despite seeming paradoxical, I have to remain objective while engaged in subjective processes (Ratner, 2002). The findings also have to be approached with neutrality, which means being distanced from the familiar voices. My voice has to be kept clear of the data findings, discussion and conclusions. Adding to the paradox, I seem like a participant as much a researcher because after all, I am a member of the community being researched. When the research is over, I will return and be involved in the innovation once again.

Furthermore, before I sought approval from a supervisor, a research proposal committee, and an ethics committee, I had to develop knowledge of practitioner-research, because it is a specialised branch of qualitative research, and it does require the researcher to exhibit an understanding of that specialist knowledge (Coleman & Lumby, 1999; Middlewood et al., 1999; Pring, 2000). Ethics approval is challenging because the researcher has to show how they will manage conflicts of interest and preserve the identity of participants, as anonymity cannot be guaranteed.

CHAPTER FOUR: FINDINGS

Introduction

The findings in this study come from data gathering in my school comprising four semi-structured interviews with leaders, a teacher focus group, and a student focus group. The interviews and focus groups aimed to gather a variety of perspectives from leaders, classroom teachers and students. The semi-structured interview and the teacher focus group covered the ways my school generally implements new innovation, imperatives driving e-learning implementation, and the challenges and successes experienced by the current e-learning implementation. The student focus group concentrated on student expectations of and aspirations for e-learning, the ways e-learning is being used in their learning, and the ways students perceive the school can improve in the implementation of e-learning pedagogies. This is practitioner research and all participants are from the same secondary school.

It is interesting to observe that the themes that emerged from the leader interviews and teacher focus group are very similar, and therefore they could be placed into identical categories. I propose this occurred for two reasons. Firstly, the interview and focus group schedules followed a similar line of questioning, which has prompted similar responses; and secondly, the school leaders and teachers share points of view on similar topics with regards to implementing e-learning (even if the viewpoints are at odds).

4.1 Semi-structured interview findings

The interviews involved two middle leaders and two senior leaders. The findings from the interviews were organised into three categories: leading change (leader issues), nurturing teacher capacity (teacher issues), and meeting learners' needs (learner issues).

4.1.1 Leading change

This section focusses on the influence of leadership in the implementation of a new innovation. Across all four interviews, ideas were raised about open and transparent communication, providing support, and the pace of change.

Open and transparent communication

When asked about leadership strategies favourable to implementing a new innovation, two of the four interviewees raised notions about the importance of open and transparent communication with teachers.

Leaders consider open and transparent communication means sharing information with all staff. Both interviewees agreed a shared vision is important, and interviewee one stated:

> The key thing is to have a vision and ask what is it we want to achieve and…what has to be improved. *(Int. 1)*

Interviewee two added that middle leaders are crucial to spreading the vision school-wide.

Part of the innovation's vision is to develop pedagogical knowledge within the e-learning implementation team. Interviewee two did not see this occur during the Professional Learning Group (PLG) sessions and as a result, took the initiative to devise a plan so this would happen. They stated that:

> Leadership is very important if the implementation is to work. There wasn't a shared vision as to what had to be achieved. It seemed like we were engaging in PD (Professional Development) to change the school rather than our own pedagogy. *(Int. 2)*

Both interviewees one and two talked about how surveying teachers can help guide an implementation and also garner a teacher's trust:

> When the Principal has consulted with staff on several occasions this year, he has been up front with the results of the consultation and how it may impact on the big picture and play a part in the final decision. *(Int. 2)*

Interviewee one added, "The dissemination of information and transparency within the school and wider community are important to a successful implementation".

According to interviewee two, transparency is improved when senior and middle leaders collaborate in strategic meetings:

> Our new principal is very good in this area because he is transparent. *(Int. 2)*

Two of four interviewees, in response to an open-ended question about strategies leaders can use to implement an innovation, identified open and transparent communication. These interviewees talked about how a common focus is developed that is transparent and inclusive when leaders share the vision and communicate with the community at large.

Providing support

Three of the four interviewees discussed how implementation of innovation relies on leadership that provides support to teaching staff. Interviewee three recognised autonomy and a freedom to learn are part of a successful implementation and stresses:

> In a top down model you end up controlling or managing what is happening, and true innovation doesn't come in that context. It comes from groups of teachers who are completely enthused about something, learning about it, and wanting to put it in place. *(Int. 3)*

Additionally, adopting an inquiry approach to learning will "give teachers the opportunity to co-construct the direction that the learning will take". *(Int. 3)*

In contrast, the notion of compulsion was described by interviewee one, who emphasised the importance of compelling teachers to change practices to suit modern learning practices and to create momentum so laggards and late adopters are pulled along with change. Developing current practice into a digital context is challenging. To achieve this, interviewee one suggested that more advanced teachers offer peer coaching and peer mentoring via the twice-weekly 'drop-in' sessions offered by the e-learning team:

> We need to be explicit that there is a need for teachers to evolve. It can be uncomfortable but the biggest thing about building capacity is that you have to accept that things will go wrong and you have to move on. *(Int. 1)*

Supporting teachers regardless of their capacity to implement e-learning is necessary according to interviewee two:

> Some teachers can fly independently whereas others need to be held by the hand. Leadership needs to provide for both, and if it doesn't, the implementation is destined to fail. *(Int. 2)*

Furthermore, interviewee two recognised leadership that allows autonomy and the freedom to 'fail' also develops independence and confidence that builds capacity in teachers when they use an inquiry approach.

On the other hand, according to interviewee one disrupting practice can also help implement a new innovation, and explained that by allowing students to bring to class any digital device, regardless of teacher preparedness, pressure is applied on teachers to develop pedagogy:

> The target of the innovation is changing pedagogy through an introduction of devices. Blended learning places students in the centre of the learning, not at the centre of reception. *(Int. 1)*

According to interviewee one, leadership must compel teachers to change practice to align with the implementation. Interviewee two acknowledged digital learning necessitates a mind-shift for many teachers; therefore, support has to be provided:

> It is forcing people to change. I think resistant teachers have to be supported enough so that they either buy-in to the mind-shift needed to change towards a digital curriculum, or they simply agree that the school's culture doesn't align with theirs and they move on. *(Int. 2)*

According to the interviewees, when implementing a new innovation, teachers can be empowered when they are given autonomy and choice around their level of involvement. Where change is mandatory, teachers need support to upskill and adapt their practice. The degree of autonomy versus compulsion, or support versus pressure, is contested in the data. Leaders think teachers should develop practice in a cycle of inquiry, but also recognise there will be elements of change that teachers will have to comply with.

Pace of change

When asked about challenges of implementing a new innovation across the school, all four interviewees identified challenges faced by leadership around the pace of change.

Interviewee four agreed the school has to move fast with the implementation of e-learning:

> Some people are thinking the school is moving too fast because e-learning is new to them, but I can't see this as a problem…Technology is changing so fast and students are changing with it. *(Int. 4)*

On the other hand, interviewee three suggested implementation takes time, especially when leading a team:

> Teachers need to consolidate what they have done, because there has been a lot of implementation occurring at the school at the moment. *(Int. 3)*

Furthermore, teachers need to be given time and interviewee four proposed:

> To support late adopters we will spend more department time with them…to be a collaborative, sharing and supportive department. *(Int. 4)*

As a result, interviewee four noted teachers, who were initially critical and resistant of the e-learning implementation, began to realise its benefits.

In addition, interviewees one and two agreed that infrastructure has to be in place in readiness for pedagogical change otherwise teacher confidence will diminish.

> Having systems work in the first place is crucial if…teachers are going to bother putting in the time and energy developing digital pedagogy. *(Int. 2)*

Interviewee one also recommended a school should sort its infrastructure before introducing 1:1 digital learning or BYOD (Bring Your Own Device), but acknowledged this is not always possible and warns hesitation can be costly. Changing infrastructure forces the implementation to move forward and teachers either move with it or 'get out of the way':

> Unnecessary delay can be harmful, and may cost more in the long run. You change infrastructure because it forces the school to move forward. It removes excuses and barriers to progress the implementation. It does challenge people's personalities and forces teachers to self-reflect appropriately. *(Int. 1)*

Leaders believe it is critical that the pace of change is neither too fast nor too slow. Certain elements of change need to be acted upon before the next stage can begin. Changing infrastructure needs urgency, changing people needs time.

4.1.2 Nurturing teacher capacity

All four interviewees recognised the importance of building teacher capacity to implement a successful e-learning innovation. Two themes emerged from the data and were placed in a

category, nurturing teacher capacity. The themes are: professional learning and collaborating with colleagues.

Professional learning

As it is the teachers at my school who will deliver e-learning, professional learning is central to this implementation. Interviewee one observed that teacher capacity was being developed beyond the e-learning professional learning group run at the school.

A need for improved professional development within the school was raised by interviewees two and three. Interviewee two believes that this is only effective where teachers commit to the innovation, which will more likely occur when there is an element of choice, and interviewee three concurred:

> PD is best when it is context specific, especially when teachers can opt in. Where teachers can opt to engage in a PLG at the expense of another PLG, we don't lose capacity, because as expertise is developed, it becomes shared in ways that are meaningful. *(Int. 3)*

Teachers need time to adjust their mind-set and to learn new skills, according to interviewee two, and interviewee three agreed that a school needs to "provide support to teachers, especially laggards and resistors, through an effective professional development programme which is linked to appraisal".

