THE DISTRIBUTION OF INSTRUCTIONAL LEADERSHIP IN eLEARNING CLUSTERS: AN ECOLOGICAL PERSPECTIVE

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ABSTRACT

This study explores educational leadership within and across two of NZ's eLearning clusters. Two complementary perspectives of educational leadership are used to frame the investigation: instructional leadership and distributed leadership. The research was conducted approximately nine months after the cessation of a two-year Ministry subsidy for the employment of 12 ePrincipals and at a time when Ultrafast Broadband was imminent for nearly all NZ schools.

The literature review explores aspects of two areas related to eLearning leadership: conventional educational leadership in 'bricks-and-mortar' schooling contexts and eLearning/eTeaching in virtual schooling contexts. Data was gathered from semistructured interviews with twelve school-based research participants (ePrincipals, eTeachers, Site Supervisors and Principals) across two of NZ's eLearning clusters and four National Officials with responsibilities for wider forms of eLearning. The findings are presented in a manner that attempts to capture directly the research participants' voices, while still maintaining confidentiality and anonymity. The findings are discussed using an ecological perspective of eLearning as the unifying framework to explore the leadership across nested and interacting layers, from the micro-level of an eLearning class to the macro-level of NZ's system for secondary education.

The major findings from the study indicate that educational leadership in eLearning clusters is complex, relies heavily on goodwill and collaboration, and occurs in a challenging environment. Within an eLearning cluster the leadership of eLearning/eTeaching is distributed primarily across the ePrincipal, eTeachers and Site Supervisors who each assume complementary leadership roles. A raft of recommendations, across all ecosystem levels of eLearning, is proposed for leaders to consider when initiating change to strengthen their practices and policies with respect to enhancing eLearning and eTeaching.

GLOSSARY

Terminology for eLearning research is confusing and evolving swiftly, reflecting equally rapid technological change (Voogt & Knezek, 2008). This is problematic because different authors use and interpret various terms in an assortment of ways. This research uses the terminology below in a very specific manner that is suited to the research context of eLearning in NZ; however this may not be typical of other eLearning contexts. In order to clarify the research project and to avoid any misinterpretation, the glossary is presented at the outset.

Term	Definition for this research
asynchronous	Refers to any type of communication where interactions take place at separate times and usually from different places. It is the predominate mode of communication used in email, learning management systems (e.g. Moodle) bulletin boards, wikis, blogs, websites and text messages.
blended learning	Refers to face-to face classroom learning that is supplemented with online activities in order to enhance the instruction. It is sometimes also referred to as 'hybrid learning'. This is *not* the type of eLearning provided by NZ's eLearning clusters.
eLearning	In this research, the terms 'eLearning' and 'online learning' are used exclusively to refer to the fully online virtual learning provided by NZ's eLearning clusters. Note: the usage of these terms in this research differs from that in some other sources where they may be used more generally to describe both fully online learning and also blended learning.

eLearning cluster	A group of NZ secondary schools that collaborate to provide distance teaching and learning primarily through regular timetabled synchronous videoconference classes and the use of other technologies.
eLearner	A student enrolled in a course provided by an eLearning cluster.
ePrincipal	The person employed by an eLearning cluster to provide the educational leadership and management required to support and run the online courses. Sometimes other labels are used by the eLearning clusters for this position e.g. eDirector. However, for the purposes of this research, the term ePrincipal is used exclusively.
eTeacher	A teacher who teaches an online course provided by an eLearning cluster.
ICTs or ITs	Information and Communication Technologies (ICTs) or Information Technologies (ITs) both refer to digital technologies that are used to provide and support teaching and learning through enhanced communication and information sharing. Examples of ICTs relevant to this context include: videoconference equipment, document cameras, websites, mobile phones, computers, digital resources, interactive whiteboards and phones.
Site Supervisor	The Site Supervisor is the teacher at each contributing school who takes overall responsibility for the eLearner(s) at that school.
synchronous	Any type of communication where interaction between participants occurs simultaneously. Examples relevant to this research include videoconferences, face-to-face conversations and telephone calls.

videoconference (VC)	A synchronous conference involving two or more people at different locations using video, audio and/or web-based technology to communicate.
VC class	A VC class comprises an eTeacher and the eLearners enrolled in that class. Typically the class meets synchronously in a videoconference lesson each week, hence the term VC class. However other technologies are also used to support the full gamut of eTeaching and eLearning activities.
Virtual Learning Network (VLN)	The VLN is the Ministry of Education's web-based brokerage service that is provided to foster nationally a rich and diverse range of educational courses, programmes and activities, from early childhood through to tertiary. The VLN plays a leading role in brokering connections between teachers and learners, clusters and schools that provide all forms of eTeaching and eLearning through online programmes, including those provided by NZ's eLearning clusters. (Ministry of Education, 2010b)
virtual school (VS)	Refers to the complete system required for the delivery of eTeaching and eLearning, including all the associated technical, administrative and pedagogical support and infrastructure. In this research, all the elements of an eLearning cluster comprise a type of virtual school.

CHAPTER ONE: INTRODUCTION

The eLearning Background to this Research

eLearning is promoted by the Ministry of Education as a means of personalising and enabling learning for 21st century students and teachers (Ministry of Education, 2006, 2007b). The Ministry define eLearning as exploiting any technologies in order to provide accessible, relevant and high quality learning opportunities; online learning environments are identified as one means of providing students with greater choice and learning that meets their needs.

Currently 15 eLearning clusters offer eLearning and eTeaching opportunities to their students and teachers throughout NZ – see Figure 1 (Ministry of Education, 2010b). Across all of these clusters there are currently 176 eTeachers, teaching 242 courses to 1,646 eLearners enrolled in 264 classes (E. Reisch, virtual learning network, personal communication, 04 May 2010). Most of the courses are assessed at NCEA Levels 1, 2 or 3 so most of the students are enrolled in Years 11, 12 or 13.

