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Enabling school-wide eLearning practices in New Zealand secondary schools:
strategies to overcome challenges

Robin Eyre

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

Unitec Institute of Technology 2015
Declaration

Name of candidate: Robin Eyre

This Thesis Project entitled “Enabling school-wide eLearning practices in New Zealand secondary schools: strategies to overcome challenges” is submitted in partial fulfilment for the requirements for the Unitec degree of Master of Educational Leadership and Management.

CANDIDATE’S DECLARATION

I confirm that:

This Thesis/Dissertation/Research Project represents my own work;
Research for this work has been conducted in accordance with the Unitec Research Ethics Committee Policy and Procedures, and has fulfilled any requirements set for this project by the Unitec Research Ethics Committee.
Research Ethics Committee Approval Number: 2015-1024

Candidate Signature:

Date: 9th February 2016

Student number: 1419963
Abstract

New Zealand schools are directed by the New Zealand Curriculum to explore how ICT can open up “new and different forms of learning”. This is often referred to as eLearning. To enable eLearning to occur across a school, the leadership needs to manage the change to pedagogies, develop infrastructure, and plan how to provide access to devices for the students so they can use digital tools when it suits their learning. The aim of this study is to collect information from a range of secondary schools around New Zealand, to identify strategies and challenges that schools who have already begun their eLearning journey have faced, and how they addressed these situations.

This study uses a qualitative, interpretive approach to understand and describe how different school leaders have enabled eLearning, by asking participants to discuss their experiences in two ways. The first phase of the research was a questionnaire in the format of a Google Form that was emailed to all New Zealand secondary schools, and provided an overview of the goals of the eLearning programme, the strategies the schools used to implement it, the challenges they faced and how they were overcome. The second phase was comprised of semi-structured interviews with eight schools, selected to represent the diversity of New Zealand secondary schools. These interviews provided a deeper understanding of the schools experiences, and the reasoning behind their decisions.

The key findings of the research are that most schools are motivated to implement eLearning systems to prepare students for a future world of work where collaboration, connectedness and independent learning are key skills. The main strategies schools used included building a team to lead the change with Senior Leadership fully supporting the process, and connect Professional Learning and Development in the school to the changes. Infrastructure such as wifi was often identified as a significant concern at the start of the process, but one that was usually addressed with careful planning. Many respondent schools have implemented Bring Your Own Device programmes to ensure students have access to a device whenever it suits the learning in the classroom.

The recommendations of this thesis to schools starting their own eLearning journey are to build a team of cross-faculty staff with Senior Leadership support, to form a vision and lead the change; to share the vision far and wide with the community to build ownership and engagement; and to develop a detailed strategic plan that includes infrastructure and professional development.
Acknowledgements

To the many staff of Unitec who have helped me on my journey, not least Jay Hays, Carol Cardno and Alison Smith, thank you for showing me the way.

To the class of 2015 for sharing inspirations, strategies, frustrations, and humour, thank you for making writing seem a less lonely process. Where would we be without Facebook to keep us connected?

And most especially, thank you to my family; my wife, Hannah, and daughters Bethany and Jessica. Without your emotional, moral and financial support, this journey would not have been possible.
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<tr>
<th>Abbreviation</th>
<th>Description</th>
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<tbody>
<tr>
<td>AQR</td>
<td>Anonymous Questionnaire Response</td>
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<tr>
<td>BOT</td>
<td>Board of Trustees</td>
</tr>
<tr>
<td>BYOD</td>
<td>Bring Your Own Device</td>
</tr>
<tr>
<td>COW</td>
<td>Computers On Wheels</td>
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<tr>
<td>DP</td>
<td>Deputy Principal</td>
</tr>
<tr>
<td>GAFE</td>
<td>Google Apps For Education</td>
</tr>
<tr>
<td>HOD</td>
<td>Head of Department</td>
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<tr>
<td>HOF</td>
<td>Head of Faculty</td>
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<tr>
<td>LMS</td>
<td>Learning Management System</td>
</tr>
<tr>
<td>PC</td>
<td>Personal Computer</td>
</tr>
<tr>
<td>PLD/PD</td>
<td>Professional Learning and Development</td>
</tr>
<tr>
<td>PLG</td>
<td>Professional Learning Group</td>
</tr>
<tr>
<td>PTA</td>
<td>Parent Teacher Association</td>
</tr>
<tr>
<td>SAMR</td>
<td>Substitution Augmentation ModificationRedefinition</td>
</tr>
<tr>
<td>SLT</td>
<td>Senior Leadership Team</td>
</tr>
<tr>
<td>SMT</td>
<td>Senior Management Team</td>
</tr>
<tr>
<td>TOD</td>
<td>Teacher Only Day</td>
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</table>
CHAPTER ONE: INTRODUCTION

Background to eLearning
The New Zealand Curriculum states “schools should explore not only how ICT (Information Communication Technology) 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). To meet this requirement, schools have implemented various programmes which are collectively termed “eLearning” (also referred to as e-learning or Elearning). There are many definitions of eLearning, such as “eLearning is when we use computers and the networks to which these are linked in some way support the learning process” (Shepherd, 2013, p. 3) but this definition is deliberately broad to include “just about any use of computers, in all their many and various forms, to help people learn” (p. 3), including self-study lessons via PC (personal computer), social learning through mobile devices, online video, virtual classrooms and any other use of computer technologies to help the learning process (Shepherd, 2013).

Another definition is that “E-learning is an approach to learning and development: a collection of learning methods using digital technologies, which enable, distribute and enhance learning” (Fee, 2009, p. 16). This latter definition focuses more on how the technology aids the learning, rather than simply the use of the technology itself. In the national e-Learning action plan, the Ministry of Education defines eLearning as “learning and teaching that is facilitated by or supported through the smart use of information and communication technologies” (Ministry of Education, 2006, p. 2) which again presents eLearning as the use of technology and data as tools to better inform and support teaching and learning practices.

The possibilities of the use of eLearning technologies in improving student learning outcomes is recognised to bring “state-of-the art technology into learning to enable, motivate, and inspire all students, regardless of background, languages, or disabilities, to achieve. It leverages the power of technology to provide personalized learning instead of a one-size fits-all curriculum, pace of teaching, and instructional practices” (U.S. Government, 2011, p. 6).

Fee (2009) described several benefits of eLearning. Although he writes from an industry training perspective, several of his points apply to the use of eLearning in schools, such as when needing to implement a standard learning programme on a large scale. Examples
include the delivery of the same science content to a whole year group of several hundred students each year; when the learning content needs to be frequently updated to keep it current; when the learning content requires a significant degree of personalization to cater for students of diverse backgrounds and learning styles; to enable self-managed learning of students; to save on costs such as printing of resources; to deliver learning faster; and to offer learner-centered solutions. However, these benefits do not all occur simply by putting a student in front of a computer, and so Fee proposed that there are three components of eLearning, represented by the Venn Diagram below. Only when all three components are working together does effective eLearning occur.

![Venn Diagram of eLearning Components](image)

**Fig. 1.1 - Effective eLearning**
(Fee, 2009, p. 17)

A recent report by the OECD stated that the “impact of technology on education delivery remains sub-optimal, because we may overestimate the digital skills of both teachers and students, because of naive policy design and implementation strategies, because of a poor understanding of pedagogy” (OECD, 2015). To help schools implement school-wide eLearning, the Ministry of Education released the eLearning Planning Framework (Ministry of Education, 2014). This document was designed to help schools identify where they were positioned in the process of implementing a change to eLearning practices, and then develop goals and plans for how to proceed. It allows schools to position themselves in one of five progress phases in each of five dimensions that impact the implementation of eLearning.

The first phase is ‘pre-emerging’ where “adequate infrastructure, organisational systems, leadership with teacher skills/knowledge/understanding and engaging with the wider community, are yet to be aligned to school-wide strategic planning” (Ministry of Education, 2014, p. 2). A school in this situation is not ready to start a significant change in pedagogical
approaches and start to use eLearning practices. The next four phases are broken down into attributes for both the school and individual teachers, which allows the same document to be used by both organisations and individuals within it to assess their readiness and position on the implementation scale.

In an ‘emerging’ school “processes and practices investigate, raise awareness, and plan for growing your ability to use technologies for learning.” whereas an individual teacher will “find out about technologies, and supplement teacher-directed, lower-order (surface) approaches of teaching” (Ministry of Education, 2014, p. 2). These definitions of the ‘emerging’ phase show that it is focused on schools, and individuals are aware of the possibility for improvement and actively looking for ways to do things differently, but are not yet putting these ideas into practice.

In an ‘engaging’ school, “processes and practices establish and connect planning across the school; you trial initiatives” whilst an individual ‘engaging’ teacher would “trial and begin to use technologies appropriately to support higher-order (deep), collaborative teaching and learning” (Ministry of Education, 2014, p. 2). This shows that planning is connected to what is actually happening in the school, and new approaches are being trialled at both the school and individual level. This could be the same thing through a solo teacher keen to try new strategies in their own professional practice being supported by the school leadership through time, resources or professional development opportunities to investigate the issues with that particular approach in the context of their own school.

There is a big jump from an ‘engaging’ to an ‘extending’ school where “processes and practices effectively align across school, community and wider networks. The use of technologies is refined and appropriate to meet all learners’ needs” and individual teachers “begin to collaborate with students to use technologies appropriately to support authentic, higher order, co-constructed learning” (Ministry of Education, 2014, p. 2). By this phase things have moved beyond the individual teachers and small scale trials. The planning and practices of the school work together to enable change, with actions aligned to goals. Specific technologies are used that are deemed appropriate to meet the needs of the learners. And teachers are working together to share good practice and collaborating with students to improve learning outcomes.
In the final ‘empowering’ phase, “school, community, and networks work in partnerships to reflect and plan. Technology use is ubiquitous, virtual, open and equitable, enhancing authentic, co-constructed learning within and beyond the school, community” whilst teachers “work collaboratively, alongside students to create personalised, higher-order, real-world learning” (Ministry of Education, 2014, p. 2). By this stage the technology has become the norm, and so in Kotter's (1996) terms, the change has become anchored in the culture of the school, and the leadership, teachers, students and community are all working together to plan how to best use the now normal technology to continually improve learning outcomes that relate to the real-world.

To further enable schools to analyse their position, the eLearning Planning Framework (Ministry of Education, 2014) identifies five dimensions that are measured against the phases in order to identify specific areas that require a focus. These dimensions are described as:

- Leadership and strategic direction
- Professional learning,
- Teaching and learning,
- Technologies and infrastructure
- Beyond the classroom

(Ministry of Education, 2014, p. 3)

![Figure 1.2 - The eLearning Planning Framework Structure](adapted from Ministry of Education, 2014)

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Pre-emerging</th>
<th>Emerging</th>
<th>Engaging</th>
<th>Extending</th>
<th>Empowering</th>
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<tbody>
<tr>
<td>Leadership &amp; Strategic Direction</td>
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<td>Professional Learning</td>
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<td>Teaching &amp; Learning</td>
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<td>Technologies and Infrastructure</td>
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<tr>
<td>Beyond the Classroom</td>
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Each of these dimensions is then broken down into more specific areas such as “eLearning integrated into school vision” (Ministry of Education, 2014, p. 4) and “engagement with the community - and wider networks - through and about technologies” (Ministry of Education, 2014, p. 9) with descriptors of how each area of each dimension can be measured against the phases of progress. A specific example is in the ‘e-Learning within the whole school curriculum’ area of the ‘teaching and learning’ dimension, where to be measured as being in the ‘engaging’ phase the “school leadership work with the school staff to establish a cohesive curriculum that includes appropriate e-learning resources. Implementation tends to be across most learning areas with some cross-curricular alignment” whilst the ‘extending’ phase requires “school staff and community negotiate a cohesive curriculum that integrates appropriate elearning resources. Implementation reflects widespread cross-curricular alignment and may extend to networks beyond the school” (Ministry of Education, 2014, p. 7). A key difference between these two phases is that the community is more involved at the extending phase, both in the planning of the curriculum and in the reach of cross-curricular projects.

By self-assessing against each dimension in turn and ranking themselves into each phase, schools are able to identify areas they are already strong in, and those that need more focus. For example, a school could decide it is ‘extending’ with the dimension of ‘technology and infrastructure’, in that they have an Ultra-Fast Broadband connection into their school, and have wifi access across the school, and ‘engaging’ with the ‘professional learning’ dimension as they have started to run professional learning and development sessions on using some iPads that have been purchased, but are only on the ‘emerging’ phase for ‘leadership and strategic planning’ as there is no clear vision or strategic goals developed as to why eLearning practices should be developed. The purpose of the eLearning Planning Framework is to ensure each school considers all the relevant aspects, as each dimension is equally important in successfully implementing school-wide eLearning practices.

To enable schools to tackle the eLearning Planning Framework, schools were able to apply for professional learning and development funding, which was in the form of a contract with a third-party consultancy group who would come in and help key stakeholders work through the matrix of dimensions and phases to identify their position, and then identify how to make progress. However, not all schools were awarded these eLearning professional learning and development contracts and so many schools were left to muddle through on their own without the benefit of advisors who had been through the process many times with other schools.
One example of enabling eLearning in New Zealand schools comes from south Auckland. In 2007 a group of twelve schools in the Tamaki district of Auckland formed into a cluster they named “Manaiakalani” which means “The Hook from Heaven” in response to the national e-Learning action plan (Ministry of Education, 2006). Their stated goals included:

1. To conduct a four year curriculum development project to raise student achievement outcomes and improve student engagement by linking key learnings from schooling improvement with developing practices from the national eLearning action plan.
2. To see teachers develop more effective practice using the direct instruction and micro-teaching pedagogy of schooling improvement followed by student practice using the media and technologies of e-Learning.

(Manaiakalani Education Trust, n.d.-a)

In 2013 the Manaiakalani Cluster reported their progress as giving “Tamaki children the opportunity to ‘be at home in a digital world’ so they can learn ‘anywhere, anytime and at any pace’. Teachers encourage a passion for learning and a whanau engagement programme teaches parents how to use the technology to support their child’s learning” (Manaiakalani Education Trust, n.d.-a). The main focus of this change has been in-depth professional development to support teachers to adapt to the new tools available for learning, along with an innovative system to overcome the challenges of equity by having corporate sponsorship which enabled them to provide a netbook to each student at a cost to the whanau (extended family, family group (Moorfield, n.d.) of $3.50 per week over three years, at which point it became their own (Manaiakalani Education Trust, n.d.-b). This initiative across several schools was developed in recognition of the high proportion of Maori and Pasifika students in the area, and the low socio-economic status of their families, to make a significant difference in their student's learning outcomes and that of their families. Together, these schools did not just implement a school-wide eLearning programme, but a community-wide one where students from different schools were able to share their experiences and learning.

Research Problem

Schools in New Zealand have been expected to use digital technologies to create new and different ways of learning since 2007 (Ministry of Education, 2007), but after seven years only 80% of New Zealand secondary schools have any sort of plan for the development and use of digital technologies by school staff to support student learning (Johnson, Wood, & Sutton,
2014), let alone implemented a school-wide system. This suggests that 20% of secondary schools have no formal plans for how to satisfy this aspect of the National Curriculum. Additionally many New Zealand schools are still organised around providing a factory style workforce and use traditional teaching methods (Johnson et al., 2014; O'Riley et al., 2014), despite most Western economies no longer being industrial. The demand is for students with skills in “creativity, communication, collaboration, critical thinking, problem solving, technological proficiency and global awareness” (Sheninger, 2014b, p. 23), and this can be addressed by changing the learning approach from traditional teacher-led exposition and instruction, to student focussed guided discovery and exploration learning activities (Shepherd, 2013). By changing the process of learning, students use technology to find the ‘content’ and the teacher acts as a guide and collaborator to support the students’ learning, as it is “our teachers who remain the determining factors in whether learning will be transformed to represent what young people need for today and tomorrow, not for yesterday’s world” (Sheninger, 2014b, p. 26). However, teachers are only able to do this if they are supported and empowered by their leadership (OECD, 2015). “Digital leadership emphasizes the need for current leaders to be catalysts to drive sustainable change that will transform school culture. Only then will schools produce learners ready to take on the world and able to succeed in a demanding society ever more reliant on digital fluency and an entrepreneurial thought process” (Sheninger, 2014b, p. 32).

**Research Purpose**

Schools are approaching the implementation of eLearning in a variety of ways, and many schools are reinventing the wheel each time, replicating the efforts of others, and repeating their mistakes (O'Riley et al., 2014). Therefore, there is a need for research to be carried out into the process of enabling school-wide eLearning in New Zealand’s secondary schools, to identify those strategies which are commonly successful, commonly unsuccessful, or which may be successful in a particular educational environment.

This research will help inform those secondary schools that are yet to start their implementation of eLearning practices, and those who have started but are struggling to manage and maintain the change, to make appropriate choices for their school and so implement eLearning practices effectively to maximise student learning outcomes.
Research Aims
1. To investigate the types of strategies that have been used by leaders of eLearning in New Zealand secondary schools to enable eLearning practices across the school.
2. To investigate the challenges encountered during the implementation of eLearning practices.
3. To identify strategies that were successful and the reasons for their success.

Research Questions
1. What strategies have been used by leaders of eLearning in New Zealand secondary schools to enable eLearning practices across the school?
2. What challenges were encountered during the implementation of eLearning practices?
3. Which strategies were the most successful at enabling eLearning across the school, how were they identified as successful and why were they more successful than others?