Interviewees two and four believe not enough time is provided neither to middle leaders tasked with the role of leading change within their department or in the professional learning group they lead, nor for teachers to develop new learning.

Even where teachers have choice in their professional development, interviewee two explained they may still not apply new learning in their practice, and proposed as a solution using an inquiry approach to provide accountability rather than compulsion:

> We need to be accountable for our professional learning. This year PD is directly linked to appraisal. We have to have a goal, an action plan and artefacts to show that we are using the innovation in our teaching practice. I can see more teachers in my department using the PD in their teaching. *(Int. 2)*

An inquiry-approach enables teachers to have control over their learning, and to develop their own specific needs:

> It's more about 'me-learning'. "What do I need to know in order to engage my students in this course at this particular time?" and teachers being aware of where their own learning is at. *(Int. 3)*

On the other hand, interviewee four acknowledged the provisions the school has put in place to support teacher development:

> We have drop-in sessions, we have PD, which we share in our departments, and Google Classroom is now whole school. Some teachers are all on board; some teachers are waiting until the PD is provided to them when we go 'whole school' with BYOD. *(Int. 4)*

According to the interviewees, professional learning is integral to building teacher capacity. It needs to be customised to a teacher's individual needs and should form part of an inquiry process that links to a teacher's appraisal. At my school, leaders recognised opportunities are provided to develop teacher capacity that will contribute to the implementation of e-learning. They also recognised, however, that teachers' capabilities are at various points; ergo learning will occur at various rates.

Collaborating with colleagues

Each interviewee recognised peer collaboration as a key strategy to a successful e-learning implementation. Collaboration included sharing in the professional learning process and distributing leadership amongst key staff.

Teachers should be able to work together towards a shared goal, and they should be involved with goal setting to provide ownership in its outcome, as interviewee three stated:

> Co-construction between teachers is important to a successful implementation… teachers need to own the work they're doing. Where they haven't had any input or are forced to work counter intuitively creates road blocks, and that's where you come across personality conflicts. *(Int. 3)*

Interviewee four concurred that to be successful in implementing an e-learning innovation:

> [Best-practice] is shared across the department at our meetings. We collaborated as a department to support each other with digital confidence and competence. *(Int. 4)*

Collaborating in a process of inquiry, interviewee two suggested, provides both intrinsic motivation (self-improvement) and extrinsic motivation (to satisfice appraisal targets):

> It was really good when we started learning together and sharing our good practice. Once we realised this implementation would tie in with our appraisal, it gave focus and purpose. We knew we had to stop just playing around with the technology and focus on a particular class, a particular lesson, and a particular pedagogy. We could step back, slow down and focus. *(Int. 2)*

All four interviewees acknowledged the benefits of sharing leadership across the staff in order to nurture capacity and strengthen innovation implementation. Interviewee one described how creating positions, such as a digital learning co-ordinator, and sending 12 staff on a Google Educators' conference helped develop the competency within the school.

Interviewee two agreed developing leadership nurtures capacity and added:

> In my department, we are represented by four teachers with leadership roles in each of the four PLG groups. *(Int. 2)*

Interviewee three described the advantages of upskilling select staff in digital learning and Google Applications for Education (GAFE):

> Is you develop an innovative staff and quickly get leaders emerge who are generous with their time, such as drop-in clinics where we can upskill, solve problems, and learn about Google apps. *(Int. 3)*

On the other hand, interviewee three also observed not all teachers have time to upskill independently:

> It is a problem when a gap between least capable and most capable is producing a huge divide (digitally) where you have less capable staff who are overwhelmed by the speed of the change. *(Int. 3)*

According to the interviewees, collaborating with colleagues supports professional learning and develops leadership capacity of the staff. Sharing e-learning knowledge and skills within each department presents an opportunity for teachers not involved in the e-learning professional learning group to upskill so they too can stay abreast of school-wide developments and policy updates with regards to the innovation implementation.

4.1.3 Meeting learners' needs

All four interviewees talked about the potential of e-learning practices to better meet the learners' needs. Ideas raised were about developing citizenry and key competent learners, and engaging students through digital pedagogies. The key competencies in the New Zealand Curriculum (NZC) are: thinking; relating to others; understanding language, symbol and text; managing self; and, participating and contributing.

Developing citizenry and key competent learners

e-Learning is considered to have the potential to develop 21st century learners as defined in the NZC (2007). All four interviewees talked about its potential to engage learners more

than current practices are achieving, and three of the four noted its capacity to develop digital citizenry and key competent learners through collaborative and independent learning. When asked about what is driving e-learning, interviewee one described an imperative to develop in students a social responsibility through digital citizenry:

> We want our students contributing socially, ethically, and morally to our country now and in the future. *(Int. 1)*

The notion that digital-based teaching and learning are necessary to meet social or economic imperatives was questioned by interviewee three who stressed that pedagogy is first and foremost. Without an improvement in pedagogical skill, e-learning is no better than any other form of learning:

> I hope we're using technologies to develop in students a stronger capacity for critical thinking. I wouldn't want us to put all kids on Chromebooks, for instance, and the pedagogy didn't shift. It's the pedagogy. *(Int. 3)*

Interviewee one described how students take the lead when provided the opportunity to use digital devices in their learning, and can more easily collaborate and share their learning. Interviewees one and two talked about digital learning preparing students for a global workforce, and its potential to afford our students similar educational experiences to other students anywhere in the world.

> We are here to educate students, and education is a way to break the cycle of poverty, so digital learning is one of the ways we can do this. *(Int. 2)*

Interviewee one and two discussed a moral imperative to implement e-learning, which is elaborated upon by interviewee two:

> To do things digitally has to go beyond substitution; and it has to change the way you teach, and a lot of staff are not comfortable with this change or having their power taken away from the centre. There are a few too many teachers who don't want to

> give up the power. Culturally responsive pedagogy will tell you that that [giving up the power] is a good thing. *(Int. 2)*

According to the interviewees, e-learning has the potential to meet the vision and principles of the NZC (2007) and develop in students global digital citizenry and key competencies. Digital-based teaching and learning affords students similar opportunities to students across New Zealand and the globe, bridging the digital divide. Therefore, leaders believe we are obliged to develop digital learning pedagogies.

Engaging students through digital pedagogies

On the question of student engagement, interviewees two and four cited anecdotal evidence that using digital devices to support learning does improve student engagement. Students are engaging with the technology, and most have access to online platforms such as Google and Facebook, according to interviewee four:

> Students and teachers use these platforms to post questions, share resources and continue learning outside of the classroom. *(Int. 4)*

Furthermore, interviewee three recognised a potential adverse effect if students are not using online learning practices:

> Digital natives…arrive…in year 9 and return to more traditional practices and they drop in engagement, which decreases further in Year 10. *(Int. 3)*

Additionally, interviewee one identified an imperative to adopt digital-based teaching and learning for the sake of students who are "digital natives" and who find this a better way to learn.

Interviewee two observed an increase in engagement when lessons were accessed online and described an experience with a reluctant learner:

> When I began placing the course online he gradually became very engaged in the online content, and I don't think that would have occurred had I stuck with the pen and paper approach. He now says he really enjoys the learning. *(Int. 2)*

As well as improved access to their learning, as noted by interviewee four, personalisation is another benefit of online learning. Interviewee two stressed pedagogical skill needs to be developed in teachers:

> Teachers need to be innovative, think on their feet, be adaptable and most importantly to differentiate the learning to meet the needs of their students. Teachers need a lot of upskilling to get to this level. *(Int. 2)*

Interviewee three added:

> Using Google Classroom allows me to differentiate learning more easily, allows me to make resources available to students missing class to attend things such as vocational pathways. *(Int. 3)*

According to the interviewees, e-learning has the potential to increase student engagement and offers teachers the resources to differentiate within learning programmes. Teachers do need to develop pedagogical skill in order to utilise technology effectively.

4.1.4 Interviews: consolidated key findings

The interview findings were organised into three categories: leading change, nurturing teacher capacity, and meeting learners' needs.

Leading change

Leaders think that teachers are more willing to accept change where leaders consult and share information openly, which can help prepare teachers for change, and can inform them of their role or obligations in the change implementation.

According to the leaders in this school, there is contention between allowing for teacher autonomy and choice in a teacher's professional learning, and in the use of compulsion, being more heavy-handed so a teacher is compliant to change. Leaders recognise that professional learning should be based on a teacher's inquiry into their own learning, but also when implementing whole-school change, there will be certain elements of that change where choice may not be practicable.

Leaders believe that the pace of change needs to be planned and managed. They agree that supporting professional learning means providing adequate time and space. Infrastructural change requires urgency, without hastiness; otherwise a rushed decision can have dire consequences that are difficult or expensive to alter. Leaders recognise a teacher's ability to embed change is dependent on an infrastructure being able to support their change.

Nurturing teacher capacity

Leaders agree that a programme of inquiry-based professional learning should be customised to meet teachers' individual needs, and allow teachers to work flexibly to develop at a pace conducive to their learning. This learning should form part of the teacher's performance appraisal.

Leaders think that to increase opportunities to learn, teachers should collaborate with their peers and share best-practice strategies and skills in their department or learning group.

Meeting learners' needs

According to leaders, my school is adopting e-learning as a means to promote digital citizenry, develop key competent learners, and deliver individualised and differentiated learning opportunities for its students.

Leaders recognise the potential of e-learning to increase student engagement, but also recognise the need for teachers to develop digital-based pedagogies, personalised digital-learning programmes, and collaborative and co-operative digital-learning activities.