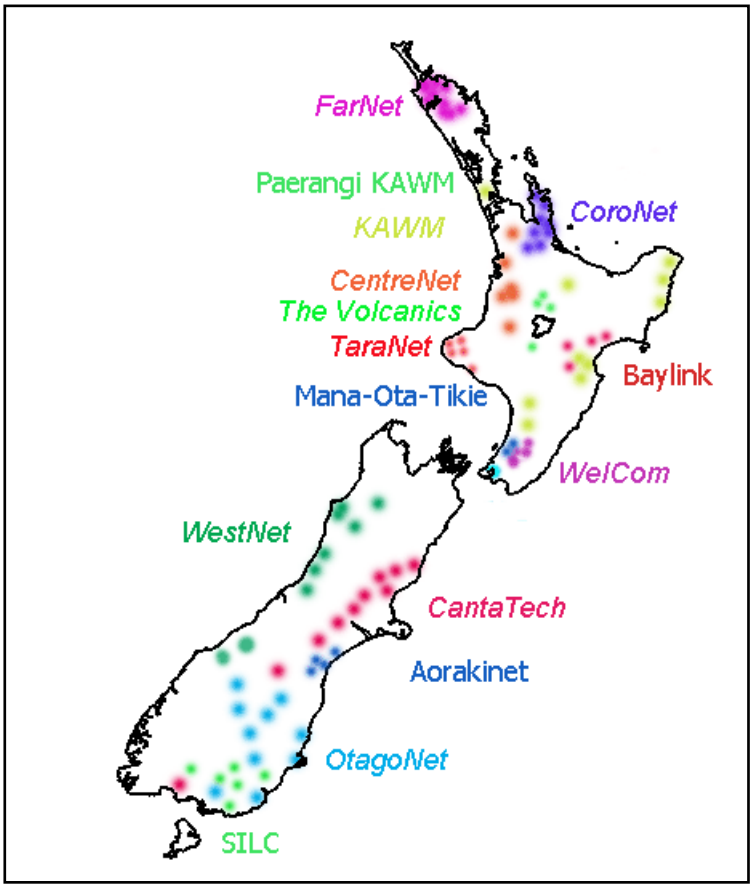


Figure 1: Map of New Zealand's eLearning Clusters (Ministry of Education, 2010b)

Each eLearning cluster comprises 7 to 14 predominantly remote rural secondary schools (Ministry of Education, 2010b). Within each cluster the schools are usually located within the same geographical region of NZ. They collaborate to offer online courses to students in 'virtual classrooms' which are "ICT immersion environments where teachers use technology to teach students from different physical locations" (Lin & Bolstad, 2010, p. 36).

Throughout 2008-2009 the NZ government provided funding for 12 already existing eLearning clusters to develop cluster leadership which was focused on enhanced educational leadership, greater collaboration and improved sustainability (Ministry of Education, 2007a). The funding agreement required each cluster to "support and develop e-learning cluster leadership AND strengthen collaboration and support within and between e-learning clusters" (emphasis original). Each cluster used the funding to employ an ePrincipal as a key means of achieving the goal of enhanced educational leadership and the related objectives.

Despite the cessation of Ministry funding for the ePrincipals at the end of 2009, most of the clusters continued to employ an ePrincipal in a partial or full capacity for 2010. Anecdotally this indicates that the schools involved in the clusters value the ePrincipals' leadership role. However there is a paucity of literature regarding eTeaching and eLearning generally in NZ's eLearning clusters and I was unable to find any research literature regarding leadership within the clusters.

This research project investigates educational leadership that supports and enhances eTeaching and eLearning in eLearning clusters from two complementary theoretical perspectives:

1. instructional leadership dimensions that enhance teaching and learning comprise the lens which is used to investigate the 'what' of the leadership activities. Principles of effective pedagogy for eTeaching are used to inform this dimension; and
2. distributed leadership perspectives are used to explore the dynamics of 'how' this leadership operates within and across the eLearning clusters.

Taken together, these two complementary perspectives provide a rich framework to describe and analyse the educational leadership within and across the eLearning clusters.

eLearning is identified as an emergent and growing area of secondary education that offers much, particularly to students and teachers in remote rural secondary schools who are looking for learning and teaching opportunities that are not available at their local school (e.g. Means, Toyama, Murphy, Bakia, & Jones, 2009; Roblyer, 2008; Schrum & Levin, 2009).

Furthermore, when eLearning is blended with face-to-face learning, the benefits to mainstream students' learning are demonstrable (Means, et al., 2009). Hence developments, such as the national roll-out of Ultrafast Broadband, should further open up the potential benefits of eLearning to a much wider range of potential students.

However, much of the current research literature regarding eTeaching and eLearning is based in tertiary and/or overseas contexts (Means, et al., 2009) so this project provides one small but timely piece of information towards a greater understanding of eLearning and eTeaching in a NZ context. Hence this research aims to shed some light on an educational topic of rapidly growing significance where currently there is a dearth of information.

Similarly, the current evidence base is "incomplete and generally inconclusive about the precise nature of distributed leadership in action… We urgently need contemporary, fine-grained studies of distributed leadership in practice" (Harris, 2005, p. 169). Harris argues that relatively little is known or understood about how different school contexts (such as eLearning clusters) influence distributed leadership practices. This view is reiterated and reinforced by both Harris (2009) and Spillane (2006) who also observe a dearth of educational research focused primarily on distributed leadership in action, despite the rapid increase in literature on the concept.

Research projects such as this one help to provide greater understanding of distributed leadership in practice. However, given the small sample size, the methodological shortcomings and the brief timeframe of this research, the limitations of this research are such that it will not bridge the gap which currently exists between the theory and practice of distributed leadership. Nevertheless, it should provide another useful and timely piece of information to help inform the debate.

From a practitioner's perspective, the intent of the research is to provide findings and understandings which existing eLearning clusters may use as a lens to analyse, reflect and refine their own leadership structures and practices. The findings may also provide a useful resource for prospective eLearning clusters. However, since eLearning research occurs in a context of rapid and ongoing technological and administrative change (Roblyer, 2008), any findings may have a short shelf life.