Rationale
The proposed research questions are focused on learning from those schools making great strides to accomplish the vision of the 21st Century Reference Group that “every young New Zealander is a confident, connected, lifelong learner equipped to live a full and active life, and contribute to a thriving and prosperous economy” (O’Riley et al., 2014, p. 4) and sharing their experiences with other schools who still have some way to go to meet this vision. As the role of technology in the daily lives of teachers and students continues to grow (Degenhardt, Duignan, & Duignan, 2010), there will be increasing reason for schools to consider their position on the use of personal digital devices for learning. Most students carry mobile phones and if these devices are used well they can have enormous learning potential (Degenhardt et al., 2010). Whilst schools are trying to determine how they can provide access to eLearning tools for students to improve their learning outcomes, they could look to these portable computing devices that students are already bringing to school. However, whilst 80% of New Zealand secondary schools have a plan for the use of digital technologies for learning, only 41% of secondary schools have a policy regarding students using their personal devices for learning in the classroom (Johnson et al., 2014, p. 17). There is significant opportunity for schools to fill this gap in their policy and practice and support the use of personal devices to engage with eLearning practices by developing a BYOD policy. The most likely way for them to do this effectively is by learning from the experiences of other schools which this research is intended to identify.
By collecting the experiences of a diverse range of schools, with a range of backgrounds, contexts and communities, other schools which are yet to start their own school-wide eLearning planning will be able to connect with the strategies that these schools have identified as being successful in their own situation. This will enable leaders to recognise the experiences of other schools most similar to their own situation. This is important for the validity of the research, as the process of implementing a Bring Your Own Device programme in an affluent inner city school would have very different considerations to a rural school where the students come from less affluent families. By sharing the experiences of other schools, the author intends to enable leaders to recognise certain strategies and “cherry pick” the ones that are most likely to have success in their own setting, based on their own unique circumstances. The results of this research is not intended to be a set of prescriptions on how a school should or should not implement school-wide eLearning practices. Rather the researcher hopes to produce a guide of ways that have been seen to be successful in schools, as well as strategies that have been seen to be not successful in certain circumstances, and therefore may be best to be avoided unless your own circumstances are significantly different. A summary of this research is intended to be distributed digitally through professional learning forums, as well as presented through forums such as Edulgnitie and uLearn conferences.

Outline of Thesis
Chapter One of this thesis investigates the background of eLearning, some of the issues around its use in schools, and how its implementation could be enabled in schools that are not yet using it. The problem of how eLearning practices are enabled in a school is discussed, and why eLearning is even needed. Chapter Two examines the literature around eLearning, including definitions of eLearning, challenges to enabling eLearning and change leadership. Chapter Three describes the methodology used to collect information from a range of New Zealand secondary schools around their experiences of implementing eLearning, including the theory of qualitative and interpretive research methodologies used in this project, and the exact methods used to gather data. In Chapter Four, the findings are presented and compared to identify common strategies and challenges these schools have faced. The findings are presented in four categories: purpose, strategies, challenges and suggestions. Chapter Five discusses the findings and then offers suggestions on how the Principal of a New Zealand secondary school can enable eLearning to occur in their school.
CHAPTER TWO LITERATURE REVIEW

Introduction
Various literature was examined around the idea of eLearning. Three key themes were identified, these are defining eLearning, challenges to enabling eLearning, and change leadership. These will be discussed in turn in this chapter.

Defining eLearning
One key idea in the literature is definitional: exactly what is meant by the term eLearning? eLearning is not just using a computer to replace paper and pen (Chadha & Nafay, 2003; Sheninger, 2014b). It has been variously defined as being “when we use computers and the networks to which these are linked to in some way support the learning process” (Shepherd, 2013, p. 3) or “an approach to learning and development: a collection of learning methods using digital technologies, which enable, distribute and enhance learning” (Fee, 2009, p. 16), or “the use of internet and digital technologies to create experiences that educate our fellow human beings” (Horton, 2001, p. 1). These three definitions all emphasise that eLearning is about the use of technology to create, support or enhance learning experiences. This means that the technology does not drive learning as a replacement for traditional practices, it is merely another new and powerful tool that educators can use to maximise the learning outcomes for students, whether those students are in kindergarten, high school, tertiary or industry. “Good eLearning is about design, not software” (Overton, 2013, p. 52) and still relies on teachers to develop the electronic resources, and support students through a well designed learning process. This is important as educators still need to guide learners to appropriate learning activities that will meet their needs. There is no ‘one size fits all’ device or software that can fully educate a student with all the knowledge, understanding and social appreciation that they need to be functioning members of society.

The technology used for learning is undergoing a rapid rate of change. Edwards (2012) describes how the earliest learning technologies were the writing tools used for recording significant events on the walls of caves 5000 years ago. Later, wax and clay tablets were invented that allowed written information to be stored and transported. Later development of
papyrus and ink made writing possible whilst on the move and storage took up much less space allowing the formation of libraries of information. The mechanical printing press developed in 1436 by Johann Gutenberg allowed the mass production of text, and therefore the distribution of writing increased significantly. This allowed education to transform from simply rote learning to the discussing and sharing of ideas as each student was able to read their own copy of the same text and compare their own thoughts with others.

Castells (2011) describes how the evolution of technology has changed almost all aspects of the economy, society and culture. Since the late 1980s, most educational technology has been based on the desktop computer, and later the more portable laptop. In this time computers became more and more powerful, able to hold more information, and eventually connect to the internet, but their basic structure and interface stayed the same. Then Apple released the first iPhone in 2008. Since then smartphone technology has taken off and transformed the humble mobile phone which allowed voice calls, text messages and some simple games into a pocket sized computer with full internet access, the ability to download powerful applications for specific functions like video editing, and of course constant social media access. Google followed by producing their Android smartphone operating system and releasing it free to mobile phone developers. Now any phone manufacturer could make its own smartphones, and so cheaper phones flooded into the market and filled the pockets of those who couldn’t afford the premium iPhone.

Then, in 2010, Apple stepped up again by producing the iPad. This portable computer, smaller than most textbooks, could provide access to all the information of the internet, had many tools available to help the process and use the information, and had a battery that would last a full day’s use before needing to be recharged. This means that today’s students do not need to remember a prescribed list of facts, such as the first 20 elements of the periodic table complete with their atomic structures and masses. If they ever need to know this type of data they can simply “google it” using which ever internet connected device is closest to hand, or open a dedicated period table app (application) that they have already installed for ease of reference. The important point is that the real skills for today’s students have shifted from simply recalling information to knowing what information is needed and how to find it (Chadha & Nafay, 2003). However, students are still expected to memorise facts and processes in order to succeed in national assessments, and this is a discrepancy between the ideals of modern education and the methods of assessing student achievement.
As society has moved from the Industrial Age, to the Information Age, and now into the Knowledge Age, the demand of education has shifted from learning information ‘just in case’ they need it, to having the skills to learn information ‘just in time’ as the need arises (Chadha & Nafay, 2003). This means that education by eLearning has a focus on learning skills, and students being self-directed learners (O’Riley et al., 2014; Sheninger, 2014b) who are able to find the information they require in the vast world wide web, rather than learning a vast amount of facts that they may or may not ever require again. This can be done by the use of authentic problems that students have to solve, and which can be done more effectively through the use of digital tools (Sheninger, 2014b). These authentic problems are real world situations, preferably which have a direct impact on students, such as the local public transport system rerouting bus services which means students may have to leave earlier for school, on not be able to participate in after school sports teams. This is an authentic problem that students can get to grips with, and investigate by looking up bus timetables, routes, population centers, traffic flows, contact transport authorities and local councilors to campaign for a better solution. These actions could not occur without the use of digital tools, and so are an aspect of eLearning. Other eLearning systems can include the use of tools such as online quizzes which, whilst part of the old style information age, allow students to get instant feedback and targeted direction to resources that can help them fill in the gaps in their understanding, or the use of online video tutorials created by the teacher which allows the student to listen to the explanation and demonstration as many times as they wish, even pausing and rewinding in the middle if they were not clear on a point, to ensure they fully understand an idea before moving on to the next. The implementation of these eLearning practices into the classroom does not replace traditional teaching methods, but can augment and extend the learning outcomes of students. eLearning provides teachers with a whole new toolbox to help their students learn and measure their understanding, and it is up to the teacher and students working together to choose the appropriate time to use eLearning tools, and the appropriate tool to use.

So, now that the students of today have the ability to access almost every scrap of writing on the planet without leaving the room, what is eLearning? As described earlier, eLearning is the use of the technology to support learning. Whilst using an app which contains a periodic table, atomic structures and information about each element, instead of simply looking in a chemistry textbook where the periodic table is usually printed on the inside cover, counts as eLearning, it does not support the requirement of Fee (2009, p. 16) to “enhance learning”. However, using the technology to access relevant information to describe an element, draw a diagram, find out what it is used for, describe where on earth it can be found, how it is purified, and include
multimedia such as a link to a video of a blast furnace purifying iron from ore would certainly enhance the learning. Students have moved from simply repeating information found in a textbook, even if there was some cognitive effort to translate the periodic table into sentences, to collating information from a variety of sources and arranging it in a way that gives them a deeper understanding of the topic. However, the intention is more to build life-long learning skills so students are able to build their own understanding independently when particular knowledge is needed.

One way to accomplish this shift in design of learning activities is using the SAMR model. The SAMR Model was developed by Puentedura, and offers educators a framework to evaluate the tools and activities they are asking learners to engage with (Puentedura, 2014), and is promoted by the New Zealand Ministry of Education (Ministry of Education, n.d.) for use in schools.

![Fig. 2.1 - The SAMR model](Pucentedura, 2014)

The first part is ‘substitution’ where educators have simply used electronic tools to replace paper based tools, such as students completing a word document on a laptop instead of doing it by hand on paper. The teacher may believe they are improving the learning outcomes of the students as they are less likely to lose the file than a piece of paper that may never get stuck into their book, but in reality there is very little difference in the actual learning process the student experiences.
Next is ‘augmentation’ where the student is able to do something more than they would be able to do without the digital tool. An example would be being able to publish their work on a blog, social media or similar. By creating an audience for the work that is wider than the immediate class, the value of the work is increased in the eyes of the student, and so the learning activity has greater worth.

‘Modification’ is when traditional learning activities are changed to include the capabilities of the technological tools available. This could include students recording video of their science experiment and presenting their report as a television news bulletin, rather than in a written format. This would require students to manage several different tools such as a video recording device and editing software, as well as develop new skills such as writing scripts and public speaking which would not have traditionally been developed in this sort of activity.

Finally, ‘redefinition’ is where completely new learning activities are developed to fully utilise the power of the technology. This could include authentic issues where students use survey tools like Google Forms to find out what students would like in the school canteen, research what other schools offer by emailing them, contact suppliers to find out the potential cost of such products, analyse the health benefits or costs of each item by investigating the nutritional labels, and prepare a report to the school’s Leadership Team proposing menu changes with their rationale. Without digital technology this sort of activity is not genuinely possible, but with it the students would have the opportunity to put a wide range of skills together to get a much deeper understanding of the issues behind a desire for $1 sushi in the school canteen, and is why eLearning is such an important shift in pedagogy.

The SAMR model aligns well with the eLearning Planning Framework (Ministry of Education, 2014) discussed in Chapter 1. Both these tools, whether for school-wide planning or evaluation of classroom learning activities, view the shift from traditional to eLearning pedagogies as a continuum, which leaders and teachers journey along as their practice evolves.

**Challenges to enabling eLearning**

The second idea identified from the literature describes the many challenges facing school leaders as they work to enable eLearning, “but change can only be sustained if potential roadblocks are acknowledged throughout the process” (Sheninger, 2014b, p. 57). These
challenges include the expectations of communities to maintain academic standards, particularly around national standardised assessments (Degenhardt et al., 2010), the ability to differentiate learning programmes for students based on their interests, skills, academic ability or native language (Derouin, Fritzsche, & Salas, 2005), costs of infrastructure and devices (Johnson et al., 2014), sufficient, appropriate and timely professional development in order to ensure teachers have the skills needed to implement eLearning in their classrooms (Johnson et al., 2014; Mama & Hennessy, 2013) and both technological and cultural barriers (Chadha & Nafay, 2003).

The beliefs of teachers around the idea of eLearning is often identified as one of the greatest challenges to successfully implementing eLearning practices across the school. Sheninger (2014b, pp. 57–59) describes ten attitudes of teachers and leaders that can pose challenges to implementing change:

- It is too hard, to which he responds that change is never easy;
- The lack of time, to which he asks what is stopping the teacher from making the time to improve student outcomes;
- A lack of collaboration, which requires both teacher engagement and leadership to build a culture of sharing practice;
- An overly directive approach by leadership on how teachers should enact the change rather than building consensus;
- A too rigid hierarchy, which prevents initiative at the classroom level;
- A lack of support for teachers to take risks;
- Fear of change and teachers breaking out of their comfort zone;
- Naysayers and antagonists who will always be present at any change and need to be proven wrong for their voice to be marginalised;
- Poor professional development, which turns teachers off from trying the new approaches by being too dull instead of hands-on and interactive to engage them in the possibilities;
- Frivolous purchases such as buying a set of ipads when the school does not yet have any wifi access.

If teachers do not believe eLearning has value for student learning outcomes, then there will be no chance to incorporate eLearning practices in their classrooms no matter how many computers they are given (Fullan, 2001; Kim et al., 2013). Even amongst those who profess to
believe in the value of eLearning practices, their view about how it should be used can greatly affect the benefits it has on student learning outcomes. Kim et al. (2013) describe how two teachers, who claim to see the many benefits of an interactive whiteboard in the classroom for students learning, use them in very different ways. One has students interacting with the board to complete activities, share their answers, demonstrate understanding and find information, whilst the other uses it merely to project information and subject content. Both profess positive beliefs of eLearning and technology in the classroom, but the ways they manifest these beliefs in their practice have very different student learning outcomes. Mama & Hennessy (2013) described how the teacher’s belief of what constitutes effective eLearning can be a key barrier to self-improvement, as they may not recognise their practices are not maximising their student’s learning opportunities.

Mama and Hennessy (2013) proposed that teachers could be categorised into four groups based on their beliefs and practices around eLearning. Group A had a high competence and used ICT extensively in their personal lives. These teachers were classified as ‘integrational’ as in their use of eLearning tools, as the use of ICT in their classroom directly related to the learning objectives and they changed their pedagogy to support the use of technology. Their belief was that ICT can address the diverse needs of their students, and enable them to use different teaching approaches. Group B had a low to moderate competence and were developing their personal use of ICT. Their classroom practice of eLearning approaches was classified as ‘incremental’ as their use of ICT is enhancing their existing practice, but they have not significantly changed their pedagogy. Their belief was that ICT is a powerful and exciting tool, especially in the ways students can use video, images and sound in the classroom to learn and demonstrate their understanding. The Group C teachers, like those in Group A, had high competence and extensive personal use of ICT, but their use of it in the classroom was categorised as ‘incidental’ as it was only used occasionally and for managerial tasks such as roll taking and recording grades. Their beliefs were that ICT is a convenient tool for the teachers’ own benefit, but was not that useful for teaching. The final group, D, had a moderate competence and limited personal use of ICT. Their classroom practice was categorised as ‘inimicable’ as ICT was purposefully avoided. Their beliefs were described as being that ICT is a subversive tool that is “feared to replace the teacher” (p. 383).

These four groups represent a range of beliefs that teachers can hold about the role of eLearning in their classroom, and so affect the learning outcomes of their students in comparison to a classroom with a teacher with different beliefs. Similarly, Baylor & Ritchie (2002) saw teachers as having two divergent beliefs about the role of ICT within the
classroom. Some teachers “saw computers as a tool to be used in collecting, analysing and presenting information” whilst others saw them as “teaching machines” (p. 399). The former group correspond with the Group A and B teachers proposed by Mama & Hennessy (2013) and the teacher described by Kim et al. (2013) who has students using the interactive whiteboard to engage and inquire into their learning, whilst the latter aligns with the Group C of Mama and Hennessy (2013)

What this all means, then, is that the strategies that leaders use to implement eLearning practices and overcome the challenges of negative teacher beliefs about eLearning are key to leading the successful implementation of eLearning practices. Kotter (1996) and Degenhardt & Duignan (2010) suggest ways of shifting teacher beliefs by showing them the relevance of the change to their own practice. Once they can see the relevance of the change in teaching approach to incorporate eLearning tools, then they will be more willing and open to integrate technology into their classroom (Baylor & Ritchie, 2002).

One concern of many educators around the use of digital technologies in the classroom is the opportunities it provides students to be distracted from the learning activities (Kolb, 2008). Students are always able to find something else to do if they are not engaged in the class activity, from playing naughts-and-crosses in the back of their exercise book, to passing notes, to simply staring out of the window. With the whole internet available in front of them there is a genuine concern that students will be easily distracted from the task at hand to check social media, play online games, or send messages to other students which would then distract them. As in any classroom, the challenge is to keep students engaged by having interesting learning activities, and having classroom systems for managing the use of the device such as when to get it out, put it away, and when to simply put the screen down so it cannot be seen and so avoids distractions.

Another challenge facing the implementation of a school-wide eLearning programme is that of equity, or “Digital Poverty” as Edwards (2012, p. 67) termed it. This is a challenge as in any school there will be “haves” and “have nots”, and so to develop a school-wide eLearning programme it is essential that all students are able to engage. This can include access to a device for learning, but also issues like the skills and knowledge of how to use their devices, the access to compatible software or apps if students have different devices, and internet connectivity outside of school hours in order to continue with learning activities at home.

The Manaiakalani cluster, as mentioned earlier, addressed the equity issue by providing all the
devices students needed, with corporate sponsorship to keep the cost down to just $3.50 per family per week (Manaiakalani Education Trust, n.d.-b). This ensured each student had access to their own device for learning, and also eliminated many of the concerns of teachers around managing activities for students with different devices. To ensure students were able to access the internet at home, they developed a “wireless mesh covering the whole area” which gives “every child in the school community a fast broadband connection to the Tamaki Learning Network, 24/7, at home, at the shopping mall, even in the parks and reserves” (Crown Fibre Holdings, 2012). This was especially important as 70% of their students didn’t even have a connected phone landline, let alone a broadband connection. This enabled students to continue their work at home, contact their teachers immediately when they had an issue, and share their learning with their families, and also those families to use the devices for their own uses such as internet banking, job hunting, and finding information about a range of life issues.