4.2 The teacher focus group findings

This focus group was comprised of six teachers. Questions were asked from three broad areas: firstly, the ways in which my school implements innovation, with a particular emphasis on the e-learning innovation; secondly, imperatives to implement e-learning; and thirdly, the costs and benefits of its implementation. The findings could be categorised into either leading change (leader issues), nurturing teacher capacity (teacher issues), and meeting learners' needs (learner issues).

4.2.1 Leading change

The theme, 'visible leadership, transparency and consultation', emerged from the data and was placed in the category, leading change.

Visible leadership, transparency and consultation

The group's participants were inspired by visible leadership. They believe the Principal is in full support of the implementation and appreciated his input at staff meetings:

> The Principal is having conversations with experts outside of school about how important it is to implement new technologies and work the way the students do. That's quite exciting for me to know the captain of the ship is saying e-learning is a positive move. *(Int. 4)*

During the interview, effective communication resonated as an important factor in the relationship between leadership and staff during the implementation of a new innovation. This included consultation, effective communication, gaps in communication, information sharing and transparency. Interviewees felt implementation could be improved by leadership sharing more information with staff and by engaging in consultation.

When implementing a new innovation, interviewees agreed they do trust leadership in the decisions they make, but they also think by providing more information in advance and disclosing the rationale, decisions will be clearer and easier to accept.

Teachers value 'sincere' consultation, where they believe their voice will be listened to and their input has some bearing on the implementation process:

> And I appreciate you can't please everybody, but I do wonder whether sometimes consultation happens just to say 'We've had consultation'. *(Int. 5)*

Another interviewee suggested given the magnitude of proposed change, the e-learning innovation could have been shared with parents at student-teacher conference meetings as a way to share information, consult, and receive feed-back from families:

> I think there could have been a bit more awareness about how important it is. *(Int. 3)*

Adversely, it was pointed out teachers have to take responsibility in how they respond to new initiatives. Interviewee five commented there is a professional obligation to be adaptive, critical and productive rather than judgemental and dismissive in the way teachers respond to proposed change.

Teachers summarised this discussion by agreeing transparency on the part of leadership is vital to constructive and productive change:

> The school needs to do transparency better. Communication with staff needs to improve. When it's a hasty decision the school has no chance to be transparent. Maybe it just needs to slow down. *(Int. 6)*

According to the focus group participants, leadership needs to be visible, transparent and consultative. It needs to be responsive to teacher needs, and likewise, teachers need to be responsive to the school's strategic focus. Productive dialogue and sincere consultation is valued by teachers.

4.2.2 Nurturing teacher capacity

Three themes emerged from the data and organised into one category: 'nurturing teacher capacity'. The themes are collaboration between colleagues, professional learning and teacher agency.

Collaborating with colleagues

A recurring topic in the focus group concerned collaboration. Developing the capacity for teachers to collaborate with each other is instrumental to a successful innovation implementation. One interviewee commented that using Google Classroom has benefitted collaboration with colleagues when planning lessons and units, in particular the synchronous and asynchronous function of Google Docs that lends itself to collaboration and sharing.

The introduction of a policy mandating teachers to use Google Classroom was identified as motivating for teachers to share ideas and develop digital pedagogy together rather than in isolated pockets, as was currently happening:

> Sitting together and recognising this [low student achievement] as a school-wide problem within the school and providing ways to tackle it – I think it kind of recognises we are working towards something positive. *(Int. 3)*

The e-learning PLG, which is one of four groups teachers can opt into at this school, is also considered useful because teachers value learning together more so than learning from external providers:

> What I found most useful was having those discussions with other teachers and supporting each other because we know what works at the school as opposed to other external players. *(Int. 2)*

According to the focus group participants, teachers value opportunities to collaborate with colleagues when introducing new learning, changing practises and planning new programmes. Sharing best-practice fosters confidence and competence amongst staff.

Professional learning

The e-learning professional learning group is also a forum to engage in the implementation and provides opportunities to explore new concepts and pedagogies in advance of mandated change. One interviewee found the announcement of new initiatives "quite stressful" if they had not been given the opportunity to learn and find out more for themselves beforehand, and stated sharing will give teachers a sense of autonomy which will develop practice and alleviate the stress of change.

Teachers in the focus group also discussed issues concerning support mechanisms to develop teacher capacity in e-learning. Participants acknowledged the professional learning group and twice-weekly drop-in sessions as supportive to teacher development, but one interviewee commented as e-learning was a school wide innovation then all teachers should be enrolled in that professional learning group (rather than having four different initiatives to select from).

Teachers recognised the importance of each of the four professional learning groups but, as one interviewee commented, in agreement with others, learning was diluted when each teacher had to report back their learning at department meetings and noted a benefit of everyone being involved in the same learning:

> Potentially you could have more rich discussions about what we're actually doing moving forwards as a professional group because we all sort of understand it. *(Int. 6)*

There was a concern the school was involved in too many new initiatives at once, and this would hinder the long-term implementation of e-learning. However, it was acknowledged each initiative was supported by research:

> Some element of rigour which I think is useful and necessary when you are making an implementation. *(Int. 4)*

In contrast, another interviewee enjoyed the choice and freedom to develop professionally at their own pace that the range of initiatives afforded. This interviewee also had confidence in the middle and senior leaders heading the implementation because "they seemed to be committed to investigating the research and staying abreast of changes" and they make available "spaces for staff to learn or adjust to new systems". In their view, compulsion may have an adverse effect on professional learning. They also commented that it is up to teachers to be responsible for their professional learning.

Linking professional development to appraisal supports professional learning, which in turn, supports the development of the implementation.

> To be able to go along to PD on a Friday and know it'll help with my appraisals was exciting. *(Int. 2)*

According to focus group participants, developing professional learning is vital to supporting the implementation of a new innovation. All teachers need to attain a minimum level of competency to satisfice the demands of the innovation. Time and space needs to be made available for teachers to share new learning from each of the four professional learning groups.

Teacher agency

Teacher agency to develop trust and autonomy was an important issue raised in the interview. The concept to 'fail forward' was espoused by e-learning leadership as an acceptable part of developing new practices. One interviewee commented:

> A positive thing was just how inspired the key teachers were in implementing e-learning into our school and this idea about failing forward. *(Int. 2)*

Further to failing forward to learn from mistakes is my school's recognition of a teacher's prior knowledge. It was commented:

> The school acknowledges and appreciates a range of skills and things that already exist and how the implementation is built on something already happening. *(Int. 3)*

Despite the acknowledgement of support shown towards teachers, an interviewee commented on the responsibility of teachers to take it upon themselves to develop their practice. This teacher relayed an experience at another school where it was found students would only readily engage in online learning if their teacher was similarly engaged.

> The teachers were the ones who were reluctant to adapt to the technology rolled out to them, even though a lot of training was provided. That was preventing the students to come on board; but once they came, the students got really engaged – really engaged. So, I think it is up to us to be more reflexive and change our own thinking. *(Int. 5)*

According to the focus group, teachers value trust and recognition from leaders. Furthermore, teachers have a responsibility to develop their learning when a new innovation is being implemented.

4.2.3 Meeting learners' needs

Two themes, student agency and relationships, emerged from the data and were placed in a category, meeting learners' needs.

Student agency

All six teachers talked about how e-learning affords student-agency through collaboration, and co-operative and independent learning. These skills prepare a student for future work:

> So, if a kid goes through school and they're forced to work by themselves all the time, and be assessed by themselves all the time, and they go onto a job and they're

> expected to work as a team, if they haven't had the skills developed properly to work collaboratively, and to share ideas then they're going to be at a disadvantage. *(Int. 1)*

One interviewee shared how student-centred pedagogy will better prepare students for the workforce, where it is more likely they will have to problem-solve and continually learn new things independently. Teachers believe there is also an expectation from students and their families that school prepares them for the workforce. One participant impressed how e-learning pedagogies can better prepare students for their future:

> We're serving all of the workforces these kids are going into; we're serving their whanau; we're serving the tertiary institutions they go into. *(Int. 5)*

Teachers discussed the increased student engagement afforded by digital technologies in the classroom, which can promote independent learning. Several participants considered this a key reason to implement e-learning school-wide.

Digital-based pedagogy, teachers agreed, can connect student experiences with technology to create a learning plan that will engage, enthuse and educate. Another interviewee commented:

> Engaging with students and meaningful classroom conversations are happening most of the time. They're not off topic. Having evidenced learning, I'm getting through topics faster and just having students buy-in more. *(Int. 3)*

Being online affords students access to resources they would otherwise be relying on the teacher to provide. Teachers deemed this both a potential benefit and a pitfall for student learning.

Alternatively, access to so much information can be considered valuable to engage a student's curiosity and encourage them to manage their own learning:

> Students can forge their own pathway through information and construct meaning from it themselves. We just have to start structuring our courses that way, I think. *(Int. 4)*

Two teachers also discussed what the change to e-learning pedagogies might displace. Teachers discussed a loss in experience, creativity and originality if learning were confined to stimulus through a screen. The concern stems from the idea that e-learning may place too much emphasis on the technology rather than the pedagogy. However, one interviewee explained a complex notion that what may be lost is an opportunity for meta-learning through technology; a student's awareness of how the technology has helped them learn differently to how they may have learned without it:

> It is a loss of ideas, a loss of appreciating what isn't familiar, because so much will be familiar and so much you will be blind to because you're seeing so much and you don't know how to filter. *(Int. 4)*

According to focus group participants, e-learning has the potential to realise the curriculum's vision for 21st century learners. It can prepare students for life-long learning and participation in an ever-changing workforce. Teachers think that core skills should not be displaced by the use of new technologies, but supplemented by it.