Overall, although the scope and extent of the research limit its significance, the educational and leadership contexts and also the timing of the research all add considerably to its significance.

The Researcher's Background and Position

Cohen et al. (2007) identify interviewer bias as one of the main disadvantages of using interviews in qualitative research. In order to minimise this risk, it is important that readers know who I am, what my background is and what my relationship is to eLearning and to this research project.

I have a background of over 30 years of teaching in secondary education, including eight years as the principal of a medium-size rural secondary school. My interest in leadership of eLearning stems from my recent work as a secondary school principal and my involvement in ICT-related educational initiatives, including the management committees of an eLearning cluster and an ICT Professional Development (ICTPD) cluster.

However I am no longer directly involved in secondary education on a daily basis. From this perspective, my position within this research project is that of an interested and supportive bystander. My experience and knowledge in this field can be considered simultaneously to be both beneficial and disadvantageous. Some understanding of how NZ schools operate, how eLearning clusters have developed and educational leadership perspectives were all prerequisites for framing the research. Established professional relationships with ePrincipals, secondary teachers and principals also enabled me to readily gain the access and develop the trust required to complete quality interviews. Conversely, interpretative research of this nature invariably relies heavily upon the researcher's experiences and understandings so I was careful to ensure that the 'voices' of the research participants were recorded accurately and reflected truthfully in the findings.

Thesis Structure

This chapter provides a brief introduction to the eLearning context of the research and also my own background as the researcher. Chapter Two comprises a literature review of current literature regarding educational leadership and online teaching and learning. Chapter Three outlines the research methodology including research methods, ethical considerations and the research questions. The findings from the interviews and other documents are presented in Chapter Four in three sections: school-based key questions, national context key questions and other issues that arose during the research process. Chapter Five discusses the findings using an ecological perspective of eLearning and Chapter Six concludes the thesis with a conclusion and recommendations.

CHAPTER TWO: LITERATURE REVIEW

Educational leadership in eLearning clusters (virtual schools) is a recent phenomenon which occurs in a rapidly evolving educational context. Hence this research topic does not yet have its own well-established base in existing literature. However there are clear links to two distinct areas in the current literature:

1. conventional educational leadership theory, particularly the leadership perspectives for instructional, distributed and technology* leadership; and
2. online teaching and learning literature.

These concepts are outlined in this chapter but the perspectives are diverse, sometimes contradictory and potentially confusing so a discussion of the literature review concludes the chapter. This discussion not only locates the theoretical perspectives which are adopted within the myriad of possibilities but also justifies their selection as fit for purpose in the context of this research project.

EDUCTIONAL LEADERSHIP

Educational leadership is a "slippery concept" (Harris, 2005, p. 165) which is widely regarded as comprising a range of theoretical perspectives (e.g. Bolman & Deal, 1997; English, 2005). Despite the conceptual pluralism, there is "widespread belief that the quality of leadership makes a significant difference to school and student outcomes" (Bush, 2008, p. 1). Bush also argues that each perspective has its own strengths and that several perspectives may be simultaneously valid in any given situation.

Amongst the cacophony of voices, one commonality is that leadership is widely regarded an act of *influence* on the behaviour/thinking/performance of others (e.g. Bush, 2008; Harris, 2005; Robinson, 2004). Some authors extend the notion of leadership as influence to also include aspects such as: the direction/strength of the influence and what happens as a result and the pursuit of collective goals (e.g. Firestone & Martinez, 2009; Leithwood, Mascall, & Strauss, 2009).

*Note: Technology leadership is a concept which has been developed in online teaching and learning literature but it is considered in this thesis alongside conventional leadership perspectives.

Another common theme to emerge in educational leadership literature is that it is highly dependent on and intertwined with the situation. For example, Leithwood and Riel (2003) argue that "leadership is contingent on the setting, the nature of the social organisation, the goals being pursued, the individuals involved, resources and timeframes and many other factors" (p, 9).

Robinson (2004) also observes some degree of convergence when she identifies three significant trends in the development of educational leadership theory over recent decades:

1. from generic to educational leadership, because many aspects are specific to schooling;
2. from leadership style to leadership practice, particularly practices that make a difference to teaching and learning; and
3. from heroic to distributed perspectives of leadership which recognise schools as complex organisations that need leadership capacity at all levels to function effectively.

However, despite the above commonalities and trends, it is conceptual pluralism, paradox and debate which is prevalent in educational leadership literature (English, 2005). For example, English identifies a management/leadership binary in the literature which views leaders as being different from managers but argues that "the line that separates them is indeed thin, perhaps nonexistent" (p. xii). Hence it is extremely difficult to separate leadership from management in the messy and complex reality of school leadership research because the concepts are so intertwined and interdependent.

To overcome this dilemma Spillane, Camburn and Pareja (2009) advise researchers to focus on administrative, curriculum and instructional activities rather than attempting to distinguish between management and leadership tasks. This position is adopted for this research, not only because leadership is so closely intertwined with management but also because both are "to be given equal prominence if schools and colleges are to operate efficiently and to achieve their objectives" (Bush, 2008, p. 4).

A comprehensive review of all the different leadership perspectives is well beyond the scope of this thesis. For example, Davies (2005) provides an overview of many educational leadership perspectives including: strategic, transformational, invitational, ethical, constructivist, poetical and political, emotional, entrepreneurial and sustainable leadership. His views of distributed and instructional leadership perspectives can be summarised as:

- *distributed leadership* - considers leadership across many formal and informal leaders and is viewed as an important factor in school improvement and effectiveness due to enhanced collegiality, improved teaching and strengthened relationships; and
- *instructional, learning-centred or pedagogical leadership* - focuses leadership on to students' learning by: modelling reflective learning, monitoring student learning, basing decisions on this analysis and dialogue that makes learning the central focus of the school's vision/goals.