**Change Leadership**

One of the key ideas in the literature of eLearning is that of change. Kotter (1996) describes how people who have been through difficult and/or unsuccessful change processes can become “suspicious of the motives of those pushing for transformation” (p. 17) and therefore resistant to further change. However, the whole world is currently in a period of rapid change (Chadha & Nafay, 2003; Degenhardt et al., 2010; Ertmer & Ottenbreit-Leftwich, 2010; Kotter, 1996; O’Riley et al., 2014; Sheninger, 2014a) and any organisation that does not adapt to the changing world will fail in its goals. As the demands of the workplace have changed from requiring worker bees for the factory, to requiring creative, problem solving team workers, so should schools change the way that students learn to build these skills (Sheninger, 2014b). However, whilst professions such as law enforcement and medicine are expected to use the latest technology to maximise their effectiveness, that expectation is often not made of education (Chadha & Nafay, 2003; Ertmer & Ottenbreit-Leftwich, 2010). To prepare students for a world of work that will require an ever increasing utilisation of technology “effective teaching requires effective technology use” (Ertmer & Ottenbreit-Leftwich, 2010, p. 256). This requires schools to change their processes, whilst avoiding overloading staff with too much change in too short a time, which could lead to a lack of “depth and coherence” (Fullan, 2001, p. 36). Leaders need to manage the change carefully to ensure that it has the maximum effect with the least burden on staff and students. Chadha and Nafay (2003) describe how learning systems have changed over time, from Instructional Design to the Keller Plan, then to the
Performance Movement and Kolb’s Learning Styles, through Computer and Web-based Training to Knowledge Management and finally to eLearning. This shows how learning has constantly changed to endeavour to provide better learning outcomes for students, and that change is far from being a new experience in schools.

For a school leader wishing to implement eLearning pedagogies there are “dilemmas in leading change” (Fullan, 2001, p. 46). These dilemmas create “uncertainty because leaders are unsure of how to proceed” (Cardno, 2012, p. 65) as they have to choose between two options. One option is to maintain the status quo, which may or may not be satisfying the demands of groups of stakeholders, and the other option is to implement a change, which may fix a problem or improve an already good situation, but has a risk of not working and potentially breaking what is already working. In a school where there are problems such as low student achievement or retention of students after the end of compulsory schooling, there is a bigger demand for change and so it may be easier to convince the necessary groups of stakeholders (which includes, but aren’t limited to, students, parents, teachers, the Board of Trustees, the Ministry of Education and feeder schools) to go with the new plan to try and improve the situation. However, in a school that is already perceived as being academically successful, there may be a sentiment of “if it is not broken, do not fix it”. In this case the dilemma for the leader considering implementing eLearning practices is that whilst some groups of students are doing well with things as they are, there are likely to be other students who are not. eLearning practices may help those who are struggling to improve, and therefore should be adopted, but the change process could adversely affect the success of those students presently doing well as teachers grapple with new techniques and experience an “implementation dip” (Fullan, 2001, p. 40), which would encourage the leader to maintain the status quo. If the leader has one view, that change is required, and the board has another, that things should not be changed that may impact the performance of those already succeeding, then this is a dilemma (Cardno, 2012). By the leader recognising this is a dilemma, confronting rather than avoiding it, and using tools for productive dialogue to engage in a double-loop learning process (Argyris and Schön, 1978; Cardno, 2012), an understanding of each other’s positions will be developed and a decision may be reached that all parties agree to.

Engaging with dilemma management is a part of the change process proposed by Kotter (1996), where it is the responsibility of the leader to establish the sense of urgency by identifying needs and opportunities. Once the board appreciates the need of the school for
change, then the leader can start to lead change by creating a team (which should include representatives of all stakeholder groups in the school), developing the vision and strategy and then communicating how the implementation will occur at each level of the organisation (Kotter, 1996).

Of these actions, the development of a vision for the change is arguably the most important. Without a clear vision, there is no purpose to all the large and small actions, changes and efforts that members of the school at all levels will be engaged with. A clear vision sets out the 'why' of the change which can easily and unambiguously be referred to whenever a question of how or if to proceed arises. Sheninger (2014b, p. 31) says "leaders must be the pillars of their respective institutions and focus on solutions rather than problems", which is much easier to do if there is a clear vision to direct the answering of the "interconnected questions of what, why, where and how" (p. 32). The 'why' involves convincing all stakeholders of why a school needs to change and aligns with Kotter’s ‘identifying needs’. The 'what' means the content of the change and involves people using good information and best practices to decide exactly what needs to change, which corresponds to Kotter’s (1996) ‘guiding coalition’ to address the change. The 'where' means identifying the current situation, and the desired direction of the change, along with ways of measuring progress. Finally, the 'how' is the process of change itself, and what actions are going to be needed once people understand the why, what and where, which matches the strategy developed by the guiding coalition in Kotter’s model, after they have shared the change vision that has been developed together.

Sheninger talks about the changing demands of America’s students who are still being educated in schools built in the 1950’s which were “functionally designed to teach institutional compliance" (Sheninger, 2014b, p. 23) despite the fact that America outsourced its factories and most of its industrial manual labour in the 1990’s to countries like China, and so “America no longer needs a workforce trained for the last century” (Sheninger, 2014b, p. 23). Therefore some schools have developed a vision of preparing their students to be problem solvers, which will enable them to adapt to new roles and situations as they are encountered. The National Educational Technology: Standards for Administrators states that the first of the essential conditions for implementing the NETS.A is “Visionary Leadership” where leaders “inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organization” (International Society for Technology in Education, 2009, p. 1). Garland & Tadeja (2013) give an example of a vision using the Pomona Unified District, which gives its mission statement as
comprising “four central concepts: respect, relationships, responsibility and results” (p. 7). Garland & Tadeja (2013) go on to emphasise that respect means “all stakeholders are valued partners” and that “students, teachers, parents and even the community were involved in some way with the technology plan” (p. 8).

This stakeholder inclusion aligns with Kotter’s “guiding coalition” as all relevant parties were represented in the planning of the technology change, and so all points of view would have been considered. Once the vision and strategy are developed by the coalition of parties it needs to be communicated to the rest of the stakeholders (Overton, 2013). This is easier today than just 5 years ago thanks to the prevalence of social media. Through email newsletters, Facebook posts and Twitter streams it is easier for schools to communicate directly to their stakeholders than ever before. And more importantly, these systems allow two-way communication far more effectively than a traditional static web page (Sheninger, 2014b). Using these tools, alongside hardcopy letters home that may languish in schoolbags for a few weeks, will allow the school to apprise stakeholders of the need for the change, the school's new vision, and the strategy plans to allow work towards that vision.

Once that is done the hard work starts, actually implementing change. It is vital as a leader that fast, short-term wins are experienced to enable some momentum to start to build and to have immediate success stories to share with the stakeholders (Kotter, 1996; Sheninger, 2014b). The easiest way to achieve this short-term win is by publicly praising a trailblazing teacher who has actually been doing the sort of thing that the whole school is now working towards for some time. This recognition of an internal expert (Bozarth, 2013; Fee, 2009) allows others in the organisation to recognise that success is possible in their own setting, and it is not something that can only happen in bigger, richer, and newer schools.

The use of social media tools to share the learning stories of students in this early pilot class will put some immediate positive feelings about the change into the community, which may move the borderline stakeholders into a more supportive position and therefore reduce the voice of the naysayers (Sheninger, 2014b). After this initial success, other groups who got onboard with the change early will start to be able to share their own success. The key leadership role here is to support these teachers to achieve success by making sure that all the essential needs such as internet connectivity, sufficient devices, and the appropriate software and other tools are available and working properly so that they can focus on using the tools to improve the learning outcomes for students.
Nothing will derail technological change quicker than the technology being hard to use, unreliable and taking longer to complete a task than traditional methods (Ertmer & Ottenbreit-Leftwich, 2010; Sheninger, 2014b). By putting sufficient support in place, the leader ensures the conditions are right for the teacher to generate personal short-term wins, and then go on to consolidate their experiences and produce more change (Kotter, 1996). This can then be rolled out to the rest of the staff through effective, hands-on professional development (Fee, 2009; Garland & Tadeja, 2013; Sheninger, 2014b) which will excite those who have not yet committed and encourage them to experiment too. Once the new strategies are in use across most of the school, and new staff, students and parents to the school arrive expecting eLearning practices due to effective communication with feeder schools and the wider community, then the use of eLearning practices will become normalised and anchored in the culture of the school, instead of being something new and different.

**Summary**

In summary, there are many issues around the implementation of eLearning practices across a school, what form the eLearning systems will take, what challenges will be encountered, and how the change will be led. What is not apparent in the literature is a clear suggestion of recommended or tested strategies of managing this change.

Careful planning is required to anticipate as many of the issues discussed above as possible, and sharing of experiences between schools might reasonably be expected to enable those still at the planning stage to benefit from the experience of others, avoid making similar mistakes and enable eLearning practices to be implemented across their own school in a more efficient and effective manner to maximise student learning outcomes.
CHAPTER THREE: METHODOLOGY

Purpose
The purpose of this research was to find out from leaders of eLearning in New Zealand secondary schools that have already implemented school-wide eLearning, what strategies were successful, what challenges they faced, and how those challenges were overcome. This will assist other schools still thinking about how to begin the process themselves to avoid making similar mistakes, anticipate challenges they otherwise would not have considered, and speed up the decision making processes to develop a set of strategies that have been successful in other schools, and fit with their own culture of learning.

Research Aims
To this end, three research aims were developed:
1. To investigate the types of strategies that have been used by leaders of eLearning in New Zealand secondary schools to enable eLearning practices across the school.
2. To investigate the challenges encountered during the implementation of eLearning practices.
3. To identify strategies that were successful and the reasons for their success.

Research Questions
1. What strategies have been used by leaders of eLearning in New Zealand secondary schools to enable eLearning practices across the school?
2. What challenges were encountered during the implementation of eLearning practices?
3. Which strategies were the most successful at enabling eLearning across the school, how were they identified as successful and why were they more successful than others?

Methodology
This research is based on the epistemological position that knowledge resides in the heads of individuals, and therefore knowledge of the strategies which have been used to implement eLearning practices in a school, and whether they were successful or not, is mainly held by the leader of eLearning within that school. Whilst there will be reports to the Board, notices on school websites, and voices of experience amongst other staff and students, the person with the best view of the whole process within the school will be the person responsible for change, and this may be the Principal, a Deputy Principal with eLearning in their portfolio or, in a particularly large school, a person with specific responsibility and title such as eLearning
Facilitator. From these people this research investigated their personal and organisational experiences in the process of implementing eLearning practices. Therefore much of the research was subjective and filtered through the participant’s own experiences and insights, and so needed to be carefully analysed to be able to draw comparisons between different schools.

**Qualitative and Interpretive Research Methodology**

As this knowledge is very “personal, subjective and unique” (Cohen, Manion, & Morrison, 2011, p. 6) to the leader of eLearning in each school, the paradigm this research operates within is a qualitative and interpretive approach to “understand and describe meaningful social action” (Davidson & Tolich, 2003, p. 27) around the implementation of eLearning. The research process sought knowledge directly from those leaders who are responsible for generating and using it, through personal interactions between the leader and the researcher to uncover personal accounts and opinions about their experiences with leading the implementation of eLearning. This allowed the researcher to “examine situations through the eyes of participants” (Cohen et al., 2011, p. 17). This was essential to maintain the integrity of the research, as any imposition of the researcher’s opinions onto the participant will reflect the researcher’s own views back to them, rather than those of the participant engaged with the research.

The most suitable methodology for this interpretive style of research, which is investigating the stories that surround different schools experiences with the implementation of eLearning, is a descriptive study (Cohen et al., 2011). This allowed the researcher to study a range of schools and describe their experiences in their own words, and then to draw comparisons between the experiences of the different schools. This means that each school was able to answer the research questions by describing the strategies they trialled, the various levels of success of each strategy, and the challenges they encountered in their implementation of eLearning. Each participant viewed the concepts of strategies, challenges and success differently, and so the researcher needed to describe participants experiences using their own words, and then draw comparisons between the different stories to identify common threads. This narrative approach to research fits the descriptive study methodology well (Cohen et al., 2011).
Research Methods Used

To enable the participants to tell their experiences in their own way, the research had two phases.

The first phase involved a questionnaire being sent to all New Zealand Secondary schools, to be completed by the leader of eLearning within the school (who could be the Principal, Deputy Principal or other member of staff with delegated responsibility as described earlier), or Principal if the process of implementing eLearning has not formally begun at that school. They would have the most knowledge to be able to easily complete the questionnaire, which describes the state of eLearning in their school at that time and summarises how they got there. Following this questionnaire, semi-structured interviews were used to unpack the experiences of some schools. The schools for this phase of the research were selected from those who volunteered to participate in the next phase at the end of the initial questionnaire. These semi-structured interviews gave participants greater opportunity to tell their experiences in their own words than in the questionnaire, and therefore allowed the researcher to get a “rich and deep description” (Briggs, Coleman, & Morrison, 2012, p. 24) of the processes and investigate the underlying reasons behind the decisions made during the implementation of eLearning.

Questionnaire

The first research method used was a questionnaire. This was chosen because questionnaires allow researchers to seek information from “large numbers over a relatively large geographic area” (Hinds, 2000, p. 43), therefore, in this case, enabling participants to engage with the research from wherever they are in New Zealand, and allowing a broader picture of the implementation of eLearning across the New Zealand schools. A questionnaire also enables the researcher to “convert into data the information they receive directly from people” (Tuckman & Harper, 2012, p. 244) and, applied here, measure the knowledge, values, preferences, and beliefs of leaders of eLearning in a range of New Zealand schools. This broad view would not have been possible with a more personal approach such as focus groups, but is possible through a broadly distributed questionnaire, which was distributed by email to all 491 secondary schools for which the Ministry of Education has an email address, with a link to a Google Form for the collection of responses.

Hinds (2000) described six key questions when designing questionnaires. The first asked who the questionnaire would be directed to, and has already been covered by explaining that the
person who is responsible for eLearning within their school would be the appropriate respondent to the research.

The second question asked how the researcher could be sure that the questionnaire would be received and acted on by that person. By emailing the questionnaire directly to New Zealand schools with a request to forward to the leader of eLearning (Briggs et al., 2012), with most addresses being an email account monitored by a member of the office staff who is able to forward emails onto the relevant person, the questionnaire will be delivered speedily to the relevant person. The second part of the question dealt with ensuring the person acted on the questionnaire instead of ignoring it, and that was addressed by the very nature of the questionnaire and research being about their work, and the particular group of people being targeted have a reputation for being collaborative and sharing of their experiences and practice. So by making clear that the purpose of the research is to help others do what they have already done, this encouraged them to share their own experiences and complete the survey.

The third question addressed the structure of questions, which were be a mixture of closed and open questions (Bell, 2010; Tuckman & Harper, 2012). The sequence started with closed questions to describe the nature of the school (without specifically identifying it), such as the age range of students it caters for, its geographic location in the country, number of students on the roll and decile rating of the community it serves. Questions then moved to open questions to describe their strategies and challenges in the implementation of eLearning, and finally open questions to enable respondents to describe the successes they have experienced and how they know the strategies were successful.

The fourth question focussed on the processing of questionnaire returns, which happens automatically. When the participants press submit at the end of the questionnaire, their responses are automatically entered into a Google Spreadsheet.

Addressing the fifth question, from this spreadsheet some automatic analysis of the results is possible, particularly with the closed questions, and updates each time there is a new response. However, the majority of the responses needed to be individually read, and required post-coding to categorise the participants responses with open codes (Hinds, 2000). Finally, to increase the response rate the questionnaire was designed using Google Forms which many participants would already be familiar with through their own work, and aligns with
the focus of the research being undertaken. The use of a familiar format, that they know will not take too long to complete in their busy lives, will encourage participants that it is a simple matter to engage with the research. The inclusion of a ‘progress bar’ at the bottom of the page gave them a clue as to how long it would take to complete, and so reduce the likelihood of them giving up on it part-way through. A clear description of the purpose of the research on the first page (Check & Schutt, 2011) should have served to engage the professional desire to share experiences of potential respondents, as those teachers who are engaging with eLearning are often following their own advice to students and being collaborative, sharing and reflective learners, and so would appreciate the opportunity to pass on their hard-learned lessons to others. Additionally, by distributing the questionnaire digitally, it was a straightforward matter to send a follow-up email a few days before the closing date to remind anyone who intended to respond but had not yet found the time that their response was still welcome. The use of appropriate reminders has been reported to boost response rates to 70-80% (Hinds, 2000).

The questionnaire (Appendix 1) was developed using the guidelines proposed by Hinds (2000), and trialled using colleagues who fit the selection criteria of being leaders of eLearning, but needed to be excluded from the actual sample due to conflict of interest. This trialling ensured the questions provoked responses which provided the information required. All information participants needed to be able to give their informed consent to participate in the research was on the page before any questions were presented, and consent was assumed to be given by the act of the participant completing and submitting the questionnaire.

**Interviews**

Following the questionnaire, a selection of those who volunteered for the second stage of the research were contacted and invited to participate in a semi-structured interview. To enable people to participate from around New Zealand, this interview involved the researcher travelling to meet the participant, or was conducted digitally through technologies such as FaceTime, Skype or Google Hangouts, and in one case was carried by phone call. This allowed the interviewees to choose a time that suits them (Bell, 2010), and location they were comfortable to discuss sensitive issues, such as their own office, and so increased the likelihood of them agreeing to participate. By using the data from the questionnaire responses, the researcher was able to select schools that appear to have the most experience to share, and represent the diverse range of schools within New Zealand.
The main advantage of an interview method for research is its adaptability, as it allows the interviewer to “follow up ideas, probe responses and investigate motives and feelings, which a questionnaire can never do” (Bell, 2010, p. 161). Hinds (2000) advises that interviews should be used when “in-depth information is required” and “the issues under examination would benefit from development or clarification” (p. 47). For this reason, the second research method to used was a semi-structured interview. This format gives the advantage of having pre-determined questions, from which responses can be easily categorised and compared between different interviewees. These structured questions were designed to gain a better understanding of responses to the earlier questionnaire, and serve to break the ice in the interview. However, from these structured questions came further inquiries that were unique to the responses just given, in order to further investigate the situations being described by the interviewee. While this unstructured part of the interview gave the most useful information to the researcher, it took a lot of work to analyse the data gathered to make it comparable to that collected in other interviews.