Relationships

Four of the six teachers in the focus group talked about how the relationship between the teacher and student would be impacted positively by e-learning. On the other hand, one participant expressed a concern students may tend towards introverted behaviour, focussing inwards at the screen and the digital world. In response, another participant commented:

> Teachers can create and plan for a range of modes in their teaching, between individual mode (both on-device and off-device); and group mode (both on-device and off-device). (Int. 3)

e-Learning pedagogy is student-centric, which is a bigger shift in practice for some teachers as it is for others. However, one interviewee explained how teachers can change their role, create a student-centric classroom and still have agency to determine how the classroom operates:

> But we have power as teachers to say the device is powered down, so I feel I have control over it. *(Int. 1)*

Furthermore, interviewee one added, having resources and lesson instructions available online allows more time to interact with students one-on-one. It is making the classroom more efficient, enabling students to independently continue with the course in and out of class.

On the other hand, another interviewee commented how e-learning might diminish face-to-face contact time with individual students. In a digital classroom all transactions could be conducted online and a relationship could be lost. The interviewee expressed a want to inspire and motivate a class collectively; otherwise:

> You're essentially removing the need for students to come to school in the first place…I still see myself as having a responsibility to inspire. *(Int. 4)*

The teacher's relationship with students can be enhanced by providing for students a more flexible environment for learning to take place. An interviewee described how students found their teacher more approachable because they could hand in work online in their time. Reluctant writers were more willing to engage when they could complete work in a Google document shared with their teacher. As a result, engagement increased.

Access anytime and anywhere can place extra pressure on teachers to be available to students more of the time. As a result, student expectations have changed:

> The students definitely expect my time outside of school. A lot more e-mails. *(Int. 3)*

According to teachers in the focus group, digital online technologies have the potential to strengthen the relationship between students and their teachers. Teachers can remain agentic while passing over the loci of control in the classroom to students through student-centric digital-based learning programmes.

4.2.4 Teacher focus group: consolidated key findings

The teacher focus-group findings were organised into three categories: leading change, nurturing teacher capacity, and meeting learners' needs.

Leading change

Teachers believe that visible, transparent and consultative leadership is valued by teachers. Responsive leadership informs staff in a timely manner; consults with staff in a productive way; provides transparency in decision-making; and, listens to the needs of staff. Likewise, teachers agreed they need to be responsive to leadership by also being open and productive communicators.

Nurturing teacher capacity

Participants agreed that teachers value the provision of opportunities to collaborate in new learning, and new technologies are employed by teachers to share ideas and develop resources. Policy change can be motivating, for example, the whole-school switch to Google Applications for Education (GAFE) motivated teachers to learn about how to use the new management system.

Teachers at my school think that professional learning groups and the Digital Drop-in Clinic are an integral part of teacher development, especially when new learning is linked to appraisal. They believe that teachers are confident that e-learning leaders are knowledgeable and skilled. Teachers expressed concern they are not all receiving e-learning professional development, with too many new initiatives stretching capacity for new learning. However, this tension is created by having a choice of professional learning

groups, and teachers also expressed an appreciation of choice. Furthermore, participants stated there is concern that department meetings do not provide adequate time for teachers to learn from one another.

Participants consider teachers are more responsive to leadership where they feel they are trusted, they are allowed to make mistakes when using new learning, and their prior knowledge, experience and expertise is acknowledged and used in the implementation. They stated that as well as responsive leadership, teachers have a responsibility to take it upon themselves to engage in new learning where it intends to improve student learning outcomes.

Meeting learners' needs

Participants in the group agreed e-learning pedagogies encourage collaboration and sharing between students, and allow for independent and personalised learning. These are both key elements for preparing students as 21st century learners. Furthermore, they recognised there is an expectation held by many students and their families that school prepares them for further education and the workforce. The use of digital technologies and e-learning pedagogies are perceived by many teachers to increase student engagement and enthusiasm for their subject. However, they stated that it is essential that core skills are not displaced by a pedagogy served by new technology.

Teachers at my school believe the relationship between teacher and student can be enhanced through online interactions. Using online resources, teachers have found they can generate more time to discuss learning one-on-one with students while the class is able to progress through the lesson. Furthermore, teachers agreed they can provide more engaging resources, and a more personalised or contextualised programme for students, which in turn, will benefit relationships. On the other hand, participants warned that teachers must maintain the ability to manage the learning environment, and maintain one-on-one time with each of their students.

4.3 Student focus group findings

The student focus group involved six Year 9 pupils enrolled in mid-band classes at my school. Some of these students are in a pilot e-learning class, in which they have access to a Chromebook and the internet during most lessons, and their teachers provide much of the learning resources online. The data from the focus group has been collected in one category, meeting learners' needs, and from that, emerged two themes: digital collaboration and digital citizenry.

4.3.1 Meeting learners' needs

Digital collaboration

Collaboration with peers and teachers emerged as a theme in the student focus-group interview. Collaboration between individuals and groups of students is very important in the learning processes: it helps students receive feed-back and feed-forward, share ideas, and continue learning beyond the classroom lesson.

Interviewee one commented on the usefulness of sharing documents and video messages with their teacher and peers, and how they receive feed-back and feed-forward from their teachers outside of class to help them "fix our work". Students not in an e-learning class commented how they would like to be able to collaborate using digital tools.

Interviewee six explained how they collaborate with peers after the lesson at school and home, affording them greater independence. This was supported by interviewee three, who described the independence they have gained:

> I use Math Buddy and when I'm stuck I ask a friend, I take a screen shot of the problem and send it to my friend and she can help me. *(Int. 3)*

Using online tools is helping students manage their own learning and it is allowing them to continue learning beyond the allocated period in school.

> Teachers can make tasks and assignments that we can do in class or at home which we access on Google Classroom. And we submit it that way, too. *(Int. 1)*

In a reciprocal reading programme, one laptop is allocated to each group in class but because the resources are online, the lesson can be accessed out of class, too. Students expressed how they are benefitting from the ubiquity of an online learning platform. Interviewee six explained how using Google Classroom is helping them in the reciprocal reading programme:

> We can do the reciprocal reading activity at school and at home. We use the internet to find the meanings of words, and we write our summaries in the shared document. We are able continue class work at home. *(Int. 6)*

Students discussed a range of resources online that aid their learning, including the Khan Academy, Math Buddy and a range of applications in science, which support learning and revision.

The teacher is not redundant, however. A benefit of working online in class, interviewee two commented, is it allows the teacher to work one-on-one with students during the lesson, which is more helpful than addressing the whole class at once:

> If the lesson is on the computer, that frees up the teacher to walk around the class and help us. *(Int. 2)*

In lesson time, two students described how they collaborate through Google Chat. They find this useful because "we can share ideas and keep the classroom noise levels down at the same time". The teacher is able to monitor the chat which helps students remain on-task.

A key learning strategy is to have the same concept explained in multiple ways, which interviewee five recognises as a benefit of online tools:

> I find the internet has content that helps me understand it better than how some teachers can explain it. I use my phone to connect with a friend to help me with my work. My friends can help me understand the work better. *(Int. 5)*

Students recommend the school allows them to use a range of digital devices rather than sticking solely to Chromebooks. They also recommend they use their own smart devices in class more frequently. Interviewee five noted when stuck, a smartphone saves having to ask the teacher as often, and it can replace a calculator or save a trip to the library to look in an encyclopaedia for information:

> In Math, if we don't have a calculator we should be able to use our phone instead. *(Int. 5)*

> Also, there is a lot of information on the web that we can use rather than having to search through books in the library. We should be able to use our devices to find content. *(Int. 3)*

An advantage of digital tools is access to various online resources which supports students in their learning:

> When we get given assignments in the digital class, the teachers provide tabs and page links to help us find information and save time. *(Int. 2)*

Students recognise the ways e-learning allows them to collaborate and share their learning with peers and teachers. Access to digital tools and online resources affords students independence and personalisation.

Digital citizenry

Students agreed teachers should show more trust towards them using digital devices. They explained how teachers can monitor what they are doing using Google Classroom. They

believe trust is low because teachers are concerned with cyber-bullying, and despite acknowledging this is a real concern, they stated:

> In Google Classroom the teacher can check our work at any time; the teacher can see what we're doing, which makes us feel safe and secure. *(Int. 1)*

Interviewee one also stated teachers can maintain control of the class yet still allow a degree of trust on the students' part:

> But teachers can block sites…if it is not appropriate. *(Int. 1)*

The students were unanimous it is a hindrance to their learning if they are not allowed to use a digital device in class. One student commented it is helpful:

> When there are not enough laptops for all students, we can use our phones to access the internet. *(Int. 6)*

Two interviewees observed most students have a smartphone, and agreed students should spend at least one hour of the school day engaged in e-learning practices. Furthermore, they believed homework should be accessible online.

Students in a digital class said they use digital devices in their learning as much in class as outside, whereas students not in the digital class said they use digital devices more of the time outside class.

Students know that teachers can monitor student online behaviour. They recognise the importance of a secure environment and would like trust to use online resources responsibly. Students want to access their learning online at school and at home.