The selection of distributed and instructional leadership dimensions for this research is consistent with recent trends in leadership research which favour investigating leadership practices across a range of professionals that influence teaching and learning (Robinson, 2004). Despite the risk that this may limit the thinking about leadership (English, 2005), there are several advantages of selecting these two leadership perspectives for this research project which are outlined below.

Instructional leadership focuses on the core business of any school, teaching and learning. Research literature identifies instructional leadership as the dimension which has the greatest impact on student outcomes (e.g. Hattie, 2009; Robinson, Hohepa, & Lloyd, 2009). This leadership dimension also sharpens the focus for the research by providing a framework for the 'what' of leadership activities. Moreover, it is compatible with and complementary to, the concept of distributed leadership.

School reform and improvement research provides significant but somewhat indirect evidence for the efficacy of distributed leadership in schools (Harris, 2005). In particular, Harris identifies several benefits of distributed leadership in schools, including: increased teacher collaboration and flexibility; enhanced professional learning; and shared leadership within communities of practice. Additionally, "a distributed approach to leadership identifies the contours of expertise within the school community and harnesses the talents of all key stakeholders for the purpose of improving the processes, content and outcomes of teaching and learning" (Duignan, 2006, p. 113). Significantly, all of these benefits are compatible with the key instructional leadership dimensions (Robinson, et al., 2009).

A distributed leadership perspective also offers other advantages for this research. For example, it treats the context as a unique element of the leadership (Harris, 2005) so it is inherently applicable to the unique context of this research. Distributed leadership is also promoted as a tool for studying and analysing leadership practice (Spillane, 2006) and it is complementary to the instructional leadership dimension because it focuses on the 'how' of leadership, rather than the 'what'. Moreover, both Hallinger (2003) and Timperley (2009) argue the importance of using distributed leadership for the development of instructional leadership – a notion which not only parallels but also endorses the bifocal conceptual framework adopted for this research.

Conversely, a potential risk of selecting these leadership dimensions as the underpinning theoretical framework for the research is that they have been developed in and for face-to-face schooling contexts so they may have lesser relevance for this virtual schooling context. However this risk is mitigated somewhat through the inclusion of reviews regarding:

- online teaching and learning literature which is used to tailor the instructional leadership dimensions of this research to its pedagogical context; and
- technology leadership perspectives which are not only closely related to distributed leadership but are also developed specifically for technology-rich schooling environments.

Overall, the instructional and distributed leadership lenses together provide a stereoscopic perspective of leadership practice which has the potential to be fine-grained, rich and full of texture and complexity. This theoretical foundation is neither to deny that other leadership theories have their own merits, nor to claim that this approach is any way superior to other options. Rather, it is just to state that this approach is fit for the purpose of this particular research.

LEADERSHIP PERSPECTIVES

Instructional Leadership

As already noted, Davies (2005) views instructional leadership (IL) as pedagogical leadership that focuses on enhancing students' learning. Hallinger (2003) and Hopkins (2003) both argue that effective IL comprises three main dimensions:

1. defining the values and purpose of the school, including school-wide goal setting;
2. managing the programme of teaching and curriculum by supervising and evaluating instruction, coordinating the curriculum and monitoring student progress; and
3. promoting a positive school-learning climate including protecting instructional time and establishing the school as a professional learning community.

Similarly, Southworth (2009) argues that school leaders make a significant difference to classroom practice and student learning, indirectly through the actions of the teachers. He too advocates three influential and interrelated strategies of successful IL:

1. modelling a sustained and active interest in learning and teaching;
2. monitoring what happens in classrooms and student achievement data in order to develop effective professional learning based on students' progress; and
3. developing reflective professional learning and co-construction of professional knowledge through dialogue about teaching practices and student learning.

The recent Best Evidence Synthesis (BES) of what works in school leadership for raising outcomes for students (Robinson, et al., 2009) provides an authoritative meta-analysis of literature about IL. Robinson et al. argue compellingly that "the more leaders focus their influence, their learning, and their relationships with teachers on the core business of teaching and learning, the greater their influence on student outcomes" (p. 40). Moreover, Robinson et al. identify and quantify the three particular leadership dimensions which have the greatest impact on student learning as:

1. promoting and participating in teacher learning and development; Effect size (ES)=0.84;
2. establishing goals and expectations; ES=0.42; and
3. planning, coordinating and evaluating teaching and the curriculum; ES=0.42.

Similarly, Hattie's (2009) meta-analysis of the influences on student achievement also identifies the same school leadership dimensions as Robinson et al., indicating that these leadership practices provide a useful, if somewhat simplistic, overview for aspects of IL that are worth exploring further in this research project.

In summary then, instructional leadership is leadership that is focused on practices which improve the quality of teaching and learning. Amongst the many facets of instructional leadership, emerging evidence (Hattie, 2009; Robinson, et al., 2009) suggests that the most effective dimensions (in traditional schooling contexts) are a powerful, inter-connected and mutually supportive troika comprising:

1. leaders promoting and participating in teacher learning and development which is based on and targeted towards improving, student learning and achievement;
2. setting and communicating specific and challenging academic goals for teacher and student learning; and
3. planning, coordinating and evaluating teaching/teachers – which includes the "systematic monitoring of student progress and use of assessment results for programme improvement" (Robinson, et al., 2009, p. 41).

However, instructional leadership is a perspective that focuses explicitly on the manner in which leadership *in schools* is exercised to bring about improved educational outcomes for students (Hallinger, 2003). Since the literature about IL is developed from, and for, bricks-and-mortar schooling contexts, it is unknown how applicable these leadership dimensions are in the virtual schooling context of NZ's eLearning clusters where other factors may come into consideration. Hence, the review of online teaching and learning literature is used to determine and tailor the specific aspects of instructional leadership which are adopted for this research project.