When planning an interview, there are several issues that need to be considered carefully. Bell (2010) describes a 21 point checklist for how to plan an interview, of which some points will be addressed here. The first point is to keep at the forefront of your mind what information you are seeking. This allows you to keep the interview targeted towards your study, and avoid getting sidetracked and wasting the time of both the interviewer and interviewee. Whilst planning and refining questions, always consider how the responses will be analysed. If the interviewer will be asking questions that will produce closed answers when they are after a deeper understanding of actions, then the analysis will not be able to address the research aims.

To prepare to conduct an interview it is important to have an interview schedule or guide to enable the interviewer to keep on track, ask questions in the pre-planned order, and provide common prompts if needed to get the interviewee talking, without pushing the interviewer’s own opinions or perspectives on the interviewee.

One of the key issues of interviews is ensuring that the interviewee’s responses are recorded accurately. To avoid having to write all the way through an interview, and inevitably make mistakes and miss things that are said, it is advisable to make an audio recording of the interview (Bell, 2010). However, this poses additional problems. Some respondents may not
wish to be recorded, particularly if the interview is around a sensitive topic, and so explicit consent needs to be given by the interviewee for the interview to be recorded, and in order for them to be able to give that consent they need to know exactly what will happen to that recording afterwards. This was dealt with through an Information Sheet (Appendix Two) which was emailed to the invited interviewees to inform them of the interview purpose and process, and then by them completing and returning an individual Consent Form (Appendix Three) to agree to the terms before the interview began. The way most recordings are used is to produce a transcript of the interview, so that all the words can be clearly attributed to each person (whilst maintaining anonymity of the interviewee). It is advisable to send a copy of the transcript to the interviewee to get their agreement that it represents the interview accurately, and once that agreement has been received the recordings can be destroyed.

This use of recordings and transcripts can also avoid the issues of bias (Cohen et al., 2011), as if the interviewer only makes written notes during the interview, they could easily miss things being said by the interviewee that they do not want to hear. By recording the interview and transcribing it, the exact words used in the interview are clear for further use. However, the issue with transcribing interviews is the amount of time. It is reported that it can take 10 times the time it took to conduct the interview to transcribe it, so a 1 hour interview can take up to 10 hours to transcribe (Bell, 2010). For this reason it is imperative that transcriptions are made as soon as possible after the interview to ensure that a written record is produced that can be verified whilst the memory of the interview itself is still fresh. Finally, it is imperative that the interviewer respects the time and effort put in by the interviewee to collaborate on the interview. The interviewee has the knowledge that the interviewer desires, and cannot get from any other source, and so they need acknowledgement of the value of the information they have shared. To this extent good manners go a long way to thank the interviewee for their time, and promises of transcripts, copies of final publications or anything else should be followed through.

The interview schedule (Appendix 4) was designed in accordance with the guidelines proposed by Bell (2010), and again tested on colleagues who were unable to participate in the actual sample due to conflict of interest to ensure the responses provided the desired information.

Sampling
A multi-method approach to sampling was used in this study, with the first method being a questionnaire using Google Forms, distributed to all secondary schools in New Zealand by email using the Ministry of Education schools directory. All 491 secondary schools the Ministry has email addresses for were contacted, and the email asked to be forwarded on to the relevant leader of eLearning in that school, whether that is the Principal, Deputy Principal, or other person with specifically delegated authority.

Using a Google Forms questionnaire was appropriate, as many of the target participants will be familiar with it through their own work, and so it will make the questionnaire more accessible to them. A Google Form also allows the rapid collection of data as all responses will be immediately available for analysis as the respondent clicks submit, allowing the processing of data to start almost as soon as the emails are sent out. Additionally, due to the electronic nature of the communication and questionnaire, it was a simple matter to send follow up emails to all schools, reminding those who had not responded, of the opportunity to participate in the research as the closing date approaches, and thanking those who have responded. As the questionnaire was anonymous, it was not be possible to tailor these communications. This addressed several of the key issues with questionnaires described by Hinds (2000). The questionnaire had a mix of closed questions at the start of the questionnaire to describe the setting of the school without identifying it, and then open questions which allowed the participants to describe their experiences with the different strategies they employed and the challenges they encountered. The closed questions allowed simple comparison of schools using the built in analytical tools of Google Forms to determine if there was a broad range of respondents, or if there were any trends. The open questions needed coding (Lofland, Snow, Anderson, & Lofland, 2006) to categorize trends and patterns as they emerge from the responses.

The last page of the questionnaire (Appendix 1) invited participants to volunteer for the next phase of the research, a semi-structured interview, and informed volunteers that a short-list of eight will be chosen based on the experiences they have shared in their questionnaire responses. This allowed the interviewer to “follow up ideas, probe responses and investigate motives and feelings, which a questionnaire can never do” (Bell, 2010, p. 161).

Hinds (2000) advises that interviews (Appendix 4) should be used when “in-depth information is required” and “the issues under examination would benefit from development or clarification” (p. 47) and so semi-structured interviews will allow a great level of investigation into the
process of implementing eLearning practices across that particular school. Structured interviews allow ideas to be compared between respondents, as exactly the same questions are asked in each interview, but a semi-structured interview combines this comparability with the flexibility of being able to explore ideas unique to each participant. Respondents to the questionnaire who volunteered for the second phase and appeared to have a more experiences to share, with a greater range of experiences to inform others, were invited to participate in the interview phase. Eight interviewees from a range of schools will provide enough breadth to compare trends within and between different types of school. This allowed the research to investigate schools from high and low decile communities, rural and urban settings, with large and small rolls, and from all around New Zealand.

The interviews were held either face-to-face or digitally through telecommunication technologies such as Skype and FaceTime. In order to ensure that all data is captured exactly as the interviewee says, all interviews were recorded, transcribed, and transcripts sent back to the interviewee for approval before the data gathered is used in the thesis. As it can take ten times the time to transcribe an interview as it did to actually conduct (Bell, 2010), it is imperative that recordings were transcribed as soon as possible whilst memories of the events are still fresh for both the interviewee and interviewer. This is another reason to limit the number of interviews to eight as time is a constraint, and therefore eight was recommended as a suitable number of interviews for the time available for this scale of research project.

Once transcribed, open coding practices were employed to identify themes, similarities and differences (Cohen et al., 2011; Lofland et al., 2006). Responses were read and assigned a code that summarised the ideas in each response. Later responses were read and either assigned the same code if they discussed the same idea, or a new code if it presented a new idea. This allowed responses to be categorised without being made to fit any preconceived ideas of the researcher. Initial coding took place as the interviews were transcribed, to pick out any broad recurring themes between the questionnaire and interview data. Following on from these initial observations, more focused coding took place to further analyse the particularly interesting themes and build a more elaborate description of the strategies and challenges leaders are facing with implementing eLearning in their schools. All coding took place digitally, where sections of the questionnaire spreadsheet and interview transcripts were tagged with key-words to allow them to be sorted in multiple ways, as the data dictates (Lofland et al., 2006). This allowed multiple codes to be assigned to a single data point, without requiring additional copies of each set of data for folk, analytic and methodological
coding files (Lofland et al., 2006). Particularly relevant will be any strategies that were deemed to be successful in all schools, or strategies that were successful in one type of school but not in others, as this will be useful information to schools still to start eLearning practices.

Data Analysis and Interpretation
Data collected through the questionnaires and interviews were analysed using an exploratory approach as explained by Guest, MacQueen & Namey (2011), where the content of the responses drives the findings. This allowed thematic codes to develop that accurately reflected the meanings and expressions of the respondents. Questionnaire responses were examined and similar ideas grouped together for each question. The same process took place using the transcripts of the semi-structured interviews, to allow comparison of similar ideas presented in different ways by the respondents. Due to the nature of the tool used to distribute, complete and return the questionnaires, the responses to individual questions were not linked with the same participants response to other questions. This means it was very difficult to identify the same participants responses to other questions, such as their school demographic data, and therefore further ensured anonymity. Because of this, each quote from the questionnaire responses has simply been attributed to ‘AQR’ which stands for ‘Anonymous Questionnaire Response’.

Issues and Challenges
One of the greatest challenges with the questionnaire was getting very busy people to respond. The questionnaire was emailed out to every secondary school in New Zealand, but I had no way of knowing how many of those schools it was relevant to (i.e. they had an eLearning program in place). Two follow up emails reminding schools of the opportunity to share their experiences each prompted a flurry of responses and a final response rate of 64, although two schools did contact me after the questionnaire was closed to apologise for not responding.

28 respondents to the questionnaire volunteered for the interview phase of the research. This made it relatively straightforward to select a shortlist of schools that represented a range of size, location, decile and progress in order to get a broad spread of responses. The challenge was arranging a time to conduct the interview, but this was assisted by the use of digital
technologies such as FaceTime, Hangouts and Skype as it was possible to arrange an interview at a time that suited the interviewee, and they were able to find a suitable location with internet access which in many schools is easier than finding a space with a phone! The interviews were carried out over a period of three weeks, which allowed for a prompt transcription process with transcripts being sent to interviewees just a couple of days after the interview whilst the conversation was still fresh in their mind.

**Timeline of Research**

Questionnaires were sent out on the 2\textsuperscript{nd} June 2015, and the online response form was closed to responses on 3\textsuperscript{rd} July 2015, giving respondents a month to participate if they wished to. Volunteers were contacted on the 21\textsuperscript{st} July to be invited to participate in the interviews, which were carried out between 23\textsuperscript{rd} July and 12\textsuperscript{th} August 2015.

**Ethical Issues**

Ethics in research is the concept of how we should treat others who are part of the research. Research can benefit all involved, the researcher by answering questions they have, the subject, especially if it has implications that will be good for them, and the wider community by providing new knowledge which may be of value to a wide group of people. However, there is always a flipside to the benefits, which are variously termed ‘burdens’ (Wilkinson, 2001) or ‘costs’ (Cohen, Manion, & Morrison, 2011), and it is the balance of benefit to burden that defines ethical reasoning. It is only since the 1970’s that ethics have been a significant consideration of researchers (Wilkinson, 2001), and so is still considered a new area of research with many issues yet to be considered. Nevertheless, the core idea is that ‘respect for persons’ is shown (Wilkinson, 2001, p. 15) and that there is a lack of respect if a researcher violates people’s rights and well-being. At no time can a researcher say that a burden to one individual is worth it due to the benefit it provides to another, as this is a breach of an individual’s right to autonomy. To enable research to occur where the subject could experience a burden and no directly associated benefit, the idea of ‘informed consent’ has arisen (Cohen, Manion, & Morrison, 2011; Wilkinson, 2001). The only burden experienced by participants in this research was time, and all participants personally volunteered to complete the questionnaire and some also volunteered for the interview phase. Although the questions caused participants to reflect on their own practice which is not always an emotionally
comfortable experience, several participants thanked the interviewer for giving them an opportunity to stop and reflect on their actions and so there is evidence that at least some of the participants benefitted from engaging in the research.

Informed consent to being involved in research has two aspects to it. The first is that participation is voluntary, and therefore participants cannot be coerced or forced into being involved. The second aspect is that participants should “know and understand relevant information about the research project they have been asked to become a part of” (Wilkinson, 2001, p. 16). This means that researchers cannot manipulate or deceive participants into agreeing to the research project. Instead, they need to “disclose relevant information about the project whether or not they are asked for it, and take steps to ensure that the subjects understand it” (Wilkinson, 2001, p. 16). This means that the issue of voluntary participation places a negative duty on the researcher, in that they are not allowed to coerce or force subjects to participate, whilst the informed aspect places a positive duty on them to proactively disclose relevant information so that potential participants are able to make up their own mind whether or not to join the project. By contacting a large group of potential participants, through emailing the questionnaire to every secondary school in New Zealand, I was able to effectively engage a sufficient number of volunteers to complete the research. Additionally, by using email to distribute the questionnaire it was a simple means of proactively explaining the purpose of the research and fulfil the positive duty of proactively informing participants of issues such as the purpose, risks, benefits, withdrawal and confidentiality (Cohen et al., 2011).

The concept of informed consent places the power back onto the potential participant, and respects their autonomy. This gives the researcher the view that individuals are best placed to judge their well-being, and to decide if a particular project will take them beyond their personal limits of well-being. However, it may be that an individual chooses to participate even though their well-being could be harmed, and may do so either by mistake, which could be due to not being adequately informed or understanding the information disclosed to them, or due to them deciding to make a personal sacrifice in order to help others. It is the researcher’s role to ensure that the participant is fully informed, and understands that information accurately and fully in order for them to be able to make their own decision. If the participant then chooses to participate in spite of a risk to their well-being, they have exercised their autonomy in making that decision.
In order that this research takes ethical considerations into account, the first page of the questionnaire clearly stated the purpose and aims of the project, and made clear that all responses would remain completely confidential and individual schools will not be able to be identified from the final report. If participants, having read this information, choose to continue with the questionnaire and submit it then they accepted that they are giving informed consent to the use of their responses. Those who volunteered and were selected for the interview phase of the research were sent more information via email prior to the interview describing the process, what would be included, assuring them of confidentiality and that they and their school will not be able to be identified, and that the interview would be recorded, transcribed and sent back to them for approval before being used in the research. At the start of the interview they had an opportunity to ask questions about the research to ensure they fully understand, and were required to sign a consent form that declares they have been adequately informed of these processes, understand them and give their consent for the data from the interview to be used in the conditions described.

The key ethical issue with this research was the maintenance of confidentiality. It is essential that no individuals or organisations are identifiable in the thesis. This was accomplished by the use of anonymous questionnaires that provided information to describe the context of the schools where the strategies are being implemented, without naming the schools. The first page of the questionnaire described the purpose of the research, and explained that by completing the questionnaire, participants were giving their informed consent for the use of their responses.

Some participants in the questionnaire chose to volunteer for the interview phase. By doing so they shared their contact details and so waived their anonymity. This was explained in the information about volunteering for the next phase, and, that although they are no longer anonymous, their responses will still be strictly confidential and that they will not be identifiable in the published work.

Of the 28 questionnaire participants who volunteered to be interviewed, eight were selected and invited to continue with the next phase. These eight participants were selected in order to cover the variety of secondary schools in New Zealand such as location, size and decile rating, and represented a manageable number of interviews in the timeframe available for this research. This was to ensure all interviewees were not, for example, schools in Auckland with a high socio-economic background which could make the research findings less relevant to
schools outside that demographic. Interviewees were sent information (Appendix Two) prior to the interview detailing the purpose of the research in more detail, and assurances of confidentiality. To ensure that participants are giving informed consent, they were asked to sign a consent form (Appendix Three) prior to the interview stating that they understand the purpose of the research, that interviews will be recorded and they were provided with transcripts of the interview to approve the data collected before it was used in the thesis.

**Conclusion**
This research collected the experiences of a range of New Zealand secondary schools, making it valid and relevant to schools from a variety of backgrounds and needs. It obtained a broad overview through the use of the questionnaire, and then a deeper understanding of a smaller sample of schools through the interviews. By comparing these data, it was possible to identify common strategies and challenges used for school leaders to enable a change to eLearning pedagogies in their school.

**CHAPTER FOUR: FINDINGS**

**Introduction**
The findings from the analysed data are presented below. Firstly an analysis will be given of the responding school demographics to show the spread of respondents, and demonstrate the validity of the data. The findings are then categorised into the following groups:

- purpose
- strategies
- challenges
- suggestions

Each of these categories is presented in the format of a general overview using the questionnaire data, then investigated in more depth using the interview data and comparisons between responses from the two methods are made.
Responding Schools
A total of 64 schools responded to the questionnaire. Although it was sent out to all 491 secondary schools in New Zealand, there was no way of knowing how many it would be applicable to. The first set of questions was to ensure a spread of schools were represented, and the following data were gathered.

![Circle chart showing year levels taught by schools responding to the questionnaire]

**Fig. 4.1 - Year levels taught by schools responding to the questionnaire**

Over half of the schools that responded to the questionnaire catered for students between Years 9 and 14. This is the standard age range for most secondary schools in New Zealand and so is expected to be the largest group. The second largest group was for schools known as ‘full-secondary’ in that they incorporate Years 7 & 8 as well as 9-15. In larger population areas students in Years 7-8 are often taught in separate ‘intermediate’ schools. However, in more rural areas the intermediate year groups are often combined into the secondary school, and so again having almost a third of responding schools identifying as teaching these year groups is to be expected. 13% of responding schools identified as teaching all year groups from 1-15, and these are likely to be rural and area schools where all year groups are taught on a single site to minimise costs and administration due to smaller populations. The smallest group of respondents was from schools that only taught Years 11-15 and are known as Senior High Schools. There are only a few of these in New Zealand as they are a new model of school structure. This questionnaire probably has a higher proportion of this type of school responding than any other, but their responses are minimal compared with the weight of other schools responses. No schools responded who identified as just teaching Years 1-8. This shows that the questionnaire reached its target of secondary schools.
The area of New Zealand with the most respondents was Auckland by far, with 28% of responses to the questionnaire being from schools identifying as being from Auckland. However, as Auckland is the largest city in New Zealand with almost a third of the country’s population, it has the most schools and so is expected to provide the most responses. Canterbury, Otago and Waikato each contributed 11% of the total responses. As they each contain a large city in addition to several towns across a large area of the country they contain a sizeable portion of the country’s population and so their frequency of responses is also expected. The remaining responses were distributed approximately equally across the areas of New Zealand, showing that the questionnaire was responded to by schools from across New Zealand.
Of the schools who responded to the survey, 36% identified themselves as having a roll of 501-1000 students, whilst 30% of schools stated a roll of 1001-1500. A roll of less than a 1000 would be a small roll for a secondary school in a large city such as Auckland, whereas a roll of over 1000 would be less likely outside of the large cities. This corresponds with the geographic data already analysed, and shows that a range of schools responded to the questionnaire. As the size of a school affects its funding, and economies of scale mean that larger schools have more flexibility with their budgets than small schools, it is important to include the voices of both large and small schools in this research.

![Community decile rating of schools responding to the questionnaire](image)

Fig. 4.4 - Community decile rating of schools responding to the questionnaire

Only 30% of the schools who responded to the questionnaire serve communities with a decile rating of five or lower, and 70% of respondents served a community with a decile rating of six or more. This could be because more higher decile rating schools are engaging in eLearning and so had experiences to share with the questionnaire, or it could be that fewer low decile schools wished to share their experiences, or had other priorities that consumed their time and prevented them from engaging in this research. In either case, it is important to note that most respondents to the questionnaire were from schools that serve higher socio-economic communities.