4.3.2 Student focus group: consolidated key findings

Meeting learners' needs

Students value digital technology that allows them to collaborate with their teacher and peers in and out of school because it helps their learning. Students believe that using digital tools to access resources gives them independence and confidence to learn at their pace and place. In class, students recognise this independence affords the teacher more time to interact with students one-on-one. Interestingly, it seems students in a digital class may 'power up' in class, whereas students not in a digital class have to 'power down' (Prensky, 2010) in class.

Students are aware of teachers' concerns that they are responsible online users, but they also believe platforms such as Google Classroom allow for adequate monitoring. Students advocate trust when using digital devices and the internet. The learning environment should be secure and encourage responsible use. Students prefer online access so they can continue to learn where they like and when they like.

4.4 Consolidated key findings

The three categories (leading change, nurturing teacher capacity and meeting learners' needs) primarily focus on the capacity of leaders to effect change, combined with the willingness of teachers to participate proactively in that change. In essence, they are leadership concerns that involve the actions of leaders working alongside teachers. From these categories, we can see the importance of leadership in the implementation of innovation designed to improve student learning outcomes. Therefore, the key findings can be consolidated into two key themes: evaluating leadership in implementing innovation, and evaluating how learners' needs are met by a new innovation.

Evaluating leadership in implementing innovation

Leaders and teachers talked about the importance of sharing leadership when implementing a new innovation. Sharing leadership builds teacher capacity, increases support for change, and garners trust and confidence among teachers. Leaders agree they need to manage the pace of change. Teachers require a balance of pressure and support to effectively change practices to align with a new innovation. Leaders and teachers identified two elements that diminished resistance to change: sharing professional learning within departments and the introduction of a new policy requiring all staff to change to a new learning management system. Leaders and teachers also talked about the importance of collaboration to support new learning. Teachers value open and consultative leadership. Likewise, teachers acknowledged they also have to be open and responsive towards leaders. Sharing leadership, managing the pace of change, and developing collaboration are leadership activities and have implications for practice of senior leaders at my school.

Evaluating how learners' needs are met by a new innovation

Leaders, teachers and students talked about the internal and external drivers to introduce e-learning at my school. They acknowledged the ways e-learning can develop 21st century learner skills and prepare students for further education and the workforce. Teachers expressed concern how e-learning may replace core skills and knowledge necessary in a student's education. Students described how they want to be afforded more trust to engage in digital learning practices, and leaders and teachers talked about the need to develop responsible student digital citizenry. Future-focussed learning, supplementing and transforming teaching and learning, and modelling digital citizenry are leadership activities and have implications for practice of senior leaders, middle leaders, teachers and students at my school.

CHAPTER FIVE: DISCUSSION, CONCLUSIONS AND RECOMMENDATIONS

Introduction

In this chapter I discuss, with reference to the literature, two key themes from my research. The first key theme is evaluating leadership in implementing innovation at my school. The discussion includes three sub-themes: sharing leadership, managing the pace of change, and developing collaboration. The second key theme is evaluating how learners' needs are met by a new innovation. The discussion also focuses on three sub-themes: future-focused learning, supplementing and transforming teaching and learning, and modelling digital citizenry. Conclusions and implications for practice follow the discussion and the chapter ends with recommendations, a summary of areas for further study, and research limitations and strengths.

5.1 Discussion of findings

5.1.1 Evaluating leadership in implementing the innovation

Evaluating leadership in implementing e-learning focusses on what leaders need to do to implement innovation at my school. The e-learning leadership team is comprised of a senior leader, two middle leaders and three assistant teachers. They were selected for the leadership team based on experience, expertise and enthusiasm. The senior leader has authority to implement change, the middle leaders have expertise developing change in teacher practices, and the assistant teachers have expertise using digital technologies and pedagogies in the classroom. The team has responsibility for developing the school's digital infrastructure, implementing a new learning management system, and delivering a programme of professional learning to support digital pedagogy and technology.

Sharing leadership

A key finding of the study is that sharing leadership across the school strengthens innovation implementation. The e-learning leadership team is in itself an example of shared leadership, and the findings show how this team has devolved leadership further to ensure

implementation occurs in many areas across the school. The team shares its leadership by upskilling e-learning representatives from each department so they can, in turn, support their colleagues' transition. Senior and middle leaders agree sharing leadership strengthens the implementation of e-learning (Schagen, 2011) because it builds trust amongst staff, develops leadership capacity (Hargreaves & Fink, 2004) within the school, and supports teachers to change their practices to align with the innovation.

At the beginning of the implementation, the e-learning leadership team identified teachers already using digital pedagogy and technology. This group of teachers were referred to as innovators or early adopters (Tubin et al., 2003) and, although they were not members of the leadership team, they were encouraged to support the implementation by sharing with their colleagues the principles of 21st century learning, including e-learning. A small group of these teachers created a drop-in clinic, which provides support for teachers needing help with e-learning pedagogy and using digital technology in the classroom. Senior and middle leaders agree spreading leadership is a positive step in the implementation because it explicitly recognises and acknowledges the expertise and experience of teachers at the school (Harris, 2002). This is important when implementing a new innovation. When aspects of a new innovation are already being practised in the school, acknowledging the practice builds esteem, garners support, and develops trust. It is leadership that builds teacher capacity (Fullan, 2005). If good practice is unrecognised, it may isolate those teachers from the innovation and consequently their trust and support may be lost. Innovation leaders need to gain teacher support, usually beginning with the most expert, experienced and enthused teachers. When expertise, experience and enthusiasm are acknowledged, support and trust is developed. Therefore, leaders can gain the support of staff by recognising innovators and early adopters, and acknowledging current best-practices occurring around the school (Bolstad & Gilbert, 2006).

Teachers also agreed that the innovation is strengthened by leaders who recognise and acknowledge e-learning practices already occurring at the school before the innovation was introduced (Zhao et al., 2002). Teachers found this has given them greater confidence and trust in its leaders. As a result, teachers are more likely to participate in change. Teachers

termed this ‘responsive leadership’, where leaders recognise the capability and needs of its teachers. Before they change practice, teachers have stated they need confidence the innovation will improve teaching and learning (Mumtaz, 2000). Recognising teacher capacity, spreading leadership to include a diverse range of teachers, and accepting failure is part of learning, unifies teachers and instils confidence in leadership. This strengthens innovation because it accentuates the positive and builds trust, which encourages teachers to engage in new learning.

Senior and middle leaders agreed that building leadership capacity among teachers strengthens implementation. It shows an investment in staff and values innovation. The e-learning leadership team arranged for twelve staff to attend a Google Educators’ Conference in Wellington to learn how Google Classroom can be used in teaching and learning programmes. Representatives from each learning area attended the conference and new learning was disseminated among colleagues on their return. Assigning an e-learning representative to each department spreads leadership and advances the innovation implementation. The e-learning representatives, along with e-learning leaders and teachers, formed a professional learning group that would meet weekly during the school’s time-tabled professional development period. Powell (2011) found professional development in e-learning across New Zealand schools, despite being integral to achieving the current state of change, has not been sustained, as a result of which many teachers lack confidence and competency. The professional learning group strengthens the e-learning implementation by nurturing teacher capacity, developing expertise and building leadership capacity.

Managing the pace of change

A second key finding of the study is that, if the implementation is to be sustained, leaders need to manage the pace of change. Leaders manage the pace of change by prioritising goals and preparing resources necessary to achieve these goals. Senior and middle leaders at my school consider the pace of change important to the implementation’s success. For instance, Lee (2006) argues that access to adequate infrastructure is essential to an effective

implementation of e-learning. The school needs the technical capacity to offer e-learning, such as sufficient wi-fi access points and ultra-fast broadband, before it introduces digital pedagogies and technologies to its teachers. Powell (2011) and Wylie (2013) concluded New Zealand schools are hampered by infrastructure and a lack of quality technical support. At my school, leaders planned to have the technical capacity in place before beginning implementation. After all, a teacher's capacity to introduce change in the classroom is dependent not only on learning about digital pedagogy and technology, but on infrastructure being able to support that pedagogy and technology.

In addition, senior and middle leaders acknowledged the pace at which teachers implement e-learning in their practice will vary according to levels of expertise, experience, and enthusiasm. Therefore, teachers will need various levels of support. Staff readiness is important before the implementation can progress (Pack, 2012). Leaders should provide capable and confident teachers with resources to strive ahead, and less capable or confident teachers more time and support to assist change. This may allow teachers to work flexibly to develop at a pace conducive to their needs and appropriate to their capabilities (Schneiderheinze & Russell, 2005). When change is introduced too quickly or when necessary resources are not yet available, expecting teachers to change can be counter-productive. A less capable or confident teacher may become resistant to change if, for example, the technology consistently fails. When teachers better understand the rationale behind the change, resistance can be reduced (Cuban, 1993; Fullan, 1991). Understanding change often becomes clear once time has been spent learning about it. Senior and middle leaders agreed that time needs to be provided so teachers can consolidate new learning, and middle leaders agreed they need more time to manage this change in their departments.