Distributed Leadership Perspectives

Distributed leadership (DL) is widely regarded as conceptually imprecise, open to various interpretations and often confused with other similar notions of shared leadership (e.g. Bennett, Wise, Woods, & Harvey, 2003; Harris, 2005; Spillane, 2006). This results in what Leithwood et al. (2009) describe as a "buzzing confusion" (p. 272) of perspectives for DL in the literature. A comprehensive account of this conceptual pluralism is well beyond the scope of this thesis so the emphasis here is on only those perspectives which are relevant to and/or have been adopted for, this research. This section comprises a brief outline of some of the DL perspectives and how it may be defined, a description of the perspectives adopted for this research and implications for the methodology.

Notions of shared leadership are not new because school leadership is invariably spread across many people due to the range and complexity of tasks performed in a knowledge-intense activity like teaching (Elmore, 2000). So the issue "is not whether leadership is distributed but *how* it is distributed" (Spillane, 2006, p. 15, emphasis original). Several factors may influence the distribution of leadership, including: the principal's personality and experience; the school's history, culture and organisational memories; and external factors such as local, regional and national pressures and policies (MacBeath, 2009). No doubt the virtual schooling context of NZ's eLearning clusters could also be added to this list.

However, shared leadership and DL are not identical and several authors argue that using the concept of DL synonymously with broader notions for shared leadership weakens the concept to the point where it becomes everything and nothing (e.g. Duignan, 2006; Harris, 2005; Spillane, 2006). To prevent this, both Harris and Spillane advocate the development of a distinctive conceptual definition of DL that is a sub-set of the broader and vaguer notions of shared leadership. In this vein, Leithwood et al. (2009) identify the typical characteristics of DL in schools as:

- co-performance of leading and managing activities is commonplace;
- existing alongside, or in parallel with, more individualised sources of leadership; and
- considerable variation in response to the conditions or challenges is found in the schools (and also presumably in NZ's eLearning clusters).

Despite the commonalities identified above, conceptual pluralism and paradox abounds with DL perspectives. Unsurprisingly, a wide range of models has been developed to identify and define different ways of distributing leadership across schools (e.g. Gronn, 2003; Harris, 2009; Spillane, 2006). For example, Harris (2009) argues for "autonomous distribution" (p. 258) which involves the creation of flexible/loose organisational structures to generate innovation accompanied by well-coordinated distribution of leadership. This form of DL, she argues, results in positive and transformational organisational change.

Another example of DL's conceptual pluralism is that some authors view it as an *analytical tool* that is useful for thinking about and studying leadership, rather than as a technique or practice (e.g. Bennett, et al., 2003; Gronn, 2000; Spillane, 2006). This view clearly endorses the selection of DL as one of the primary lenses for this research. Conversely, authors such as Duignan (2006), Harris (2005) and Hopkins and Jackson (2003) view DL as *practice* which involves spreading leadership across all members of the organisation to enable them to learn together, create new knowledge and contribute towards the creation of a shared culture and vision. Harris' observation that "engaging many people in leadership activity is at the core of distributed leadership in action" (p. 165) illustrates this viewpoint well.

A similar DL dilemma is identified by Leithwood et al. (2009) when they question what is it that is being distributed when leadership is distributed? Is it the *influence* which is located in the interactions of leaders and followers, or is it distribution of the leadership *functions*, such as tasks and actions which people use to exercise leadership? Spillane's (2006) perspective of DL reflects this dichotomy and comprises both aspects; the leader-plus aspect involves scrutinising the *actions* of all the formal and informal leaders, whereas the leadership practice aspect focuses on their *interactions*. Spillane leans towards the view of leadership as influence when he stresses the leadership practice aspect as being paramount but also cautions that research which is based on the inherent interactions is scarce and fraught with methodological challenges.

Timperley (2009) endorses Spillane's (2006) descriptive framework of "activity and how this is stretched over people" (p. 219) as being particularly robust and useful for the analysis of DL from a more normative position. Similarly, Leithwood et al. (2009) argue for school-based research that focuses on core leadership functions in schools as opposed to research which is based on a more idealised DL model.

Collectively these views endorse the approach adopted for this research which investigates how leadership functions and activities are 'stretched' over the people involved within NZ's eLearning clusters. This approach is used because it potentially provides for greater clarity and more straightforward research questions, from both my own and the participants' perspectives. Focusing on leadership functions and activities also lends itself towards a more normative research approach which brings two main benefits:

1. it uses leadership terms and concepts which are already widely used in schools, thus enabling research participants to engage more readily and purposively in the research; and
2. the findings may be of practical value in the future, not only to the research participants but also to other eLearning clusters and/or initiatives.

Furthermore, leadership functions and activities always occur in specific situations. Both Spillane (2006) and Harris (2009) argue that the situation which includes the organisation's structures, routines and tools is a defining element of the leadership because it heavily influences the leadership practices. Similarly Timperley (2009) argues that artefacts, such as memos and timetables, also comprise an element of the leadership because they represent ideas and intentions that enable and/or constrain practice. This means that a rich source of information about the distribution of leadership across the eLearning clusters' already exists in their documentation, communication and structures; a view which is further reinforced in the following literature review of online learning and teaching structures (e.g. Davis & Niederhauser, 2007; Roblyer, 2008).

However, the adoption of a normative research approach which is based on leaders' functions and actions also compels the identification of leadership functions which are most influential for eLearning/eTeaching. Hence the key instructional leadership dimensions for traditional forms of schooling (identified in the previous section) must be customised for the eLearning context of this research.

To summarise then, DL is a concept of leadership, focused on student learning, where many members of the school community are involved in playing purposeful roles in leading and contributing to school change and improvement. DL enables and enhances professional learning and dialogue, creating and sustaining an environment where core pedagogical decisions become a collective professional responsibility.