From the questionnaire, eight volunteers were shortlisted and invited to participate in the interviews. Of the interviewees, six identified as traditional secondary schools with Years 9-15, and two as full-secondary with Years 7-15. No full-school or senior-high schools volunteered for the interviews. This still allowed the research to focus on the core areas of study of
eLearning in secondary schools. Geographically, interviewees were based in Auckland (2 schools), Canterbury, Manawanui-Wanganui, Marlborough, Taranaki, Waikato and Wellington. This shows a good spread of schools across the country, which each have different needs, ideas and support in their eLearning experiences.

Three of the interviewed schools reported a school roll of <1000, whilst five reported rolls of >1000. This does not reflect the distribution of school sizes reported in the questionnaire, but is an artifact of the schools that volunteered for interview which was closer to 50/50 between schools with a roll below and over 1000 students. When reporting the decile rating of their community, interviewed schools came from deciles 2, 3, 6, 7 (2 schools), 8, 9 & 10. This was close to the same distribution of deciles in the questionnaire, and so reflects as accurate as possible range of decile rankings to the initial phase of the research. It is worth noting that there were fewer volunteers from lower decile schools, compared to the higher decile schools, and so it is worth considering why they did not want to share their experiences any further.

Purpose

Questionnaire
The most commonly reported purpose of implementing eLearning in schools was to integrate eLearning into the curriculum, with ten schools making comments such as “embedding of eLearning across all areas of the curriculum” (Anonymous Questionnaire Response (AQR)), often tied together with the desired impact on students, such as:

- We will integrate e-Learning into the curriculum where appropriate to enhance outcomes for students (AQR).
- To blend eLearning strategies in curricular programmes in all subject areas. The emphasis is on blending technology with robust and effective pedagogy to enhance learning and teaching (AQR).
- Use of digital technology to raise curriculum achievement (AQR).

Other commonly stated purposes included ideas around digital citizenship with statements like:

- Ensuring students become confident, safe and responsible users of technology (AQR).
- To incorporate eLearning into the curriculum as appropriate to create connected and creative learners (AQR).
- To develop students into capable digital citizens who conduct themselves in an ethical manner (AQR).

The goal of preparing students for a future where technology is ever more prevalent was also expressed by seven schools with responses such as:
To equip young learners with the skills and experience necessary to lead in the workforce we will incorporate modern tools to facilitate changes in learning (AQR).

To prepare students for working in a collaborative and connected world (AQR).

To create an evolving eLearning culture, promoting collaboration and innovation that equips students to be confident, connected, active, lifelong learners (AQR).

Interview

Fig. 4.6 - Purposes for implementing school-wide eLearning (Interview responses)

During the semi-structured interviews the responses to the purpose of implementing eLearning were similar to the questionnaire. The most common response was around preparing students for the future after school, with five of the schools interviewed expressing goals such as:

We’re going to try and future-proof them for the future (School1).

To equip some skills for the rest of their life because technology is not going away and if you ignore it as a school then you are really doing people a disservice (School3).

Teaching and learning needs to change if we are going to prepare kids for the 21st Century, and I know that’s a bit hackneyed but I think they need a different set of skills to what we are teaching them at the moment (School5).
It comes down to preparing them for the world they are already in, the digital world and the real world, the digital is part of the real world and they have to be in it and they have to be competent to cope with their futures (School8).

Increasing engagement was also identified by half the schools interviewed as a goal from their eLearning program, with statements such as:

> We knew students were engaging more when they were using digital technology than when they were just using traditional stuff in the classroom. And so probably the first push was we need to try and incorporate more digital learning in order to improve engagement (School2).

Research showed that including technology as part of a lesson did improve engagement and motivation for a lot of students (School3).

> We definitely saw eLearning as a way of increasing engagement in our junior students (School4).

> It does offer some really engaging opportunities for promoting learning (School8).

**Summary of Findings**

One observation between the style of responses was that the questionnaire contained responses that were appeared to be cut and pasted from documents such as mission statements and strategic plans, whereas the interview responses were more organic and off the top of the head of the interviewee. This suggests that the questionnaire responses were in several cases evidence of espoused theories (Argyris & Schön, 1978), whereas the interviews were evidence of theories-in-use. This could result in there being a difference in the data between the questionnaire and interviews in the nature of what is supposed to be happening in the schools and what is actually happening. However, as the interviewed schools also completed the questionnaire they will have had the opportunity to respond in both ways. A further opportunity for research could be to conduct a documentary analysis of policies, mission statements and action plans around eLearning in schools, and compare this to the data gathered from this research to identify if this supposition can be supported.

Finally, both the questionnaire and interview methods produced a high frequency in goals around preparing students for the future beyond school, suggesting that schools see the use of
eLearning as a tool that students will use throughout their life. As examples, respondents used phrases like “life-long learning” (AQR) and “future-proof” (School2).

**Strategies**

*Questionnaire*

![Bar graph showing strategies used to implement school-wide eLearning](image)

**Fig. 4.7 - Strategies used to implement school-wide eLearning (Questionnaire responses)**

To support their aspirational purpose for implementing eLearning, schools also discussed strategies they had developed around specific actions. By far the most common reported strategy used for implementing schoolwide eLearning was a professional learning and development (PLD or simply PD) programme for staff, with 21 schools discussing their strategies for this. Respondents described their professional learning and development strategy as:

- Ongoing and challenging but supportive PD (AQR).
- Sustained, regular PD around eLearning for staff on a weekly basis (AQR).
- Weekly, targeted, PD for all interested staff (AQR).
- Paid for conference attendance and formal study (AQR).
- PLD programme reflects needs of the staff (AQR).
- Regular PD time on a morning slot which reduces time issues (AQR).
- Staff ICT PD is mostly delivered by the lead team (AQR).
- Aligning PD to school goals (AQR).
- PLD encourages the staff to continue looking at how their teaching is enhanced and how learning for their students might be enhanced (AQR).
● Continued professional growth and increasing efficacy in the use of digital technologies to develop an environment of blended teaching and learning (AQR).
● Developing staff confidence and skill (AQR).
● Teacher only days focussing on showing the teacher's pedagogy that they could use (AQR).

The second most frequently shared strategy was the use of a team to implement eLearning rather than just a single leader, as described by 14 respondents. Statements included:

● Use of a group of keen staff as IT pioneers has been the breakthrough. They have formed groups right through the staff and have given the staff confidence to do keep developing (AQR).
● A strong and visible elearning lead team, all members are experienced teachers - more important than being a digital "expert" (AQR).
● An eLearning community within the staff- we share practice, exchange ideas and help each other (AQR).
● An eLearning Lead team where the strategic decisions are made, eLearning reps working in each faculty to support the staff in a practical manner (AQR).
● ICT lead teachers working with each Faculty/Department and delivering PLD [professional learning and development] (AQR).

13 schools described how they felt that software was an important part of their infrastructure strategy in their successful implementation of eLearning, with statements like:

● Finding an appropriate LMS (Learning Management System) which suited the needs of our students and staff and which was device agnostic (AQR).
● Implementing GAFE (Google Apps for Education) has enabled many subjects to have sharing and instant feedback of student work (AQR).
● Becoming a GAFE school (AQR).
● Using of 365, one note classroom [sic] (AQR).
● Introducing Schoology (AQR).
● Learning Google Classroom has made a huge difference (AQR).
● Using the technology as a staff as well - ie OneNote/Office 365 used for professional learning groups (AQR).
● Lots of staff PD with Google Apps (AQR).
● Most success in implementation of LMS and GAFE. Uptake is high. (AQR).
One concern that was expressed in several ways was enabling “all students to have access to devices” (AQR), and this was addressed by seven schools who stated a goal around student BYOD (Bring Your Own Device) to provide access of devices to students such as:

- Whole school BYOD in the near future (AQR).
- All students to have access to a device (AQR).
- Students will use their devices more, and more effectively (AQR).
- Deliver programs using student owned devices (AQR).

Finally, the next most commonly reported strategy was ensuring that the Senior Leadership Team (SLT) and middle managers of the school were supportive of the changes required, with statements like:

- SMT are vital but there is also Heads of Faculty without them nothing happens (AQR).
- Making sure the SLT are behind the vision (AQR).
- Strong curriculum middle leadership - needed to understand, lead and unpack constructivist pedagogical theory (AQR).
- Support from the BOT in terms of the initial infrastructure (AQR).

**Interview**

![Interview Fig. 4.8 - Strategies used to implement school-wide eLearning (Interview responses)](image)

In the interviews, professional learning and development was also commonly described as a very important strategy for the successful implementation of school-wide eLearning. This was described in various ways, such as:

We dedicated our TOD [Teacher Only Day] to looking at implementing digital technology more, so we ran almost like conference days where y’know, those of us
who can ran workshops of various things around it. Mainly around Google Apps [for Education] because we made the decision we would start using the google apps (School2).

Initially we did a couple of teacher only days, and we brought in some outside speakers and they said “this is what I do” and then we moved, that was sort of the inspiration and setting the target goal by showing this is what is happening out there and this is what people are doing already, and then we moved more towards department based PD [professional learning and development] where departments worked together around an area they wanted to integrate into the curriculum (School3).

We offered support all the way down the line in terms of snapshots of potential eLearning things so like ranges of eLearning tools that they might be able to use, Moodle workshops after Moodle workshop for beginners, advanced... We offered them in our formal PD [professional learning and development] time, outside our formal PD time, we sort of basically made it super easy (School6).

The lead team do a lot of one-on-one stuff, we funnily enough have not done a lot of whole school ICT PD [professional learning and development], personally I think that's a hole, but there's a lot of demands on school wide PD time for other things we do (School7).

When we do various sorts of PD… we've got the eLeaders supporting or working with them... Because obviously there is a side where you just have to upskill staff enough in the various things they are working with… They have to have training in just how to manage Gmail, and there was a lot of stress initially in moving from Outlook to Gmail... Kamar training, Hapara training, all of that had to happen, but predominantly it was training teachers in those GAFE tools, y'know in Google Drive, Docs, Sheets, Forms, Slides and so on. (School8).

The interviewed schools also all placed high emphasis on the need for a team of leaders to drive the implementation of eLearning:
I believe in other schools you sometimes get one person who is leading in this area, and that would be a very lonely job and I think that because here that right from the beginning there was a group of us who were keen to work together (School1).

We got together a group of one person from each faculty that was really interested in improving the use of eLearning in their faculties (School4).

This lead group had come out of the cluster and we tried to continue that process. And because that's formalised as part of the school's organisation it shows a level of significance and importance on it, so it's not something that people feel you can quietly say 'oh the Principal wants it, we'll just write a statement and then just totally ignore it’ (School7).

We actually clarified that we had the ICT Committee, on the one hand, and that was about infrastructure and wasn't really about learning, and then the professional learning team, and over time we've evolved a group of eLeaders… And a whole heap of those people are still people who are eLeaders within their curriculum areas (School8).

Each interview also revealed strategies used by the schools in relation to software infrastructure, such as:

We've got staff using google apps, wikis, various websites and different sorts, various Web2.0 tools, and we've been quite free in that way that people can use what suits them… we've got teachers who use Moodle, but because Moodle is so clumsy a lot are going to Google Apps, Google Communities. We've got a lot of [Google] Communities in our school for teacher PD [professional learning and development]… But equally we've got people using Edmodo, wikis, blogs (School1).

We decided to use Office365, and SharePoint, and Onenote (School4).

We've got Google Docs and all of that's in, Moodles in, Google Docs is in, MyPortfolio is in, SharePoint has always been here (School5).

We set up Moodle for the school (School6).
At the teacher level there was a reasonable impetus, but then when we went to the Google environment that really shifted to the kids (School7).

We were a trial school for Pond [Ministry of Education funded online resources], we went Gmail, we went Kamar [a learning management system], and we got Hapara [a tool to manage Google Apps for Education]. So you can imagine, a bit of shell shock for some staff, but we sort of planned it, we worked it through with training and PD and so on. And y’know, by now, I think people have pretty much got it (School8).

Summary of Findings
Results showcase the wide variety of options there are out there for leaders of eLearning, with Learning Management Systems like Schoology, Moodle and Ultranet, online document creation and storage systems like Google Apps for Education and Office365, and various additional options like Edmodo, Pond and MyPortfolio. The fact that these schools have all found success with these programs suggests that it is more important about how these systems are used rather than which one is used. Some schools have prescribed specific packages that must be used, such as a Learning Management System that must have certain documents uploaded for students to access, and links to other digital resources, whereas other schools give their teachers freedom to choose which tools they use, and how they use them. Whichever of these approaches is the right one could depend on a variety of factors, such as the types of devices already present in the school, existing teacher skill sets, and cost in time, money and resources of setting up new systems.

Challenges
Questionnaire
Fig. 4.9 - Challenges encountered whilst implementing school-wide eLearning (Questionnaire responses)

Infrastructure was the challenge most identified in questionnaire as being a block to the successful implementation of eLearning. This was described in many ways, such as “lack of UFB at the school”, “inadequate infrastructure (both getting it to school and within the school)”, “ensuring continuous delivery of wifi across the whole campus”, “issues with servers being overloaded” and “we catered for one device, but most have two and some have three” (AQR). However, these challenges were also often described as being overcome such as “wifi was initially a problem” (AQR), and through actions such as planning “lack of money wasn’t overcome, just took us longer to wireless all areas so we rolled it out in stages around the school” (AQR).

The next most commonly described challenge was the resistance of staff in changing their practice. This was described in comments like:

- staff reluctance to change and perceived difficulties (AQR).
- staff who don’t have time to try new ideas (AQR).
- staff reluctance to change at same rate as student BYOD uptake (AQR).
- passive resistance of staff (AQR).
- slow adopters not liking change (AQR).
- convincing some staff who were afraid of change (AQR).
- teacher resistance to change, lack of persistence if things do not work 100% the first time (AQR).
- convincing very good teachers of the merits of new approaches to learning (AQR).
one of the biggest challenges has been changing the view of staff and students that eLearning is a ‘big, new thing’, but rather seeing that is (sic) a tool to help you do what you already do well (AQR).

Different schools appear to have used similar approaches to overcome this significant challenge, such as:

- Gradual small steps, and SLT instilled a sense of urgency (AQR).
- Have a clear vision - ensure that SLT/Principal clearly communicates why/evidences etc. - have small steps so it doesn’t seem overwhelming - approach staff individually with heaps of support (AQR).
- Managing staff remains solutions focussed, listening and being responsive - judging when it is time to slow down a little, maybe giving PD [professional learning and development] time in departments. or smaller groups to consolidate some of the learning and when it is time to press on (AQR).
- Took a blended e-learning approach to ease the transition, meant teachers did not have to change everything overnight but could blend traditional/discursive/e-learning approaches (AQR).
- Extra PD, identification of champions (AQR).
- Align blended learning practice to appraisal and departmental planning (AQR).

A clear concern and challenge amongst schools was the amount of time needed to implement eLearning, with comments such as:

- Staff not having the time to implement (AQR).
- Time…. for staff to learn new skills (AQR).
- Time for staff to implement into their practice (AQR).
- The constant request is for time. The second is not to introduce new stuff before the last stuff is embedded in. In reality - there is never enough time to do everything and the exponential rate of development isn’t going to stop and wait while we catch up (AQR).

This was addressed in various ways such as:

- Slow and steady implementation (AQR).
- Stopped PLG, changed to targeted needs PD as requested (AQR).
● Let teachers work at their own pace, provide ongoing support as and when teachers want it via techy brekkies (sic), release time and one to one tutoring (AQR).

● Approach staff individually with heaps of support (AQR).

● Created a weekly PLD [professional learning and development] slot one morning a week. The school starts a bit late, we don’t have a meeting which gives 40 minutes to work as a group on projects (AQR).

As already described above, another key challenge identified was around students having access to devices for learning. This was shown in comments like “Not all students have their own device and the challenge is whether to make is compulsory, but in so doing making sure that it is equitable for all students. What device to use and whether we need to prescribe the device to make the experience the same for all.”, “lack of devices in a class”, “lack of suitable student owned devices” and “funding of the devices” (AQR). As identified above, several schools planned to address this through the implementation of BYOD strategies, although others were looking at how to provide devices for their students themselves such as “Students previously paid for textbooks for the year. We developed our own text material to exactly match our curriculum rather than use textbooks that only partially matched it. We then charged a Resource Fee similar to the cost of the textbooks and indicated that the device was free to students; it was access to the resources that they were paying the fee for” (AQR).

![Interview](image)

**Fig. 4.10 - Challenges encountered whilst implementing school-wide eLearning (Interview responses)**
Six of the schools interviewed identified infrastructure as a challenge they expected to encounter, and one of the remaining schools recognised it as a challenge they did not fully expect. Those who expected their infrastructure to be a challenge described it as:

I was worried about the wifi, because the history of our school, two years ago we couldn’t even watch a YouTube video in our school, then we got the upgrade and the fibre (School4).

The other one we were expecting was technical difficulties, in other words infrastructure not being up to the task. There’s nothing worse than walking into a class and expecting to do something and everything just falls over (School5).

Every year we buy another few COWs (Computers On Wheels), and there’s always pressure. They’re virtually 100% booked (School7).

The unexpected challenges can be more significant due to their sudden occurrence, as described by School7:

We had challenges with Google Apps [for Education] that we didn’t expect, in that it overran the school network and it just couldn’t cope. And basically everything went down, including admin email which is sort of disastrous. So that was unexpected, and is why we are being a little bit careful with BYOD, because we know our infrastructure has limits on it. So I think most of our challenges are infrastructure.

Unexpected challenges around infrastructure were also described by School2:

There’s always technical stuff you don’t expect. You think it’s going to run smoothly and everyone says don’t even think about trying it until you’ve got everything running smoothly, but no matter how much you think you’ve got it running smoothly you will get problems there, and unfortunately what I’ve found is that a lot of the staff, again the older staff, you’ll train them, you’ll say can you go and try it in the classroom and they’ll go and the first time it doesn’t work absolutely smoothly they won’t return to it. So there’s very little perseverance with some staff for any technical hitches you may have.. And that can be really frustrating, particularly as one of our values that we have from
when we developed the new curriculum is perseverance and yet the staff don’t demonstrate it when they get a small problem.