Senior and middle leaders recognised that teachers need to change at a pace conducive to learning. On the other hand, they also recognised pressure needs to be applied if teachers are going to meet certain milestones. Teachers are better prepared to change where leaders provide autonomy and guidance (Zaka, 2013). Motivation is more likely to be intrinsic where teachers see themselves as autonomous beings with purpose and mastery to

contribute to the change (Fullan, 2001; McGregor, 1960; Pink, 2011; Scheninger, 2014). Interestingly, teachers agreed that being compelled to change can be effective under certain circumstances, such as a change in policy. The whole-school switch to Google Applications for Education (GAFE), for example, is motivating teachers to learn about how to use the new management system. For some teachers, the motivation to change was extrinsic, that is the policy change, but once they engaged in learning how to use the new system, they became intrinsically motivated because they realised its usefulness to their practice. This point is reinforced in a finding in a report by the Organization for Economic Cooperation and Development (OECD) that teachers become intrinsically motivated once they understand the benefits to the organisation (*Synergies for Better Learning: An International Perspective on Evaluaton and Assessment*, OECD, 2013).

Teachers at my school stated it can be very stressful if they have not been given the resources or provided the time to prepare for change in advance of its implementation. They are also concerned the school is involved with the implementation of too many new innovations, despite each being valid in its own right. A teacher can only participate in one professional learning group so, despite appreciating the choice (Somekh, 2007), teachers and middle leaders expressed a concern that not all teachers are learning about e-learning even though all staff will be expected to implement it in their practice. Teachers need to be skilled in ICT (Information and Communications Technologies) otherwise the implementation is destined to fail (Bolstad & Gilbert, 2006). If a teacher is not skilled in ICT, they are likely to be less interested using digital pedagogy in their practice (Dupagne & Krendl, 1992; Hadley & Sheingold, 1993; Rosen & Weil, 1995; Winnans & Brown, 1992). This has created extra tension in department meetings where more time is being spent learning about digital pedagogy and technology, leaving less time for other matters. However, some teachers expressed a point of view that teachers are responsible for developing pedagogy regardless of which professional learning group they belonged to.

Developing collaboration

A third key finding of the study is that teachers value a leadership style that is collaborative and consultative. Teachers at my school value leadership that is responsive to their needs, shares information openly, provides a clear rationale for its decisions, and consults with staff over matters where they consider their contribution will benefit the decision.

Implementing an e-learning innovation has to focus more on changing pedagogy than changing technology (Brown & Murray, 2003; Cuban, 2001; Oppenheimer, 2003; Robertson, 2003; Warshauer, 2003), so implementing it across the school will present a challenge for many teachers as they find ways to adapt current practices. Change not only challenges teaching practices, but it also challenges attitudes, beliefs, values, and ultimately the school's culture (Squire, 2005). To manage change means to manage people confronted by change. People respond to this in various ways, ranging from resistance to acceptance. Leaders can manage people's responses to change through collaboration and consultation. Collaboration and consultation provide opportunities for people to listen and be listened to in a formal setting. Teachers stated they are more willing to change when leaders share information openly and provide a clear rationale for change (Schagen, 2011). Leaders need to be aware that introducing change that contradicts teachers' values and beliefs will produce tension (Schneiderheinze & Russell, 2005), therefore being open and consultative at the beginning of an implementation provides an opportunity to address issues before they become problems.

On the other hand, teachers also stated they need to be more agentic in the change process by collaborating with leaders. Change creates discomfort (Cardno, 2012) when it sits outside of the zone of acceptance (Hoy & Tartar, 2003) but when teachers confront it openly and productively (Argyris, 1977; Fullan, 2001) they will better understand the change, its implications for their practice, and what they can do to achieve its desired outcome. Teachers are more able to solve problems to achieve educational success (Bush & Middlewood, 2005) through the inclusiveness of collaboration. Leaders have a greater

impact on innovation when they collaborate directly with teachers, which can be highly motivating (Robinson, 2007).

Senior and middle leaders agreed that innovation will be more successful when leaders and teachers collaborate in professional learning groups. Leaders and teachers can collaborate in professional learning groups to develop new knowledge that will benefit the innovation (Bush & Middlewood, 2005). Leaders state that collaboration affords teachers autonomy over their learning, and Pink (2011) asserts teachers will only collaborate when they have autonomy. On the other hand, there are elements of change that teachers must comply with. These elements need to be openly communicated by leaders to assist teachers make necessary adjustments in their practices (Fullan, 2001; McGregor, 1960; Pink, 2011; Scheninger, 2014). Teachers afforded autonomy to develop new learning also need to be held accountable, and the appraisal process can provide this. At my school, teachers have to show the impact of an inquiry into their teaching, conducted as part of the professional learning group they belong to. Autonomous teachers may be more intrinsically motivated (Pink, 2011) but there will be times when leaders have to use extrinsic motivation (Hoy & Tartar, 2003), as learning will only progress where there is an element of discomfort (Argyris, 2010; Cardno, 2012).

5.1.2 Evaluating how learners' needs are met by a new innovation

Evaluating how learners' needs are met by a new innovation will focus on the combined involvement of leaders, teachers and students in the implementation of e-learning at my school. Generally, teaching at my school is student-centric, discursive, and utilises best-practice pedagogies. The latest Education Review Office report (November, 2015) is very positive about its teaching and learning methods. Nevertheless, the e-learning leadership team aims to implement e-learning to develop modern learning practices and address the low achievement of a significant cohort of priority learners. Before the implementation began, e-learning was being practised in pockets around the school, but only by some teachers in some departments. There was not a shared understanding or agreement among teachers of how e-learning could benefit students. However, students were beginning to

use digital technologies more often in their learning, especially their smartphones, despite school policy forbidding their use in class. It became more apparent that the school had to change in order to meet learners' needs.

Future-focussed learning

A key finding of the study is that leaders, teachers and students at my school agreed the innovation is strengthened by its future-focus (Boyde, 2012; Ministry of Economic Development, 2006; Ministry of Education, 2006a; Powell, 2011) and its intent to stay abreast of national and international trends in educational pedagogy and technology. It is evident in the literature that the imperative to implement e-learning is strongly espoused by the Ministry of Education. There are social, economic, and pedagogic imperatives to utilise digital technologies and online tools. Leaders, teachers and students agreed the quality of education we offer can be improved through technology and innovative pedagogy (Powell & Patrick, 2006). Innovative teaching and learning through the smart use of ICT is heralded in government documentation as a way to enhance learner achievement. Powell (2011) identified four key documents in New Zealand that positions e-learning practices at the centre of a school's curriculum. The documents are: *Interactive Education: An Information and Communication Technologies Strategy for Schools* (1998); *Digital Horizons, Learning Through ICT, 2002-2004* (2003); *Enabling the 21st Century Learner: An e-Learning Action Plan for Schools 2006-2010* (2006a); and, *ICT Strategic Framework for Education* (2006b). Further to these documents are the *New Zealand Curriculum* (2007); *Digital Strategy 2.0* (2006); *Inquiry into 21st Century Learning Environments and Digital Literacy* (2012); *Statement of Intent 2013-2018* (2013); and, *Investing in Educational Success* (2015). In short, these documents promote the smart use of ICTs in order to improve student learning outcomes.

In addition, leaders and teachers agreed that adopting e-learning will promote digital citizenry, develop key competent learners, and deliver personalised and differentiated learning opportunities for our students. While there is little evidence that e-learning per se improves student learning outcomes (NZCER, 2004), leaders and teachers believe that the

tenets of 21st century learning will prepare students for the future. In particular, students agreed e-learning promotes collaboration and sharing between students. Personalisation and collaboration are both key elements for preparing students as 21st century learners (Christensen et al., 2008; Fullan, 2013; Ministry of Education, 2012). Students who experience e-learning described the benefits of personalisation and collaboration, and students who do not experience e-learning cited these as aspects they would prefer. Students value digital technology that allows them to collaborate with their teachers and peers in and out of school because increased access and contextualisation helps their learning (Zaka, 2013).

The findings show that leaders and teachers agreed e-learning has the potential to increase student engagement (Bolstad et al., 2012; Ministry of Education, 2012). It can enhance a student's relationship with their teachers through quality feed-back and feed-forward mechanisms, personalised learning, and ubiquitous access to learning resources, which in turn can motivate and support students to progress independently beyond the bounds of the classroom (Barbour et al., 2011). Using digital tools to access resources gives students independence and confidence to learn at their pace and place (Fullan, 2013; Jukes et al., 2010; Scheninger, 2014). Students described how this independence affords the teacher more time to discuss learning with students one-on-one while the rest of the class is able to progress through the lesson using online resources (Barbour et al., 2011; Boyde, 2012; Rhode, 2009). Improving student motivation and engagement can strengthen teacher-student relationships and create a positive environment for learning.

Supplementing and transforming teaching and learning

Another key finding of this study is the concern teachers have about the cost of e-learning on the current curriculum. For students to benefit from e-learning, technology should supplement normal teaching rather than replace it (Higgins et al., 2012). Leaders at my school agreed e-learning has the potential to deliver a student-centric environment where learning is designed to cater for students' individual needs. Teachers need to be shown how e-learning can complement current effective practices and replace ineffective ones. More

than that, teachers need to realise how e-learning enables students to learn differently, in ways that transform learning. Wright (2010) argues that teachers who use ICTs regularly in class will, as a result, be more attuned to a student's needs, implying they will have a clearer understanding of practices which are effective and practices which are not. Of greater concern is what may be lost if teachers do not enquire into their own practice and use pedagogies that better meet the needs of their students (Christensen et al., 2008).