From this perspective, each eLearning cluster could be considered to be a relatively small 'school' comprising approximately one ePrincipal, 12 eTeachers, 12 Site Supervisors and 110 eLearners (Ministry of Education, 2010b). The professionals involved all have roles to play in leading eLearning and/or eTeaching. This research aims to discover how these leadership roles are spread across the people involved in the eLearning clusters by investigating the distribution of instructional leadership functions and activities. The virtual schooling context of the research is already incorporated into the DL lens but key instructional leadership dimensions need to be tailored to ensure they are pertinent to eLearning/eTeaching.

Technology Leadership

The concept of technology leadership (TL) does not appear to have a strong presence in mainstream educational leadership literature because it was developed in and for the literature regarding technology in education where it largely remains (e.g. Dexter, 2008; Riel & Becker, 2008; Sherry & Gibson, 2002; Twining, 2008). However TL is identified as a particular sub-set of teacher leadership (Riel & Becker, 2008) and teacher leadership is a leadership concept which resonates strongly with distributed leadership perspectives (Harris, 2003, 2005). Therefore TL perspectives are compatible with and complementary to, distributed leadership perspectives in general and this technology-rich research context in particular. Hence a review of TL literature is warranted for this thesis because it helps to inform and refine the distributed leadership perspective for this research context.

Sherry and Gibson (2002) argue that teacher-leaders of eLearning are useful, if not essential, for institutionalising technology adoption in schools. Evidence to support this view is identified by Anderson and Dexter (2005), who find that effective TL has even greater influence on ICT use in schools than the technology infrastructure and expenditure itself. However, they also find "considerable diversity in technology leadership and organisational support systems" (p. 73) in schools which raises questions as to which forms of technology leadership are the most effective.

Riel and Becker (2008) view TL as a particular sub-set of the broader notion of teacher leadership, where technology-expert teachers focus on "technology-specific leadership and the ability of technology-utilising reform efforts to change schooling and teaching more generally" (p. 410). They identify several characteristics of technology leaders including: innovative and exemplary use of ICT in their own teaching practice; constantly exploring and refining ways of making technology more useful in their teaching; collaborating and networking to exchange ideas frequently with others; and contributing to knowledge about educational technology by presenting, teaching and/or publishing on educational technology issues.

Dexter argues that effective TL is a school-wide characteristic where "planning and operationalising effective school-wide IT use is a complex leadership task, which usually results in distributing the responsibilities for the successful integration and implementation of technology across a team of multiple staff members" (Dexter, 2008, p. 543). She argues that the generic school leadership functions of setting direction, developing people and making the organisation work, need to be reconceptualised for contexts involving technology-rich innovations. In this regard, she advocates "attending to the purpose of the technology… teacher development and professional community building, and… technology access and support" (p. 545) as key functions of the TL team.

Twining (2008) narrows the focus to one of Dexter's leadership functions when he identifies 'setting direction' as critical and argues that this is best achieved through the development of a school-wide vision to enhance learning and teaching through the use of ICT and "that it should be an educational vision rather than a technological one" (p. 567). He identifies pedagogical frameworks as powerful tools for developing such a vision because they focus on educational practice and the ways in which IT is actually used in context.

One such pedagogical framework is Squires and McDougall's (1994) perspectives interaction paradigm which is based on three pairs of mutual interactions between those who are most involved in the classroom use of IT: student-teacher, teacher-software designer and student-software designer. McDougall and Squires (1997) argue that analysing the interactions between these pairs of 'actors' enables a wide-ranging set of contextually-specific issues regarding the use of IT to be developed. For example, student-teacher interactions often raise issues related to the learning which typically involve shifts by the teacher towards a more constructivist pedagogy.

Overall, it is clear that these TL perspectives are related to, and consistent with, the instructional and distributed leadership perspectives of this thesis. Emerging evidence suggests that TL is particularly influential on student/teacher use of ICT in learning/teaching. Key dimensions of effective TL include: a school-wide pedagogical vision of ICT in learning/teaching; school-wide distributed leadership; innovative practice with ICT in education; communities of practice/learning which are based on students' and teachers' learning needs; networking with professionals beyond the school; and pedagogical implications of using technology in education.

ONLINE TEACHING and LEARNING

Instructional leadership and distributed leadership perspectives both require a sound understanding of the situation/context in which the leadership is being researched. Given that NZ's eLearning clusters are a form of virtual schooling, it follows that this environment has a significant impact on the leadership. Therefore, literature regarding key aspects of online teaching and learning in general, and virtual schooling in particular, is used to inform and guide the leadership dimensions and the methodology of the research.

Voogt and Knezek (2008) identify several key elements that need to be in place to integrate ICTs into face-to-face secondary schooling successfully, including:

- pedagogical innovation and teacher learning;
- curriculum perspectives;
- technology leadership in schools; and
- educational policy as the environment of the teaching and learning.

Furthermore they argue that these elements are necessary but insufficient for a virtual schooling environment; additional factors which also need to be considered include: effective pedagogy for eLearning and online organisational structures/systems. Hence many of these aspects are discussed in this section of the literature review.

Virtual Schooling and Blended Learning

ICTs may be used to improve education in two main ways: as a means of enhancing the learning content/outcomes and as an enabling medium for the teaching/learning – "The first view affects the curriculum, while the second role primarily affects the physical (and virtual) infrastructure for learning" (Voogt & Knezek, 2008, p. xxxii).

Means et al. (2009) analyse the effectiveness of both virtual schooling and blended learning in their extensive literature review and meta-analysis of web-supported online learning. They find a modest improvement in students' learning for virtual schooling (ES = 0.14) and significantly improved outcomes for blended learning (ES = 0.35). However they argue that because virtual schooling is intrinsically beneficial due to its cost efficiency and increased student access to courses, it should therefore be considered successful if student achievement is at least equivalent to face-to-face instruction. Whereas blended learning needs to be more effective than face-to-face instruction in order to justify the additional expense incurred and time involved. Hence their findings represent positive but still somewhat provisional evidence for the effectiveness of both virtual schooling and blended learning.