One of the areas that generated the most discussion in the interviews was that of staff resistance to change, which was highlighted by six of the interviewed schools as an expected challenge.

The teacher resistance is the biggest one you expect, okay, because you know that some teachers are reluctant to change. And for some it’s stepping right out of their comfort zone (School2).

The challenges, the main challenge, really is the teachers who are the slow or resistant to change (School3).

Well what I expected to encounter was a lack of staff skill, and I did expect a certain lack of desire to change. Again because it’s quite dangerous for them to change, you’ve got the community, you’ve got the students, you’ve got the school administration, you’ve got everybody expecting the kids to be sitting in neat little rows with you at the front writing on the board whilst they copy notes. And the most important thing is that 84% of them pass Level Two. They don’t actually care if they’ve learnt anything useful, as long as they pass Level Two! One of the complaints we get from teachers is “that’s fine, but it doesn’t work in my subject area” (School5).

A common approach to addressing staff resistance was summed up nicely by School6:

So I think the key thing is I expected resistance from the staff. I think that is the biggest one. The key thing is to make sure we come across as being supportive. So it’s not a big stick to wave at them saying you’ve got to do it this way, it’s an expectation that everyone would participate in someway but not necessarily that this has to become an all consuming thing. Going back to that think that all learning is learning, and so to separate it out as eLearning all we are doing really is facilitating ways for the students to learn in different ways. So I think the key thing has been to make sure we are supportive to our staff and to recognise the good work they are doing in rolling out this stuff, and not saying that they are not doing well enough and need to do this thing. And so planning to give them the time to come to grips with it. Time over and over again, if
you surveyed your staff and asked them what the roadblocks were, invariably they will
tell you that it's time, so if you want them to do something well you have to give them
the time to get their heads around it (School6).

An obvious challenge to overcome when implementing eLearning across a school is the
access students have to a device to engage in the learning activities. This was described by
several schools:

Well, the biggest challenge we had in the early years was lack of access to computers.
So, we planned that with our leadership team, and we talked about it with our
leadership team and that's why we have gradually had a lot of groups of laptops put
into the school, and agreement from them with our planning to look at students
gradually bringing their own (School1).

I suppose another challenge for us, because we are trying to push this more and more,
has been the access to the devices because some of our families just can't afford
them. And we're yet to insist every kid has one. But we are going to be moving that
way. Another problem we have is that often kids have got them, but their parents won't
let them bring it to school because the device they have may be a shared device and
the only one the whole family has got so y'know you're not going to allow that. We've
actually got an issue here because again, socioeconomic status, but not everyone has
got wifi at home, or not got internet access at home. They have their phones, but their
phones are very limited, the data plans are very expensive, so kids won't use their
phone plan to access school work, even though they probably can do. We've actually
had kids do assessments on their phone (School2).

Until we get enough devices teachers can't actually plan to use eLearning on any sort
of definite basis. Because we didn't really have enough devices, we had very few
bookable rooms in the school, so a lot of teachers were going "we're doing all this PD
[professional learning and development] but I can't do anything with my students
because I haven't got any gear" so the whole introducing BYOD [Bring Your Own
Device] push was in some ways the biggest challenge. So I've talked to the PTA
[Parent Teacher Association] a couple of times, the BOT [Board of Trustees] a couple
of times, to actually get them on side, and it was actually only at the end of last year
that the BOT actually said “yes we are happy to become a BYOD school (School3).

This was addressed in ways such as implementing BYOD to replace inadequate school resources:

We set a marker point actually of May/June last year because we recognised that if we were going to go BYOD this year the Board would have to make a decision by then so we could communicate to parents etc. So that was actually quite good because it gave us a sense of a point we had to work towards”, and “implementing BYOD in Year Nine this year, 9-11 next year, and 9-13 the year after (School8).

The plan is to have all of Year 11, 12 and 13 remove their access from the COWs, (Computers on Wheels) so they will bring their own devices (School7).

The types of BYOD you can have, so you can have mandatory or buy in, and then you can have device specified or not specified. So we have the loosest of those arrangements in that the students don’t have to bring them but can, and the device isn’t specified. And at this stage it’s only open to Y11, 12 & 13 (School6).

I guess the other thing we did was because our BYOD this year was opt in from both the kids and the staff, because the kids could opt in at Y9, and we didn’t know how many would choose it, in the end it was 7 out of 11 classes at Y9 decided to do BYOD, and this also meant if teachers really didn’t want to do it they didn’t have to. And in fact we were over subscribed, there were more teachers who wanted to do it than could end up doing the BYOD (School4).

We’ve got a lot of Netbooks in our school, and COWS and things like that, and we’ve got a lot of our Senior, last year we sent out a letter asking our Senior students to bring their own device. They still haven’t all got them, but a lot have. So started with the seniors because we thought our community would be happier with that, happier to buy a device for their students that they know are going to be using it (School1).

And some schools also described how they helped students who hadn’t been able to bring their own device:
We don’t really have an answer for that. We have a partial answer that is loan devices inside the school. But that's sort of acceptable at Year Nine where it doesn’t matter so much if they don’t do homework. It’s not really going to be enough at Year 12 and 13. So we still have a way to go there. But we have managed this year with 30 chromebooks (School8).

We are still working out exactly how that's going to work, and clearly there will have to be some sort of library system but we don’t know what (School7).

We liaised with the local sellers of the computers which were {omitted} and we didn’t want to be involved with schools loaning out devices when things were broken, because students might start relying on that and they might not look after them as well if they had a whole load of school devices. The local vendors are the ones that give out a loan device, so there was a clear policy about what the school was going to do (School4).

One interesting comment by two interviewed schools was about the opposite of keeping the momentum going for reluctant staff, and was around controlling the pace of change for those early adopters that were racing ahead, and managing the Next Big Thing:

A group of DPs (Deputy Principals) might have a presentation on whatever it is, and suddenly say ‘Oh, now we’ve decided we’re going to do such-and-such…’ The fact that we’ve had planning documents and goals that had been accepted by the leadership team has been very useful… and we can go ‘hold on, we all agreed what we wanted’ (School1).

The biggest thing that's kind of a real frustration with these things is that technology changes so you get a teacher goes to a course and comes back saying “oh I love Google Classroom and I can’t see a point in having Moodle anymore because classroom is better” and then that filters around the staffroom and everyone goes “oh lets do classroom”... Change in technological landscape makes implementing something and expecting it to be successful year on year rediculously hard (School6).

A surprising observation by two schools was around the student reaction to eLearning. Two schools reported how they had to implement training programs to show the students how to
use the devices for learning, where they had simply assumed that the students would figure it out for themselves:

I think I thought kids would be more onto it than they were, with using their device. Same with teaching you expect students to know more than they do, and I think that I was a little bit surprised, and even at that induction day I think that I started a little bit high in terms of how much I wanted to get done, I think next year I would simplify it in terms of what I wanted to get done. That was one thing that surprised me (School4).

And what we are going to do, we’re going to run, even though the Y10s have had a certain amount of eStuff happening in computer rooms and things, we are going to work out a little student eCompetency, and run that in Term 4, to get them in a better space to start in Y11… I think we’ll develop some sort of ePassport for kids, and we’ll give it to teachers and we’ll be saying “plan your first units of work so that, and get it sequential, so students learn to do this this and this” I don’t think we’ll necessarily want to have one expert who says I’ll train all the kids or anything, the teachers have to take responsibility sometimes, and it has to happen a bit at a time. And there’s all the stuff about naming documents and folders and things (School8).

And a very surprising comment from one school about students who actively resisted the introduction of eLearning:

The ones that hit us that we weren’t expecting were student resistance, which totally blindsided me. They are worse than the teachers in some ways as far as conservatism goes… The high flyers don’t want to change because they quite like the order of things. They’re at the top of the heap and know what to do, and want to maintain that position at the top of the heap so their resistance is quite difficult to overcome because they’re often in a position of power. They’re often prefects, school leaders, often, you know what I mean? So they wield quite a bit of influence around the place as we all know. There’s another group too, those in the middle also don’t want to change. Cause we all know we’ve got kids in our classroom who’ll copy off the board and actually do nothing, they’re not at home. That’s nice and calm for them because we’ll ensure they pass but they don’t have to do very much. So they don’t want to have to think either, if they can help it. And of course the ones at the bottom of the heap struggle greatly because you’ve just taken all their comforts away from them. I’m not
saying there's a huge amount of copying off the board, but I take some fairly low ability classes and get them to copy it and they are all happy because they think they're learning because that's what learning is all about, and they don't have to do anything. Don't have to think. That's a bit of a pessimistic note, isn't it! We're slowly getting over it, but I'm surprised it's taken so long (School5).

Whatever challenges a school faced, there were several common approaches to dealing with them. The one that came out the most was the value of a clear strategic action plan. This allowed expected challenges to be considered in advance, and responses built into the plan, and when surprises occurred the plan was a roadmap to guide the leadership team through it and stay on course.

We can always say 'look, go back to the plan' even now I can go back to the document, I mean it's now quite old but we did really well at the time with it and we can go 'hold on, we all agreed what we wanted' (School1).

The first thing I realised was we didn't really have a strategic plan with regard to eLearning at all, and so set about creating a whole strategic plan based on the eLearning framework and based on exemplars from other schools, and we split the plan into two main areas, which were connectivity, on the one hand, which is the availability of the stuff required for eLearning, and confidence and capability, on the other hand, being the way people used that and the way it was pushed out through all the people in our school community, so it was staff, the parents, the students. And then within that plan there are obviously goals, examples of which are sustainable and future proof systems aligned with national compliance standards, or setting up a robust student management system, or responsible spending and accountability, or the ability to respond to change quickly. So these are all goals with broader school goals. (School6).

We developed in 2013 an eLearning plan, because [at the start] we weren't strategic about it, we were just playing around. It was just unstrategic playing and learning, and anything we do will mean we know more than we did before…
What happened was, we sat down and developed an eLearning plan, because it was enormously difficult to get coherence so we worked this thing out, and it did become very powerful because, it took us half a year probably, to get the first version out… We rewrote this {strategic plan} in term 1. We added a strategic overview because although we had it there we didn’t really write it in. So we made it clearer. What we’ve done, where we’re going, and who leads it, because it was a bit muddy (School8).

Summary of Findings
In summary, there are a great many challenges faced by schools implementing school-wide eLearning. The challenges of infrastructure development, staff resistance and student access were identified in both the questionnaire and interviews and therefore are highlighted as being key issues. The issue of time was identified in the questionnaire, but not as much in the interviews. This could be because it had already been addressed in the schools interviewed, or they had existing structures in place to provide time to teachers for professional learning and development and curriculum development.

Schools used similar approaches to overcome these challenges. The most commonly described solution was having clear strategic and action plans to guide them through the process, which included clear goals around developing the infrastructure needs of the school, clear professional learning and development plans and targets with time allocated to enable this learning to occur, and plans around the school provision of devices or the rollout of BYOD including communication with the community. This allowed them to anticipate and avoid some challenges, smooth the journey through others, and have a reliable resource to fall back on when unexpected challenges occurred that needed a quick but effective response.
Suggestions

(Interviews only)

Fig. 4.11 - Suggested strategies for implementing school-wide eLearning (Interview responses)

At the end of the interviews, as a closing question, interviewees were asked for three suggestions they would give to another school starting to implement eLearning in their own school. Their responses were grouped as follows:

Strategic Plan:

You need a strategic plan that links to the school’s strategic goals, and to the New Zealand Curriculum. Our latest plan, which still fits under the umbrella of our original one, is linked to other eLearning types of plan where it goes through a series of goals, all different areas, right across the school. The planning, you need to work on it to make it clear what you want to achieve (School1).

I think getting your vision in place is really important. I think making sure people know why you are doing it is really important (School2).

I think a really practical strategic plan. We did ours for three years and then updated it each year. That allows you to hook some budgeting in, it allows you to plan ahead, we know that we really need a TOD (teacher only day) next year it can’t be about that other thing it has to be about this. If you signal ahead you are often more likely to be successful in getting stuff. So ours isn’t a waffly plan going on about learning outcomes. It was a really practical one that states this is what we are going to get done in terms of the physical things, in terms of the amount of PD [professional
learning and development] things like that. And then you feel very pleased because you can tick off things, it’s not a whole bunch of “wiffly waffly” hard to achieve things. You can say “yeah we did all that last year, that was really good!” and everyone who is part of it can feel really pleased with themselves (School3).

Write a full strategic plan and use it. And sometimes I go back and realise how many areas I’ve been dropping the ball in lately! I think that's really good for managing what you do. I’ve been in this game for a while but before that I was in IT, and one of the things I’ve noticed about eLearning is that people are inclined to think it’s a magic bullet for everything. That it’s better for kids to be carrying an ipad around that to write on a piece of butcher’s paper in a group. You need to know what you want to get out of your eLearning, otherwise you are just throwing your money into a pit!...

Be prepared to be flexible. So our strategic plan has yearly or even more frequent revisions, which aren’t really revisions to the plan because it is a plan, but are annotations that we record as things change, saying why it was no longer a reasonable thing to do that, or we are holding off until we’ve evaluated it more, or whatever (School6).

Say why you are doing it. Keep saying why to staff, students and parents. They all need to know why. And also you need the passion of the why to help you when the inevitable logistical hassles come up along the way (School8).

Professional Learning and Development:

Make sure you do lots of training, I mean lots and lots of training. And I think give people time, time to make changes to their programme or to what they are doing (School2).

Support your staff. But don’t let them take advantage of you. And by that I mean it’s really possible to offer a huge range of possibilities for them to upskill themselves, have them choose to do what they jolly well want to do, and then say that they didn’t have enough help. You’ve just got to be understanding of your staff and what their strengths and weaknesses are, and where they will lead you if you let them (School6).
eLearning Leadership Team:

You need a group of people. I feel that’s why it’s worked well here. So if you were to put one person in charge of all the work and give them lots of time you still might not make any progress. I guess what I’m saying is start with the early adopters, get them together let them share their practice and become enthusiastic about what they are doing. And then share that out with the rest of the staff. Because we’ve always had in our group, we’ve got people from every learning area of the school, which means they have then gone back to the other staff they are working with (School1).

Get passionate people involved who might not be the senior leadership, and for us the senior staff needed to be responsible for the project but it’s actually been the next level down and it's been a combination of HODs (Heads of Department) and people who are interested who have actually driven the project. And it's good that I’m in a school where the Principal would let that happen, in other schools they'd say “oh this person has to run it” and that person may be stretched in their job they might have no skills or particular interest no time to go off on conferences or anything. Just think about who the people are and they don't have to be the top people in the school to make a difference (School3).

The concept of the lead team, they are the teachers who are a little further ahead with things, and it's to encourage them because they move a little further ahead and it pulls everyone else along with them (School7).

Senior Leadership Support:

You do need to be working with your leadership. The leadership team in the school needs to be on board. We’ve always had one of our leadership team as part of our group, even though they’ve never actually been leading the group (School1).

Top of the list is SMT/HOFs (Senior Management Team/Head of Faculties) need to be either beaten into submission, or be totally supportive (School5).
Infrastructure:

I think the best thing we've done is move the school to Google Apps, so a web based platform available 24/7, and free to everybody, works across a range of devices. I don't think we could have made any progress if we hadn't made that move (School3).

Make sure your infrastructure is right, that it can handle what you'd like to do with it and you have good technical support (School4).

Technical support. They've got to buy in to the vision as well (School5).

Understand the infrastructural needs, and try to get some coherence to the bits of the infrastructure. Like are you going GAFE or are you going the Microsoft option that's now out there. Like make a decision so that your bits of infrastructure fit together coherently. Get advice to help you with that (School8).

Pace of change:

Make sure it was gradual changes... I wouldn't advise people go whole heartedly. That's what I've tried to do, do it quite gradually, y'know, because we all realise by now that we have to do it, or they do seem to realise that they are going to have to do it (School2).

I think that we did take things a little slower than some of the other schools around us (School4).

I actually think you can't do it instantly in one go. You have to do it progressively in pieces. Like Google Classroom we set it as a parameter. We did a bit of PD [professional learning and development], all staff PD, last year, and we set it as a parameter. You have to have one class on classroom. Most staff would have all their classrooms on google, and other things as well as classroom (School7).
Summary of Findings

So to summarise, the key suggestions made by the interviewees to start eLearning in a school were to build a team who could lead the change, comprised of individuals who may or may not be senior leaders, but were passionate about the new pedagogy, and had the support of the Senior Leadership Team and therefore the authority to make changes. This team needs to develop a vision to guide them, linked with the vision of the school, so that the need for the changes could be communicated easily to staff, students, parents and the wider community.

Once this vision is in place, a strategic plan needs to be developed that includes professional learning and development of staff and students, so that classroom practices can change. Infrastructural issues should be included in the plan, such as connecting to Ultra-Fast Broadband, the provision of wifi across the school grounds, and setting up core software such as Google Apps for Education, Office365, Moodle and similar. Also included in this plan will be considerations for the pace of the change. Not too fast that the reluctant staff get left behind, but not too slow that the early adopters get frustrated with the lack of progress. The use of clear minimum expectations of use by staff will give the reluctant or slower staff guidelines about what they need to do, and enable clear, targeted professional learning and development to be provided to get them over the line. By giving the early adopters freedom to explore possibilities and approaches, as well as the same minimum standards, consistency will be achieved across the school whilst still allowing experimentation and innovation.

Schools that are unsure about how to develop their strategic plans, would do well to visit other schools to see how they have done it. Each school is unique, so it may not be the ‘school down the road’ that is the best example, or the one that started eLearning first, but by finding schools that have common features with their own, a school should be able to pick out the approaches that will provide a better fit and put together its own plans based on the experiences of others. Each school interviewed built its own strategic plan to address unique and specific needs, but some investigated schools they considered to have similar situations to themselves, in things like size and socio-economic background of their students, in order to get ideas to start developing their own plan.