Modelling digital citizenry

A final key finding of this study is the concern teachers have that the loci of control over the learning environment are preserved. This concern can be allayed when teachers are shown how the introduction of a new technology should not replace practices that are already working, but instead replace practices that are not (Luckin, 2008). Digital technology should be introduced to augment teaching and learning. Teachers should be able to maintain current effective classroom management strategies regardless of the introduction of a new technology, or more appropriately, a new pedagogy. Students advocate for a level of trust to use digital devices online in a secure environment that encourages responsible digital citizenry (Ministry of Education, 2006a). Students in this study commented they prefer to have access to their learning online so they can learn where and when they like. Interestingly, students in a digital class stated they 'power up' in class, meaning they can bring their digital world into class, whereas students not in a digital class said they 'power down', meaning they have to leave their digital selves at the door (Prensky, 2010). Responsible online behaviour is a legitimate concern for teachers and online learning platforms, such as Google Classroom, do allow for adequate monitoring of students' online behaviour. However, teachers need to be shown how digital tools can be used to monitor a student's online behaviour before they use them in the classroom.

5.2 Conclusions

Conclusions are a synthesis of my key findings and the findings in the literature as relevant to the research questions of this study. The aim of my conclusions is to confirm the relevancy of this research, and illustrate the implications of my findings for changing

practice at my school. My research has led to three conclusions, which are based on the expectations and aspirations (external and internal drivers) to change, the strengths of the innovation implementation practices at my school, and the weaknesses.

External and internal drivers to implement e-learning

My first conclusion is based on external and internal drivers to implement e-learning, the application of pressure and support to manage change, and intrinsic motivation to change practice.

There are external and internal expectations placed on my school to implement e-learning. Leaders are faced with external drivers illustrated in national and international research that promotes e-learning to prepare 21st century learners. Leaders also face pressure to compete with local schools, and from a wider community, which has aspirations for their children and expectations of their local school to implement modern learning practices. School leaders need to be aware innovation is not being implemented simply to keep up with local or national trends, but rather, it is being implemented because inquiry shows it can improve teaching and learning at our school. Internal drivers must outweigh external drivers. Leaders, teachers and students at my school agreed the innovation is strengthened by its future-focus. Teachers are motivated by research that supports e-learning principles, and students are motivated when they see teachers adapt practices to meet their learning needs. Decisions to change practice must be evidence-based, rather than on our learning preferences, experiences or biases. Teachers have to understand that what students need sometimes differs from what teachers assume students need (Jukes et al., 2010).

Leaders have to exert a balance of pressure and support. Intrinsic motivation increases when it supports student learning outcomes. Teachers are more motivated by pressure when it is supported by a rationale, professional learning, and policy. Linking the appraisal process with professional learning provides new innovation with rigour, substance and relevancy.

Even though leaders, teachers, and students share an appreciation of external and internal drivers to implement e-learning, an implication for leaders is to reinforce the understanding that e-learning should supplement skills and knowledge currently valued in our school's curriculum, not replace them. Leaders have to provide a balance of pressure and support. They have to understand what motivates teachers to change teaching practices. The professional learning groups are a forum for leaders to collaborate and consult with teachers to explore the motivation to change.

The strengths of the e-learning implementation

Sharing leadership strengthens the implementation of e-learning at my school. Its inclusiveness develops trust and confidence in leadership, which is unifying, especially in times of change. Teachers take ownership when their experience, expertise or enthusiasm is acknowledged through involvement with the change process. A school is unified when the change is implemented by a range of teachers and not just senior leaders. Devolved leadership can improve teacher capacity to support colleagues during change, and in consequence, peer coaching in professional learning groups and within departments strengthens the change process. Implementing an innovation that has implications for the practices of all teachers is a huge undertaking, and requires a team of leaders. My school has shared leadership among a range of teachers, who have become professional learning facilitators, technical trouble-shooters, and coaches who tutor colleagues in digital pedagogy and technology. By showing trust and confidence in their abilities to support the change, people are valued when their expertise and experience is acknowledged. It is highly motivating when leaders collaborate with teachers in a way that is affirming and empowering.

Sharing leadership has implications for the practice of leaders. Before implementing major change, leaders must identify the leadership roles that need to be assumed, and then allocate roles to staff as appropriate.

The weaknesses of the e-learning implementation

The implementation of e-learning can be weakened by the absence of a project plan. A project plan will enable leaders to describe the problem at the heart of the project, identify tasks, who will be involved, and what their responsibilities will be. A project plan will also include a timeline with milestones signalling important stages of the implementation. The innovation at my school began without a formalised project plan. e-Learning was initiated by a group of enthusiastic teachers experienced in digital learning, who wanted to investigate reasons why our school should implement it. When this team completed its initial investigation, a new team was formed to begin its implementation. The innovation's evolution was largely impromptu and ad hoc, and tasks and problems were addressed as they arose. As a result, the senior leadership team and the e-learning team were not always aligned with the same purposes or information. This creates a tension that can be resolved, or even avoided, through careful planning and collaboration.

Leaders implementing innovation will have to be knowledgeable of project planning and understand how a plan can be devised in a project team before the implementation begins. The project team should liaise closely with the school's senior leadership team.

5.3 Recommendations

These recommendations are based on the conclusions and implications for practice of senior leaders at my school. They do offer suggestions that might strengthen future innovation implementation practices.

The first recommendation is for senior leaders to develop change leadership knowledge (Fullan, 2001). Change leadership knowledge helps leaders when they have to either exert pressure or provide support when leading change. Collaboration and consultation with teachers can occur in the school's weekly professional learning groups at the initial stages of implementation. Implementation is strengthened when leaders and teachers collaborate. There are elements of a new innovation in which teachers have to be compelled to change,

such as in the introduction of a new policy, and there are elements in which teachers are encouraged to have autonomy to change, such as in developing new knowledge around pedagogy and technology. Understanding how to balance the application of pressure and support will benefit the intrinsic motivation of teachers to change.

The second recommendation is to formalise roles allocated to staff for the implementation of a new innovation. Implementing a major innovation requires a team of leaders. Senior leaders can identify the various tasks, roles and responsibilities necessary to support the innovation, and then roles can be allocated to teachers as required. Formalising the allocation of leadership roles provides structure and transparency, and acknowledges expertise and experience within the school, and recognises the contributions of staff when they take responsibility.

A final recommendation is to adopt a project plan in advance of a new innovation. With a project plan, leaders will be able to identify and allocate roles to spread leadership. A project plan will include a vision, aims and goals, and an outline of tasks and milestones. This will support the school's senior leadership team to be proactive rather than reactive to the innovation team's needs and will also help maintain clear communication between the teams. Furthermore, leaders could utilise a planning resource, such as the e-Learning Planning Framework (New Zealand Government, 2015) for guidelines on implementation progressions and evaluations, which will also support leaders manage the stages of adoption.

Areas for further study

The next step after this study will be to engage in a new cycle of inquiry at my school, based on the conclusions and recommendations in this report. Evaluations in practitioner-research should be used to inform a new cycle of research. Areas of interest will be to evaluate the effectiveness of the implementation, to test its level of sustainability and the extent to which digital-based pedagogies and technologies are being effective in modern learning practices. Further practitioner-research can use assessment data to inquire into

the effectiveness of digital pedagogy and technology on improving student learning outcomes.

This study has evaluated the implementation of an e-learning innovation at my school, but the small sample sizes of the teacher and student focus groups limit the findings. A study with a larger sample size, which gathers a greater range of teacher and student voice, will benefit leaders who inquire into issues of e-learning sustainability and effectiveness. Further studies can research the impact e-learning is having on the quality of teaching programmes; on student engagement and motivation; and on teacher agency, teaching practices and teacher workload. These areas will be worth researching because e-learning will impact on each of these aspects.

Limitations and strengths

Practitioner-research requires specialised skills, which is challenging for an inexperienced researcher. It is particularly challenging using colleagues as research participants because the research challenges both the teaching practices of the researcher and their colleagues. In particular, it forces colleagues to confront their values and beliefs with the researcher, in the understanding that those values and beliefs may be challenged in the research. In my reflections at the end of chapter three I addressed some of these challenges in more detail.

This practitioner-research is also limited by being conducted by only one practitioner at my school, and therefore the conclusions and recommendations in the study derive from only one voice. Although several other practitioners were included as participants in the interviews and teacher focus group, practitioner-research, as opposed to professional research, would benefit greatly when a team of practitioners conduct the research together. My colleagues and students are represented in the data, but the research would be strengthened if their input was also included in the evaluation of that data.

This research is limited to one school, which means it is context-specific, and the conclusions and recommendations are not easily generalizable across other schools. Despite its context-specificity, however, this practitioner-research may assist other schools who are about to undertake the implementation of an e-learning innovation. This project's strength is its immediate relevancy to my school's leaders, teachers and students. Practitioner-research is strengthened because the conclusions and recommendations are most specific to its school. The conclusions and recommendations of this research can be used by leaders to inform the progress of the current e-learning implementation and future innovation implementations. By their participation in this research, senior and middle leaders were provided with an opportunity to reflect on their current practices. The teacher and student focus groups allowed for a range of voices representative of the school body to give their thoughts and opinions about how the school currently implements change and the impact it is having on their practices. Including participation from various groups across the wider school provides research with trustworthiness and rigour. It also means selection criteria have to be carefully considered in order to gain a range of voices representative of the school.

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Appendices

Appendix A: Interview schedule – Leaders

Researcher: Keir Whipp

Instrument: 1 to 1 interviews

Date: 15.6.15

Implementing innovation

1. Can you give me your impressions on how innovations are implemented at our school? By innovations, I mean those designed to improve student learning outcomes.
2. What implementation strategies would you consider to be conducive to its long-term success?
3. In your view, in what ways can innovation implementations be improved?