Conversely other literature identifies relatively pessimistic views of transforming face-to-face schooling through the adoption of ICT (e.g. Voogt, 2008) compared to the rapid and successful uptake of virtual schooling (e.g. Roblyer, 2008). This implies that it is much more difficult to actually achieve the potential benefits of blended learning than it is for virtual schooling.

Roblyer (2008) identifies a scarcity of research for effective virtual schooling practices but does point to some early and tentative indications which include: student and teacher preparation for online learning/teaching; ease of student access to technology; blending learning by combining online strategies with face-to-face instruction; frequent and highly interactive student-teacher communication; student-centred learning based on constructivist pedagogy; and highly qualified and experienced teachers. Both Roblyer and Schrum and Levin (2009) advocate in-school support of online students such as study facilities and a teacher to monitor their learning; they argue these are essential elements of successful online learning programmes.

New Zealand's eLearning clusters bring teachers and students together in new and exciting ways that extend and enhance opportunities for students to learn and teachers to teach. Lin and Bolstad (2010) argue this potentially offers great benefits, not only to the individuals currently involved in eLearning but also for the development of 21st century teaching and learning strategies generally in NZ education. However they find little effect of ICTs on the curriculum because many VC classes currently use them in ways that reinforce traditional teaching approaches. Conversely they find that ICTs affect the learning/teaching significantly because the ICT immersion environment comprises the enabling medium for the virtual learning/teaching.

Pedagogy for Online Learning

"Utilising the potential of IT in educational practice often implies that the role of the teacher has to change... to learn appropriate pedagogical skills to be able to integrate IT in a sound way into educational practice" (Voogt & Knezek, 2008, p. xxxiii). This quotation serves to illustrate why pedagogy for online learning and the means by which this is achieved (professional development), are both significant aspects of this literature review.

The NZ Curriculum (NZC) document defines effective pedagogy as "the kinds of teaching approaches that consistently have a positive impact on student learning" (Ministry of Education, 2007b, p. 34). The NZC identifies that students learn best when teachers: "create a supportive learning environment; encourage reflective thought and action; enhance the relevance of new learning; facilitate shared learning; make connections to prior learning and experience; provide sufficient opportunities to learn; and inquire into the teaching–learning relationship" (p. 34). Furthermore, the NZC defines 'e-learning' as "learning supported by or facilitated by ICT" (p. 36) and endorses its potential to improve students' learning through a range of strategies which provide enhanced access to personalised learning for each student.

Constructivist pedagogy is a recurring theme in other literature about pedagogical perspectives of eLearning. For example, Lin and Bolstad (2010) identify that a common aim for integrating ICT into students' learning is to equip them with the ICT capabilities and the learning skills necessary for life and work in the 21st century. They argue that the ability to construct new knowledge is a particularly important dimension of students' learning and advocate teaching strategies which develop students' skills including: creative and critical thinking, problem solving, communicating with others and making connections. Lin and Bolstad view the effective use of ICTs in schools as a means of enabling this constructivist style of teaching because of the expanded range of learning experiences/opportunities that ICTs provide.

Within the virtual schooling context of NZ's eLearning clusters, Bolstad and Lin (2009) identify three key themes:

1. *independence and support* - virtual classrooms are perceived as requiring greater learner independence and self-motivation than most conventional classrooms. Support from the home school (Site Supervisor) is vital for most eLearners to succeed because secondary students often depend on their teachers for guidance in their learning;
2. *shared learning* – communication and collaboration between eLearners is lacking in some VC classes so many are not actively thinking and learning together. Undeveloped relationships between students and time pressure to cover the examination curriculum are identified as barriers to developing more collaborative learning strategies; and
3. *personalising learning* - students identify differing degrees of personalisation in both their virtual and their face-to-face classes. Perceived reasons for this include: the teachers' preferred teaching styles; the nature of the subject and/or the amount of content, particularly for NCEA subjects; and the need for a system-wide shift in the culture of schooling towards a more personalised educational approach.

Cavanaugh (2001) reasons that interaction is the core of any teaching and learning, including distance/online teaching and learning. She argues for eLearners to be engaged in discussions about their learning and for eTeachers to consider eLearners' views in order to make learning pleasurable and effective. Cavanaugh concludes that "improved distance education practices have the potential to enhance educational outcomes, especially when the amount and kind of learner interaction is increased using technology-supported collaborative learning" (p. 75).

Similarly, Sherry and Gibson (2002) argue that a 'dialogue view' of interactions enables deeper understanding of mutuality or reciprocal empowerment which is essential for constructivist teaching approaches. They identify two different genres of dialogue in online interactions:

- 'online dialogue' or conversations to construct new meanings and understandings; and
- 'design conversations' which are more goal-related conversations.

Sherry and Gibson conclude that students and teachers are best supported in their learning/teaching when online interactions are focused on "the challenges, intentions, and questions of learners" (p. 198). This approach, they argue, also changes the traditional roles/relationships of teachers to those of facilitators, translators and expert learners who work alongside learners in virtual learning communities.

Collectively these views reinforce and endorse the NZC's social-constructivist pedagogy for student learning in general and also for eLearning in particular. However, theory and reality are not always one and the same, as Bolstad and Lin (2009) find in their research into students' experiences of the virtual classrooms in NZ's eLearning clusters:

> It appears that many students' VC (videoconference) lessons are primarily teacher-directed and concerned with transmission of information… less scope for student interaction, group tasks and assessing/giving feedback on other students' work. While students use ICT more in VC classes than other classes, it appears that this is mainly for searching and retrieval of information (p. viii).

Despite the above concerns, Bolstad and Lin find that eLearning is generally a satisfactory learning experience for most of the students. Furthermore they identify that conventional assumptions underpin many eLearners' and eTeachers' beliefs about virtual classrooms and eLearning. For example, a commonly held perception is that students who are good at self-managing and time management are those who are best suited to the eLearning environment. However, Bolstad and Lin argue that that as a wider range of students take up virtual learning the need to provide more personalised learning based on constructivist pedagogy will also increase. Furthermore, they argue that the pedagogical issues they identify in virtual classrooms are symptomatic of a much larger issue for secondary education which will be resolved only through a system-wide approach.