Key Findings
In summary, there are many parts to the process of implementing school-wide eLearning. With regards to the purpose of implementing eLearning, both the questionnaire and interview responses highlighted the importance to schools of preparing students for a future world where different skills and habits of mind will be required to those taught to previous generations. Questionnaire responses linked this to ideas of digital citizenship where students are able to manage themselves online and using digital tools, whilst only one school discussed this in the interviews. Respondents to the questionnaire also discussed integrating eLearning into the curriculum alongside traditional teaching practices, an approach often referred to as blended learning (Ministry of Education, 2014; Sheninger, 2014b; Shepherd, 2013), whilst increasing engagement was discussed as a reason for implementing the new pedagogies during the interviews.

When finding out about the different strategies used to implement eLearning, the importance of a team of leaders to drive the changes was identified by many schools in both the questionnaire and interview responses. This was often described as being made up of staff from different teaching areas and different levels of responsibility in order to provide leadership to all areas of the school, and the importance of having Senior Leadership Team support for the group, especially if there wasn’t a member of the SLT as part of the team. The crucial process of delivering effective professional learning and development was discussed by almost every school that responded, with many different approaches described, and different ways of finding the needed time to make the professional learning and development effective. Planning of core infrastructure was discussed, especially around the adoption of different software packages that students would use for learning, such as Office365, Google Apps for Education, Moodle, Ultranet, and others. Each school had very good reasons for its particular choice of software platform, and this suggests that any of the packages are suitable for purpose, so schools can simply use the one that suits them better for whatever reason.

Both the questionnaire and interviews highlighted the issues of hardware infrastructure as being a particular challenge. However, hardware is one challenge that was easily predicted and could be largely overcome with careful planning, however that wouldn’t prevent surprises such as servers being overloaded or external internet connections being cut off. Staff resistance was another challenge identified in both the questionnaire and interview as anticipated, and again was addressed largely by planning and conducting a thorough and carefully scaffolded professional learning and development program, including encouraging
staff to share their experiences and highlighting early successes and ensuring an adequate provision of time.

Student access to devices for learning was another anticipated challenge reported in both the questionnaire and interviews, and this was again largely addressed by schools through careful planning. Strategies to overcome this included the gradual increase in school owned devices such as class sets of iPads, chromebooks or laptops that could be booked by teachers, or the implementation of BYOD programs so students brought their own device to school each day.

Other challenges brought up during the interviews included the more capable staff getting excited about the ‘Next Big Thing’ whilst many other staff were still working on the basics, and the danger of existing work being devalued when it still had worth and merit to continue. Again this was addressed by consulting the strategic plan and seeing if this new thing, whether an approach like flipping the classroom or new software like Google Classroom, fitted into the overall plan, or whether it caused conflict with the direction of the project. Finally, it should not be assumed that all students would be instantly on board with using eLearning tools. Many students are quite happy and successful with things as they are, and some others may struggle to adapt to the new approach. Planning consultation and training with students on how to use devices for learning will help make the implementation of an eLearning program much smoother.

Finally, the key suggestions to schools about to start planning their own eLearning approach is to build a team of cross-faculty staff who are passionate about changing their practice, and help them develop a vision in line with the school goals with support from the Senior Leadership Team. This team then needs to develop a detailed strategic plan including the building of infrastructure, both hardware and software, and implementing professional learning and development for both staff and students with ample time built in. This will allow progress to be measured, and unexpected challenges surmounted, as the new practices are implemented.
CHAPTER FIVE: DISCUSSION OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

Introduction
The data gathered through the questionnaires and interviews, and reported above, shows that one of the key reasons for schools embarking on implementing eLearning processes, is to prepare students for a rapidly changing future world. This is consistent with reports describing how the world is changing, and that teaching students the same information and skills as before will no longer meet their needs (Johnson et al., 2014; O’Riley et al., 2014; Sheninger, 2014b). The use of eLearning tools is seen as a way of preparing students for a more collaborative workplace, where technology is an essential part of all roles. To enable a change in pedagogy to include eLearning practices across a school, a range of strategies have been employed by the leadership of different schools. Schools have built specialised eLearning teams to plan and manage the required actions. This team is often made up of representatives from across the school and either has a member of the Senior Leadership Team as a part of the team (but not necessarily as the leader of the team) or has the clear support of the SLT. This team is usually responsible for developing a strategic plan to manage the change in pedagogies, including planning for changes to infrastructure and, most importantly, professional learning and development to overcome the certainty of staff resistance and manage the pace of the change to ensure that staff maintain the momentum. As part of this plan, schools have addressed how to ensure students have access to devices for eLearning, by developing plans such as school-provided devices and Bring Your Own Device programmes for students.

These findings are supported by the main suggestions from the interviewed schools, which gave advice including building a team, who are supported by the Senior Leadership Team, and then developing a vision to tie the changes to the school values and strategic plan.

Discussion of Findings
The finding that schools feel the need to use eLearning to prepare students for the future world of work is supported by the vision of the 21st Century Reference Group that “every young New Zealander is a confident, connected, lifelong learner equipped to live a full and active life, and contribute to a thriving and prosperous economy” (O’Riley et al., 2014, p. 4). This is because schools believe that building skills in “creativity, communication, collaboration,
critical thinking, problem solving, technological proficiency and global awareness” (Sheninger, 2014b, p. 23) will better prepare students for the world of work as we rapidly approach the third decade of the 21st Century, as opposed to practices that were developed for the first public schools in the early 20th century.

As the use of technology in the lives of teachers and students continues to grow (Degenhardt et al., 2010) there will be an ever increasing integration of technology between our normal and learning lives. Before technology like smartphones, to find out what was on TV or at the cinema required looking up the listings in the newspaper. Today, students are more likely to use the built in guide in their TV, or an app to find out what time the movie is on, watch the trailers for a couple of different movies if they cannot decide what to watch, and book their tickets online whilst travelling to the cinema. This change in approach to using technology means that the use of textbooks as the sole source of information is no longer relevant, and due to the rapid rate of change in many subjects, textbooks can be out of date almost before students get hold of them. For these reasons, technology can help prepare students for the rapidly changing world as the latest information will always be accessible. Students are living in the information age, while many schools “continue to operate under the constructs, ideas, and assumptions of the industrial age” (Sheninger, 2014b, pp. 21–22). The only way for schools to prepare students to be successful citizens in this information age is to operate in that way too, and this is why a shift to eLearning practices is required.

In order to make the necessary shifts in practice to enable eLearning practices across a school, the findings show that one of the key strategies to success is the building of a team to lead the change. This is supported in the literature by Kotter's (1996) idea of a ‘guiding coalition’, where a group within the organisation is brought together to enable the consideration of different viewpoints around the issue. In the case of enabling eLearning to occur, this guiding coalition is usually comprised of representatives from the different departments within a school, as the approach of a history teacher to using eLearning tools would be very different to that of a physical education or music teacher. This is why it is essential for a group to lead the change so that all the different voices within the school feel they have been represented, and so consideration has clearly been given to how the changes to practice would work in each learning area. By having a team working together, they are able to “be the pillars of their respective institutions and focus on solutions rather than problems” (Sheninger, 2014b, p. 31) and “inspire and lead development and implementation of a shared vision for comprehensive integration of technology to promote excellence and
support transformation throughout the organization” (International Society for Technology in Education, 2009, p. 1).

The actions of the leadership team are able to address the “interconnected questions of what, why, where and how” (Sheninger, 2014b, p. 32). To address the question of ‘why’ the change is needed, the eLearning leadership team needs to develop a vision. This should support the school’s existing vision and goals, so that it is clear that the changes being implemented are in support of existing progress, rather than an additional burden being placed on teachers. The development of a vision allows the team to start “convincing all stakeholders why a school needs to change” (Sheninger, 2014b, p. 33). The development of a clear vision is also step three of Kotter’s eight-stage process of creating major change (Kotter, 1996, p. 21), where he describes how a vision will “help direct the change effort” (p. 21), as during the process of implementing the change if anything new occurs that is unexpected, the vision can be referred to to evaluate if it helps the school work towards the vision or not. This vision needs to be communicated effectively with the various stakeholder groups in order to establish the need for the change, and a sense of shared ownership developed.

Once the vision is established, then the various strategies required to accomplish it need careful consideration, and a strategic plan developed (Kotter, 1996; Ministry of Education, 2014). The first consideration that most schools think of is infrastructure (Ministry of Education, 2014). The findings of this research show that every school considers infrastructure such as internet bandwidth and speed, wifi coverage and student access to devices as significant issues, which are amongst the first to be considered. However, these are the most straightforward challenges as they simply require time, thought and money to be accomplished. By contacting the local telecommunications company, information can be obtained about the provision of ultra-fast broadband through fibre optic cabling in the area. If this is not yet available, then multiple copper broadband connections may be possible to provide greater bandwidth to allow more simultaneous connections. The provision of wifi coverage across the school requires network technicians to plan cabling projects so wifi access points can be connected in each area. Again, this is a simple logistical challenge that requires time, thought and money. It can seem like a big job before it is started, but once it is under way it can be done a bit at a time and seems less of a mountain.

By completing these tasks, or even just by getting started on them, the eLearning team will be “empowering broad-based action” as the school cannot move to eLearning practices without
these connections, and “generating short-term wins” (Kotter, 1996, p. 21) as the staff and students start to be aware of the changing environment and possibilities. In addition to the internet connection issues of infrastructure, the eLearning team needs to consider how students will be able to access the internet to use eLearning tools. Will a BYOD programme be implemented and so students provide their own devices, and if so is the school going to specify what type of device or leave the choice open to the students? Or is the school going to provide devices, and if so what type, how many, will students get to take them home? These questions all need careful discussion, but the focus point needs to be around how to meet the newly established vision. The findings of the research show that there was much consideration about device types that will be allowed under a BYOD programme, but does this conversation help to achieve the vision and goals as discussed by Kim et al. (2013)? The first consideration is how to get devices in the hands of students for learning, whether through BYOD or school-owned systems, and then decide which devices would be best for the learning activities, or indeed if any would be suitable.

Coupled with the idea of what hardware is required to build eLearning practices within a school is the need for software to support the learning activities. There was a common theme that some sort of core software package is required, in order to set minimum expectations of staff in their adoption of the new tools. The software used by schools included Learning Management Systems such as Moodle and Ultranet, and cloud based productivity suites such as Google Apps for Education and Office365.

The eLearning leadership teams decided which of these systems best met their needs and would help them to work towards their vision, contrasted with the requirements these systems have in terms of hardware, cost and maintenance. By making this decision the team will be “empowering broad-based action” (Kotter, 1996, p. 21) as without these systems there is limited ability for teachers and students to interact online during their learning activities. Once the system was chosen and set up, the team established criteria for their use. By setting minimum standards such as uploading documents that already exist to a cloud based server so students can access them whenever they need to do, the team will be “generating short-term wins” (Kotter, 1996, p. 21) and showing the staff that they are capable of making a change in their practice.

By enabling many of these small scale wins across the school, an atmosphere of success will develop and encourage those who have not yet completed the same tasks to engage,
especially with the support of their close colleagues who have already done it. As these basic actions become familiar, then showcasing staff who have done more adventurous learning actions and the successes they have had with their students will encourage other staff to continue to explore and progress. This is referred to by Kotter (1996, p. 21) as “consolidating gains and producing more change”. As long as the pace of change is managed so that the slower adopters do not feel left behind, more adventurous and technologically skilled staff can continue to be encouraged by the eLearning team to explore and investigate new tools available to them through eLearning, and share their experiences and successes with the staff to “reinvigorate the process with new projects, themes and change agents” (Kotter, 1996, p. 21).

To ensure that this pace of change and adoption of technology is managed, a careful and thorough professional learning and development plan needs to be built into the strategic plan. This should include the minimum expectations required of staff, such as uploading course information about topics and assessments, and how the eLearning Team will support them to do this. Some staff will be content with a handout detailing the steps required, and will be able to go away and do it themselves, whilst others will need to be sat down and walked through it step-by-step, several times, until it becomes familiar to them. Identifying which staff fall into each group and making sure all staff are suitably catered for is essential to maintain their engagement with the change. If the capable staff are made to sit down and go as slow as the slowest person, they will become frustrated and disengaged. Whereas is the pace is too fast then the slower adopters may simply give up. The demands of an effective professional learning and development programme are outlined by Cardno (2012, p. 100):

- caters for teachers and managers;
- meets school-wide, team and individual needs;
- is strongly linked to the achievement of strategic goals;
- is underpinned by sound principles of educational leadership; and
- is organised as a planned and cohesive programme.

By making the professional learning and development programme an integral part of the eLearning strategic plan, with a focus on meeting the vision and goals of the project, these criteria will be addressed and the programme should be successful for all involved.
One of the key considerations identified through the questionnaire responses was the issue of having enough time to implement a successful professional learning and development programme, and there were several innovative solutions to this problem. Some schools had students starting later on one day, such as by not having form time on that day, and so freed up a block of time each week where all teachers were available to work in groups on projects related to eLearning. Others utilised the extra time available in secondary schools when senior students were on study leave for external examinations, and ran workshops for staff to build skills in specific activities. Other schools used more traditional practices, such as regular weekly after school workshops, or dedicating teacher only days to eLearning. By developing an action plan, it was clear to schools that dedicated time for eLearning professional development was required, and so each school came up with a solution that best fitted their own unique situation.

The biggest challenge faced by schools, that wasn't overcome just by planning for it, was the issue of staff resistance to the planned changes. Whilst some staff wholeheartedly embraced the idea of implementing eLearning, others were not immediately convinced. The reasons for their lack of enthusiasm were varied, from the extra workload that would be required, to the concern that students were succeeding already so why change anything, to a concern that new pedagogies might actually decrease achievement, and of course a perceived inability to use technology.

The use of a carefully designed professional learning and development programme, that scaffolded the skills teachers were expected to have, was reported to allay the fears of staff that they simply couldn't do it. The provision of time within the school day, or the removal of other workload requirements such as unsuccessful initiatives, may enable the staff to work on developing the required teaching materials to use with eLearning. At first these materials would take longer to produce than their traditional materials, but as staff grew more practiced the time required would decrease and the time supplements could be decreased. Finally, the showcasing of how eLearning tools have successfully improved achievement within the school, especially within the resistant staff members own subject area, demonstrates how the new tools can help students to learn and be even more successful. By “visibly recognising and rewarding people who made the wins possible” (Kotter, 1996, p. 21) the eLearning Team will be able to show others how success can occur, and “encourage risk-taking” (Kotter, 1996, p. 21) to gradually get all staff on board with the change.
The suggestions given in the interviews can be distilled down to a few key ideas. Firstly an eLearning Team needs to be assembled to lead the change. They need to have the clear support of the Senior Leadership Team so that they have visible authority within the school to make changes. This is the ‘guiding coalition’ of Kotter (1996, p. 21). This team needs to firstly work to develop a vision for what they hope eLearning will accomplish in their school (Kotter, 1996). This is crucial to enable all future work to be referred back to the vision and ensure that efforts are going to work towards accomplishing it. Following the development of this vision, a clear strategic plan is required before any work towards meeting the vision actually starts. This will ensure that all actions are coordinated and scaffolded in order to support the development of staff and students. The action plan should include both concrete challenges such as infrastructure development, and less tangible challenges such as staff professional learning and development. With the systems in place, and the staff adequately trained and motivated in using them to meet the vision, change in classroom practice can start to occur. At this point eLearning can be considered to be enabled across the school, and then the pace of development can be managed to ensure the changes continue to move the school towards meeting the vision, and ultimately that the practice of using of eLearning tools in the classroom is ‘anchored… in the culture’ (Kotter, 1996, p. 21) of the school and becomes the new normal.

Research Question Outcomes
The first question of this research was “what strategies have been used by leaders of eLearning in New Zealand secondary schools to enable eLearning practices across the school?”, and has produced a large range of answers, but some are much more common than others. Firstly, many schools developed a team with the explicit focus of leading eLearning. These team members were often drawn from various levels of the school, and usually came from across all the different learning areas. This ensured that each staff member saw that they would have been represented in the planning of the change. Most schools then developed a vision and/or a strategic plan. Those schools which reported the most progress has usually produced both a clear vision and a detailed strategic plan to guide their decision making.

Actions included in the strategic plan included the installation of a fast and reliable internet connection, such as ultra-fast broadband, and the deployment of wifi access points to provide coverage across the school campus. Without these hardware infrastructure considerations, then devices would not be able to reliably connect to the internet and so teachers could not
rely on students being able to connect when they needed to for their learning. Core software infrastructure such as a Learning Management Systems and/or an online productivity suite was often stated as being a very useful strategy, as it gave teachers a clear starting point to shift their practice, and was something that all teachers would be able to use in common to provide some consistency for students as they transition between learning areas. Student access to devices was usually addressed by schools implementing BYOD systems. Some schools permitted students to bring whatever type of device they liked, as long as it met certain minimum specifications such as screen size and battery life, whilst others limited the students choice to a certain type of device, or even a specific model. Each school had very good reasons for its choice in this matter, and so it is a case of whatever is determined to best suit the school’s circumstances.

Finally, the biggest strategy in terms of ongoing time commitment was an effective professional learning and development programme. Expecting teachers to simply figure out for themselves how to use these new tools for learning was not considered by any schools, and every participant in the research had detailed plans for providing the time and scaffolded support needed to get the motivated staff going, and gently bring along the resistant staff through minimum expectations, guided workshops, and showcasing the possibilities and potential outcomes for students learning.

In addressing the second research question “what challenges were encountered during the implementation of eLearning practices?”, each school raised issues that were unique to them. For this reason it is essential that each school develops its own strategic plan, rather than adopting one developed by another school, in order to ensure that as many potential issues as possible are considered and planned for. However, there were also several challenges that were described in common by many schools. Infrastructure was always an immediate concern, as it was an immediately visible challenge to the eLearning Team. How do we actually get an internet connection that is fast enough and reliable enough to use for learning? How do we install enough wifi access points to cover the school, how many will we need and how much will they cost? These were the immediate issues that several schools reported getting bogged down in, and so took longer to get into the pedagogical questions. By careful planning, and the allocation of time and money, these immediate challenges can be overcome, which is supported by Kotter (1996, p. 21) when he described “getting rid of obstacles” as being a step in enabling change. The detailed planning of infrastructure development will overcome most obstacles, but there will still be challenges when unexpected or uncontrollable
issues arise, such as the internet cable being cut by road workers, or a school power-cut. Careful planning can also take into account contingency plans for events like these.