Drivers to implement e-learning

4. What is driving our school to implement e-learning? Can you identify and describe external and internal drivers?
5. What is driving you to implement e-learning in your practice (as a senior leader responsible for the development of both students and teachers)?

Implementing e-learning

6. Can you describe strategies (or ways) e-learning has been implemented at our school?
7. In what ways would you consider the innovation strategies as successful?
8. In what ways do you think they could be improved upon?
9. What further support, if any, do you think you would need to implement e-learning sufficiently in your practice?
10. In what ways would you consider e-learning helpful to supporting student learning outcomes?
11. In what ways may this e-learning implementation hinder student learning outcomes?

Appendix B: Focus group schedule – teachers

Researcher: Keir Whipp **Facilitator:** Julie Nola

Focus Group: 6 teachers

Date: 19.6.15

Implementing a new innovation

1. When this school implements an innovation to transform student learning outcomes, what does it do that helps the implementation?
2. When this school implements an innovation to transform student learning outcomes, what does it do that hinders the implementation?

Expectations to implement e-learning

3. What expectations are placed on you to implement e-learning?
4. Where do you perceive these expectations come from?
5. What are your expectations of e-learning in your practice?
6. What do you think are the expectations of your students?

Implementing e-learning

7. What does this school do to support the implementation of e-learning?
8. What does this school do to hinder the implementation of e-learning?

Costs and benefits to the school

9. In what ways will the school benefit by the implementation of e-learning?
10. In what ways will the school be hindered by the implementation of e-learning?

Costs and benefits to your teaching and learning practice

11. What are the benefits of e-learning to your practice?
12. What are the benefits of e-learning to your students' learning?
13. In what ways does e-learning hinder your practice?
14. In what ways does e-learning hinder your students' learning?

Appendix C: Focus Group Schedule – students

Researcher: Keir Whipp

Focus Group: 6 Year 9 students

Date: 15.6.15

Student focus group questions

Expectations

1. What are your expectations of e-learning at school?
2. What are your expectations of e-learning out of school?

Learning

3. In what ways do digital devices and the internet help you learn inside the classroom?
4. In what ways do digital devices and the internet help you learn outside the classroom?
5. In what ways are digital devices and the internet not helpful in the way you learn inside the classroom?
6. In what ways are digital devices and the internet not helpful in the way you learn outside classroom?

Improvement

7. In what ways does the school or your teachers use e-learning to help you learn
8. What could the school or your teachers do better with e-learning to help you learn?
9. In what ways do you “power up” or “power down” with digital technology in class?
10. In what ways is the e-learning class different to a regular mainstream class?

Appendix D: Adult consent form (interviews)

CONSENT FORM – ADULTS (interviews)

DATE:

TO: [participant's name]

FROM: Keir Whipp

RE: Master of Educational Leadership and Management

THESIS TITLE: Evaluating an e-learning innovation in a South Auckland secondary school

I have been given and have understood an explanation of this research and I have had an opportunity to ask questions and have had them answered. I understand that neither my name nor the name of my organisation will be used in any public reports. I also understand that I will be provided with a transcript (or summary of findings if appropriate) for checking before data analysis is started and that I may withdraw myself or any information that has been provided for this project up to two weeks post review of transcripts.

The interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes. I am aware that I will be offered a debrief session to discuss any concerns or issues I may have as a result of the interview.

I agree to take part in this project.

Signed: _____

Name: _____ Date: _____

UREC REGISTRATION NUMBER: (2015-1017)

This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Appendix E: Adult information sheet (interviews)

INFORMATION SHEET – Leader interviews

Title of Thesis:

Evaluating an e-learning innovation in a South Auckland secondary school

My name is Keir Whipp. I am currently enrolled in the Master of Educational Leadership and Management degree in the Department of Education at Unitec Institute of Technology and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is to find out about the way e-learning is being implemented at my school and to see what is working well and what may be improved upon.

I will be collecting data using an interview schedule and would appreciate being able to interview you at a time that is mutually suitable. I will also be asking you to sign a consent form regarding this event.

Neither you nor your school will be identified in the thesis. I will be recording your contribution and will provide a transcript (or summary of findings if appropriate) for you to check before data analysis is undertaken. You may withdraw yourself or any information that has been provided for this project up to two weeks post review of transcripts. The interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes.

I would like to make it clear that you have the right to refuse to answer any questions you feel uncomfortable with and can leave the focus group at any time, and have your data to that point removed from the research.

I do hope that you will agree to take part and that you will find this participation of interest. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Carol Cardno and may be contacted by email or phone.

Phone: (09) 815 4321 ext. 8406 Email: ccardno@unitec.ac.nz

Yours sincerely

Keir Whipp

UREC REGISTRATION NUMBER: (2015-1017)

This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Appendix F: Adult consent form (teacher focus group)

CONSENT FORM – ADULTS (focus group)

DATE

TO: [participant's name]

FROM: Keir Whipp

RE: Master of Educational Leadership and Management

THESIS TITLE: Evaluating an e-learning innovation in a South Auckland secondary school

I have been given and have understood an explanation of this research and I have had an opportunity to ask questions and have had them answered. I understand that neither my name nor the name of my organisation will be used in any public reports. I also understand that I may withdraw myself or any information that has been provided for this project up to two weeks after the focus group event.

The focus group interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes. I am aware that I will be offered a debrief session to discuss any concerns or issues I may have as a result of the focus group.

I agree to take part in this project.

Signed: _____

Name: _____ Date: _____

UREC REGISTRATION NUMBER: (2015-1017)

This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Appendix G: Adult information sheet (teacher focus group)

INFORMATION SHEET – teacher focus group

Title of Thesis:
Evaluating an e-learning innovation in a South Auckland secondary school

My name is Keir Whipp. I am currently enrolled in the Master of Educational Leadership and Management degree in the Department of Education at Unitec Institute of Technology and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is to find out about the way e-learning is being implemented at my school and to see what is working well and what may be improved upon.

I invite you to join the teacher focus group to share your views and ideas with other teachers. I will also be asking you to sign a consent form regarding this event.

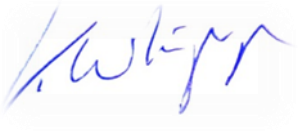
Neither you nor your school will be identified in the thesis. Two neutral facilitators will conduct the focus group and will record your contribution on a digital audio-recording device. You may withdraw yourself or any information that has been provided for this project up to two weeks after the focus group event. The focus group interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes.

I would like to make it clear that you have the right to refuse to answer any questions you feel uncomfortable with and can leave the focus group at any time, and have your data to that point removed from the research.

I do hope that you will agree to take part and that you will find this participation of interest. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Carol Cardno and may be contacted by email or phone.
Phone: (09) 815 4321 ext. 8406 Email: ccardno@unitec.ac.nz

Yours sincerely



Keir Whipp

UREC REGISTRATION NUMBER: (2015-1017)
This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Appendix H: Child consent form (student focus group)

CONSENT FORM – CHILD/MINOR (caregiver to sign)

DATE:

TO:

FROM: Keir Whipp

RE: Master of Educational Leadership and Management

THESIS TITLE: Evaluating an e-learning innovation in a South Auckland secondary school

I have been given and have understood an explanation of this research and I have had an opportunity to ask questions and have had them answered. I understand that neither my name nor the name of my organisation will be used in any public reports. I also understand that I may withdraw myself or any information that has been provided for this project up to two weeks after the focus group event.

The focus group interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes. I am aware that I will be offered a debrief session to discuss any concerns or issues I may have as a result of the focus group.

I agree that the child/minor named below may take part in this project.

Name of child/minor: _____

Signed: _____ (caregiver)

Name: _____ (caregiver) Date: _____

UREC REGISTRATION NUMBER: (2015-1017)

This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext. 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.

Appendix I: Child information sheet (student focus group)

INFORMATION SHEET – student focus group

Title of Thesis:

Evaluating an e-learning innovation in a South Auckland secondary school

My name is Keir Whipp. I am currently enrolled in the Master of Educational Leadership and Management degree in the Department of Education at Unitec Institute of Technology and seek your help in meeting the requirements of research for a Thesis course which forms a substantial part of this degree.

The aim of my project is to find out about the way e-learning is being implemented at my school and to see what is working well and what may be improved upon.

I invite you to join the student focus group to share your views and ideas with other Year 9 students. I will also be asking you and your caregiver to sign a consent form regarding this event.

Neither you nor your school will be identified in the thesis. I will be recording your contribution for data analysis on a digital audio-recording device. You may withdraw yourself or any information that has been provided for this project up to two weeks after the focus group event. The focus group interview will take approximately one hour during school time, but if necessary will not exceed 90 minutes.

All students will be offered a debrief session to discuss any concerns or issues they may have as a result of the focus group.

I do hope that you will agree to take part and that you will find this participation of interest. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Carol Cardno and may be contacted by email or phone.

Phone: (09) 815 4321 ext. 8406 Email: ccardno@unitec.ac.nz

Yours sincerely

Keir Whipp

UREC REGISTRATION NUMBER: (2015-1017)

This study has been approved by the Unitec Research Ethics Committee from (4.6.15) to (3.6.16). If you have any complaints or reservations about the ethical conduct of this research, you may contact the Committee through the UREC Secretary (ph: 09 815-4321 ext 6162). Any issues you raise will be treated in confidence and investigated fully, and you will be informed of the outcome.