Resistance to change was another challenge anticipated by most schools. This was dealt with in various ways, but usually included effective, scaffolded, professional learning and development programmes that took into account the needs of individual staff, often informed by staff surveys to measure progress and gaps in the training programme. The showcasing of success was also used in many schools to show how even the most unlikely staff member was able to succeed with the new tools, and that it wasn't something that only the younger teachers were able to do. By showing that anyone could learn it if they made the effort, and setting clear, easily achievable, minimum standards, staff were gradually brought on board.

Several schools described how they included 'stealth' training, by asking staff to complete online questionnaires to gather opinions about a certain issue, or sharing documents using online repositories rather than simply email or paper copies, and so over time as they became more familiar with the digital tools they were more open to using them in their own classes. Student resistance was mentioned alongside staff resistance, and to address this several schools had established student training systems. This was in recognition of the fact that, whilst students were usually capable of searching YouTube and using social media, they often did not have the necessary skills to use the devices for learning. Linking specific skill workshops with aspects of Digital Citizenship, such as digital literacy, helped to prepare students for eLearning in the classroom and made the blending eLearning activities into the classroom smoother and more successful.

Finally, the third biggest challenge schools faced was around student access to devices. Several schools reported how they had sets of bookable devices, such as netbooks, ipads or chromebooks, and these were being used as teachers decided they were needed. However, these schools also recognised that this limited eLearning opportunities to during school-time, and so did not meet the anytime-anywhere ideal of lifelong learners. Therefore, these schools were often looking to switch to BYOD systems so students were able to continue with their eLearning activities outside of school hours. Schools who are just starting their eLearning planning are more likely to be considering going straight to a BYOD system, to get the maximum benefit of eLearning in the minimum time. However, there are significant concerns around asking parents to provide devices for students, not least which device is the most suitable and the cost. Schools reported that consultation with the community was vital in
sharing the vision of why they were going to be asked to provide students with devices, and that this led to a significant engagement in the change by the community. By outlining what the school would be doing along the lines of building infrastructure, and training staff and students, the community was appreciative that it was a joint effort and the cost was not all being placed on them, which helped to engage them in the project.

The final research question was “which strategies were the most successful at enabling eLearning across the school, how were they identified as successful and why were they more successful than others?”. It is quite clear from the findings of this research that having a team to lead the change to eLearning pedagogies was a successful strategy across many schools. By having a team made up of staff from all departments in the school, as well as members from different levels in the hierarchy, the team represented all the areas of the school and so the staff perceived that their perspectives would have been considered.

The eLearning team developing a vision gave clear guidance about why they were implementing the change. This was successful because, when unexpected challenges arose, the eLearning Team were able to look back at the vision and ensure they planned their way through it whilst remaining true to other strategies they had implemented, as opposed to a quick response that might conflict with other processes already underway.

A detailed strategic plan was considered a very successful strategy by many schools, as it enabled them to plan ahead in the long term, up to 3 years ahead, and therefore allocate resources, such as funding and time to the project, well in advance of them being required. The use of a strategic plan gave the eLearning Team a measure of their success, as they were able to tick off actions as they were completed, and so encouraged the continued momentum of the change process. Ensuring that infrastructure and Professional Learning and Development steps are explicit in the strategic plan, allows a whole school perspective of the change, as the infrastructure changes are concrete and visible, whilst the learning of staff is less easy to measure.

Relevance, Limitations and Implications
The findings of this research will be of use to Principals of New Zealand secondary schools who are contemplating how they can enable eLearning to take place across their own school. The experiences of other schools and the suggestions for how to implement eLearning will inform their own process, but it is worth noting that every school that participated in the research did things slightly differently, and so each school needs to go through the process themselves to suit their own unique situation.

Whilst this research has been based on the experiences of New Zealand secondary schools, the outcomes are broad enough to be applied to many other educational organisations. New Zealand primary and intermediate schools also operate under the requirements of the New Zealand Curriculum (2007), and so will be able to relate to many of the issues, challenges and strategies presented here. Overseas educational organisations may also be able to relate to the broad findings, such as of the need for a team to lead the change, developing a vision, and what needs to be included in a strategic eLearning plan, but they will have additional expectations and constraints not considered here.

A practical, positive implication of this research is that school principals who follow the recommendations may find it a simpler process to enable eLearning to occur in their school, than trying to figure it all out themselves. This may make the process of actually implementing eLearning pedagogies in the school smoother, which may make it easier for the teachers and students, and therefore may have an impact on student learning outcomes much more quickly. This will mean that the students will gain the most possible benefit from the adoption of eLearning practices in their time in the school.

One difficulty with this research was in getting lower decile schools to volunteer for the interview phase. Whilst 30% of the schools who responded to the questionnaire served decile five communities or lower, only 14% of the schools who volunteered for the interview phase were from decile one to five schools. This does bias the findings slightly towards higher decile schools, however there are many findings in common between the lower and higher decile schools to see that the issues raised affect nearly all schools to some degree. This allows the researcher to make the generalised statements above, and the generalised recommendations below.

Another limitation of this research is that it focussed on the actions of leadership, by consulting with those same leaders. Therefore their perspective of challenges and successful strategies
may be different to those who are having to actively implement them. However, as the focus of the research was on the actions the leader needed to take to enable the implementation of eLearning to occur, it would be difficult for anyone else to answer the questions fully.

**Recommendations**

To successfully enable eLearning in a school, the leader of the school needs to initiate the following steps:

1. Build a team to lead the change. This should be representative of the school to engage the whole staff.
2. Instruct the team to develop a vision for eLearning within that school. This should be tied to the existing school vision/mission statement in order to create continuity, and demonstrate that this is not a new target, but rather a new approach to addressing existing goals.
3. Share the vision far and wide, with staff, students, parents, community and feeder schools.
4. Instruct the team to develop a strategic plan to give clear guidelines of what needs to be done. Any issues unique to the school should be considered, as these may produce challenges other schools have not faced. In the plan ensure the following are covered:
   a. Infrastructure (hardware): Internet access is vital for eLearning. Make sure it is fast enough for all the extra devices that will be in school and that all parts of the school can access it.
   b. Infrastructure (access): Will the school provide students with devices? Will you implement BYOD? This question needs to be considered with regards to the unique situation of the school.
   c. Infrastructure (software): What will the core system of eLearning in your school be? There may already be an established system that will suit. Some cost, others are free. Each school will choose a different system, or combination of systems, to suit their needs.
   d. Professional learning and development (staff): Find out what the skill levels of your staff are and build a programme to get them to meet a set of minimum expectations. Then keep going. Ensure to plan for sufficient time for staff to learn new tools, and then more time for them to change their practice.
e. Professional learning and development (students): Do not expect all your students to be digital natives who intuitively understand how to use all the different parts of your eLearning systems. They will need training. Plan for this.

Further Research Opportunities
There is scope to widen the existing research by employing new methods to collect data from more schools. This would provide an even greater amount of data than was possible in the time available for this research, and therefore allow more comparison of the similarities and differences between different types of school. As this research only interviewed eight secondary schools it is difficult to extract generalised findings of challenges that affect certain types of school, such as high or low decile, rural or urban. This research simply aimed to ensure that as wide a range of schools as possible participated, by expanding the samples more fine tuned recommendations for different types of schools may be possible. This may need to wait a few more years to allow time for more schools to begin their eLearning journey and so have experiences to share with future researchers.

As this research focussed on New Zealand secondary schools, there is also scope to investigate if it does in fact apply to New Zealand primary and intermediate schools, or schools in other countries. The same tools as used in this research could easily be applied to a different group of participants, and the responses then compared with these findings.

Additionally, as mentioned earlier, it is possible to expand this research by conducting a documentary analysis of the schools interviewed, and interviewing more schools to expand the data, to investigate if the formal eLearning plans are being implemented as intended. This could include looking at how the vision of eLearning aligns with the wider school focus, how the professional learning and development programme for both staff and students supports the change to eLearning pedagogies, and how the various stakeholder groups are consulted and involved in the planning and implementation process.

Finally, this research could lead to a longitudinal study examining the process of enabling eLearning implementation in several schools. This survey could engage with a wider range of participants such as middle leaders, teachers, students and caregivers, as well as leadership,
and therefore develop a much deeper understanding of the challenges schools face, and how the strategies used to overcome the challenges are actually implemented.

**Conclusions**

This research has provided an insight into the challenges leaders face as they strive to enable eLearning practices in their school. Many of the challenges school leaders face are similar, such as financial constraints, staff resistance and time to carry out effective professional learning and development to build the capacity of staff to make the change in their practice. However, as each school operates in a unique set of circumstances, each school has developed slightly different strategies to address each of these challenges, and leaders should look at the different strategies described in ‘Chapter 4: Findings’ to find strategies that are most likely to fit in their particular school environment for each challenge.

It is the researcher’s hope that the findings and recommendations contained in this report will benefit school leaders and make the process of enabling school-wide eLearning slightly smoother. If one school uses this research to avoid making a mistake that would cost money and adversely impact student learning outcomes, then this research has been worth the time of the researcher and the 64 participants who shared their experiences.
References


Appendices
Appendix 1 - Questionnaire

Implementing school-wide eLearning practices questionnaire

Title of Thesis: Strategies for successfully implementing school-wide eLearning practices into New Zealand Secondary schools

My name is Robin Eyre. 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 identify strategies that have been successfully used by leaders of New Zealand secondary schools to implement school-wide eLearning practices, the challenges they faced and how they were overcome.

I request your participation by completing this online questionnaire, which should take no more than 10-20 minutes.

Neither you nor your organisation will be identified in the thesis. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Dr Jay Hays and may be contacted by email or phone.
Phone: (09) 815 4321 ext 8599
Email jhays@unitec.ac.nz

Yours sincerely,
Robin Eyre

UREC REGISTRATION NUMBER: 2015-1024
This study has been approved by the Unitec Research Ethics Committee from 6th June 2015 to 8th June 2016. 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.

*Required

School background
1. **Year levels**
   What year levels does your school cater for?
   *Mark only one oval.*
   - [ ] 1-6 (primary)
   - [ ] 1-8 (full primary)
   - [ ] 7-8 (intermediate)
   - [ ] 7-10 (junior high)
   - [ ] 1-15 (full school)
   - [ ] 7-14 (full secondary)
   - [ ] 9-15 (secondary)
   - [ ] 11-15 (senior high)

2. **Location**
   What area is your school in?
   *Mark only one oval.*
   - [ ] Auckland
   - [ ] Bay of Plenty
   - [ ] Canterbury
   - [ ] Gisborne
   - [ ] Hawkes Bay
   - [ ] Manawatu-Wanganui
   - [ ] Marlborough
   - [ ] Nelson
   - [ ] Northland
   - [ ] Otago
   - [ ] Southland
   - [ ] Taranaki
   - [ ] Tasman
   - [ ] Waikato
   - [ ] Wellington
   - [ ] West Coast
3. **School roll** *
   What was your school role on the 1st March this year?
   *Mark only one oval.*
   - 1-100
   - 101-250
   - 251-500
   - 501-1000
   - 1001-1500
   - 1501-2000
   - 2000+

4. **Decile** *
   What decile rating is the community your school serves?
   *Mark only one oval.*
   - 1
   - 2
   - 3
   - 4
   - 5
   - 6
   - 7
   - 8
   - 9
   - 10

5. **Rural/Urban** *
   Is your school considered to be in a rural or urban area?
   *Mark only one oval.*
   - Rural
   - Urban

6. **SNUP** *
   Has your school been ‘SNUP’d’? (SNUP is the ‘School Network Upgrade Project’)
   *Mark only one oval.*
   - Yes
   - No
   - Scheduled to happen in the next 12 months
7. eLearning Plan

Has your school developed an eLearning plan for implementing eLearning practices across the school?
Mark only one oval.

☐ Yes Skip to question 10.
☐ No Skip to question 8.
☐ We are working on it Skip to question 10.

No eLearning plan

8. No plan

Why have you not developed a plan for implementing school-wide eLearning practices at this point?

--------------------------------------------------------
--------------------------------------------------------
--------------------------------------------------------
--------------------------------------------------------

9. Intentions

Do you intend to develop a plan for implementing eLearning in the future, and if so how long do you think it will be before you start?

--------------------------------------------------------
--------------------------------------------------------
--------------------------------------------------------
--------------------------------------------------------

Skip to question 17.

eLearning Plan
10. **Strategies**
Which of the following have you planned/used to implement school-wide eLearning practices? (Check all that apply)
**Tick all that apply.**
- Included eLearning in the school goals
- Written a strategic plan for eLearning
- Assigned specific responsibility for eLearning to a member of staff
- Installed wifi in selected areas of the school
- Installed wifi across the whole school
- Purchased devices for use in classrooms (e.g. pods of ipads, chromebooks, netbooks etc)
- Ran staff PD specifically for eLearning
- Implemented a BYOD programme
- Consulted with parents about eLearning
- Consulted with students about eLearning
- Other: .................................................................

**Goals**

11. **Goals**
What are your goals around eLearning? (This could be stated in your school goals, mission statement, eLearning policy or similar)
 ........................................................................................................
 ........................................................................................................
 ........................................................................................................
 ........................................................................................................
 ........................................................................................................

12. **Progress**
Do you think you are making progress towards these goals, and how do you know?
 ........................................................................................................
 ........................................................................................................
 ........................................................................................................
 ........................................................................................................

**Strategies**
13. **Successful strategies**
Which strategies do you think have had the most success in working towards your goals, and how do you know?

14. **Unsuccessful strategies**
Which strategies do you think have had the least success in working towards your goals, and how do you know?

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**Challenges**

15. **Challenges**
What challenges have you faced whilst implementing eLearning practices?

16. **Overcoming challenges**
How did you overcome these challenges? For example, what new actions did you take to overcome the challenge, or how did you change strategies to avoid the challenge?

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**Volunteering for the next phase**
The next phase of this research project involves interviews with leaders of eLearning who have interesting experiences to share with others. The idea of this is to share good practice and a full
range of experiences, challenges, and barriers to success, so those still to start their journey into implementing school-wide eLearning practices can benefit from the lessons of those who have gone before.

These interviews will take 30-40 minutes, and can be conducted either face-to-face at a location of the interviewees choosing such as their school, or via video conferencing technologies such as Skype, FaceTime or Google Hangouts.

If you would like to volunteer for this phase of the research, your and your school’s responses and identities will remain confidential and will not be identifiable in the published research.

17. Volunteering *

Are you interested in being part of the interview phase of the research?

Mark only one oval.

☐ Yes

☐ No

Stop filling out this form.

Contact Details

If you would like to be involved in the next phase, please enter your email address below. Your responses to the rest of the questionnaire will still be held confidential and your identity will not be disclosed in any way. A short-list of volunteers will be produced using your questionnaire responses. This short-list will then be refined to eight interviewees who represent a range of school backgrounds. If you would prefer to keep your questionnaire responses anonymous, you can email me at meyre@j0l.com to express your interest in being involved with the interviews.

18. Email Address
Appendix 2 - Information Sheet

Title of Thesis: Enabling school-wide eLearning practices in New Zealand secondary schools: strategies to overcome challenges

My name is Robin Eyre. 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 identify strategies that have been successfully used by leaders of New Zealand secondary schools to implement school-wide eLearning practices within their schools, the challenges they faced and how they were overcome.

I request your participation in the following way. After collecting data through a questionnaire I will be interviewing eight volunteers, selected based on their responses in the questionnaire. In this interview I will be collecting data using an interview schedule and should take 30-40 minutes. The interview can either be conducted face-to-face at a location of the interviewees choosing such as their school, or via video conference technology such as Skype, FaceTime, Hangouts etc as preferred by the interviewee. The interview will be recorded, and a transcript provided to the interviewee for checking before data analysis is undertaken.

I invite you to be a part of this phase of the research, and would appreciate being able to interview you at a time and location that is mutually suitable. If you agree to this I will be asking you and your Principal to sign a consent form regarding this event. If you change your mind, you will be free to withdraw up to a week after being provided with the interview transcript for checking.

Neither you nor your organisation will be identified in the thesis. If you have any queries about the project, you may contact my supervisor at Unitec Institute of Technology.

My supervisor is Dr Jay Hays and may be contacted by email or phone.
Phone: (09) 815 4321 ext 8599 Email jhays@unitec.ac.nz

Yours sincerely,

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CONSENT FORM - ADULTS

DATE:

TO: Robin Eyre

FROM: [participant's name]

RE: Master of Educational Leadership and Management

THESIS TITLE: Enabling school-wide eLearning practices in New Zealand secondary schools: strategies to overcome challenges

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 the interview will be recorded, and I will be provided with a transcript (or summary of findings if appropriate) for checking before data analysis is started. I also understand that I may withdraw myself or any information that has been provided for this project up to one week after I have been provided with a transcript for checking.

I agree to take part in this project.

Signed: ____________________________

Name: ____________________________

Date: ____________________________

UREC REGISTRATION NUMBER: 2015-1024

This study has been approved by the Unitec Research Ethics Committee from 6th June 2015 to 6th June 2016. 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 4 - Interview Schedule

Interview Schedule

Check interviewee read information sheet
Confirm signed consent
Confirm recording and transcript
Any questions before starting

1. When and why did your school decide to start using school-wide eLearning practices?

2. What goals did you set around school-wide eLearning, and how did they fit into your existing plans?

3. What strategies did you use to implement school-wide eLearning practices, and did your strategies change as the project developed?

4. How successful or unsuccessful were those strategies at supporting your goals, and how did you know?

5. What challenges did you expect to encounter when you were planning to implement school-wide eLearning, and how did you plan to overcome them?

6. What unexpected challenges did you encounter, and how did you overcome them?

7. What are the top three suggestions you would give to a school about to begin their own school-wide eLearning project?