NZ's experience of virtual schooling appears to be typical of that found elsewhere throughout much of the rest of the world. For example, in her extensive international study of pedagogical practices associated with the use of ICT in schools, Law (2004) finds that "virtual schools and online courses appeared to be rather traditional in their pedagogical approach, even though the technology used in the delivery was comparatively sophisticated" (p. 156). Similarly, in their literature review of virtual schooling in the USA, Barbour and Reeves (2009) also identify that "to date, the vast majority of virtual school students have tended to be a very select group of academically capable, motivated, independent learners" (p. 412). This reality undermines the frequently espoused but largely unsubstantiated benefits of virtual schooling, such as expanded student choice and improved access to relevant courses.

Overall, there is strong support for the development of interactive online courses that are based upon constructivist and social-constructivist pedagogical principles, even though the empirical evidence to support this approach is still somewhat tentative. This style of teaching requires teachers to adopt a much more learner-centred, facilitative and collaborative approach with students. Strategies and activities that require students to construct their knowledge collaboratively and interactively with other students and their teacher(s) in online learning communities are inherent in this approach. Tools that enable students to become more independent learners, such as tools for self-reflection and self-monitoring, are recommended (Means, et al., 2009). Support from the home school for online learners is also identified as an essential element of any successful online learning programme. The greatest challenge of all though, is the observation that these changes are symptomatic of similar changes that are required to bring about effective 21st century learning throughout most mainstream secondary schools.

Professional Learning and Development

Voogt and Knezek (2008) identify the widespread belief that teachers' pedagogical practices need to change in order for ICT to be used effectively to enhance student learning. They reason that "teacher learning, in preservice and inservice settings, is needed to support teachers in changing their pedagogical approach and to learn how IT can be used to facilitate the new pedagogical approach" (p. xxxviii).

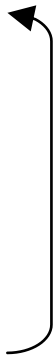
Dexter (2008) concurs, arguing that professional learning is a critical component for integrating ICT successfully into teaching and learning across a school. She argues that this is best achieved in a professional learning environment that is:

1. learner-centred – by taking into account teachers' learning needs;
2. knowledge-centred – by focusing on developing teachers' deep understanding of how to integrate IT into curriculum, assessment and student learning;
3. assessment-centred – by providing teachers with formative feedback and input to support their students' learning; and
4. community-centred – by using teacher leaders and professional learning communities to cultivate expertise and spread it across the school.

McDougall and Squires (1997) adopt an instructional leadership perspective when they argue for a 'school-focused approach' for teachers' IT-related professional development (PD). They observe that PD programmes should comprise a range of school-based and externally provided activities and identify five common foci for teacher PD activities including: skills with particular applications, integration into curricula, changes to curricula, changes in teachers' roles and underpinning theories of education.

Within the conventional schooling literature Timperley, Wilson, Barrar and Fung (2007) provide a comprehensive meta-analysis of what is currently known about effective professional learning and development. They advocate a cyclical approach to professional learning and development which utilises teacher inquiry and a knowledge-building cycle to enhance outcomes for students. Their professional learning cycle is based on five key stages, starting and ending with the identified learning needs of the students:

1. What are our students' learning needs, based on what they already know and need to learn?
2. What are our teachers' learning needs, based on what we as teachers already know and what we need to learn, in order to promote learning outcomes for students?
3. Professional learning activities and planning of teaching and learning tasks.
4. Teaching and learning actions.
5. Monitor student learning to see how effective the professional learning and actions have been in promoting our students' learning.



Furthermore, Timperley et al.'s (2007) synthesis identifies seven key aspects of PD that have a substantive impact on outcomes for students:

1. Providing sufficient time for professional learning opportunities over an extended period of time and involving frequent contact with an external provider;
2. Engaging external expertise;
3. Engaging all teachers in the learning process rather than seeking volunteers;
4. Challenging problematic discourses through iterative cycles of thinking;
5. Providing opportunities to interact in communities of professionals where new understandings are processed and the impact of teaching on student learning is analysed;
6. Ensuring content is consistent with current research findings, recommendations of professional bodies and/or policy trends; and
7. Active school leadership that:
    a. provides a supportive environment for professional learning;
    b. focuses on developing a learning culture by learning with the teachers;
    c. provides targets for student outcomes and monitors progress towards these; and
    d. creates distributed leadership by developing others.

Whilst the above aspects of effective PD are untested in a virtual schooling environment, it is probable that many will be applicable due to their generic nature. However it is also probable that other aspects of PD are also required to cater for the specific learning needs of eTeachers and Site Supervisors, including:

- that teachers should become online learners as part of their preparation to become online teachers (Davis & Ferdig, 2009);
- developing deep understanding of how to integrate IT into curriculum (Dexter, 2008); and
- skills with particular applications, integration into curricula, changes to curricula, changes in teachers' roles and underpinning theories of education (McDougall & Squires, 1997).

Organisational Structures and Systems for Online Learning

Organisational structures and systems are not only considered to be defining elements of traditional educational leadership (Harris, 2009; Spillane, 2006) but they are also key aspects of virtual schooling (Voogt & Knezek, 2008). The strong resonance between these two separate areas of the literature strongly suggests that this section of the literature review is highly significant for this research.

Virtual schooling (VS) has evolved rapidly, both technologically and administratively, hence a wide variety of organisational structures are operating (Roblyer, 2008). Roblyer identifies five different types of administrative structures for virtual schools operating in the USA which involve different combinations of state, district and school involvement. The closest of Roblyer's structural categories to that which is currently operating in NZ's eLearning clusters appears to be the 'district-level supplemental course' which she defines as offering "courses to students who reside within a district and are enrolled in a traditional school there" (p. 699).

Davis and Niederhauser diagrammatically represent the roles of people typically associated with the provision of a virtual school (VS) course shown in Figure 2 below:

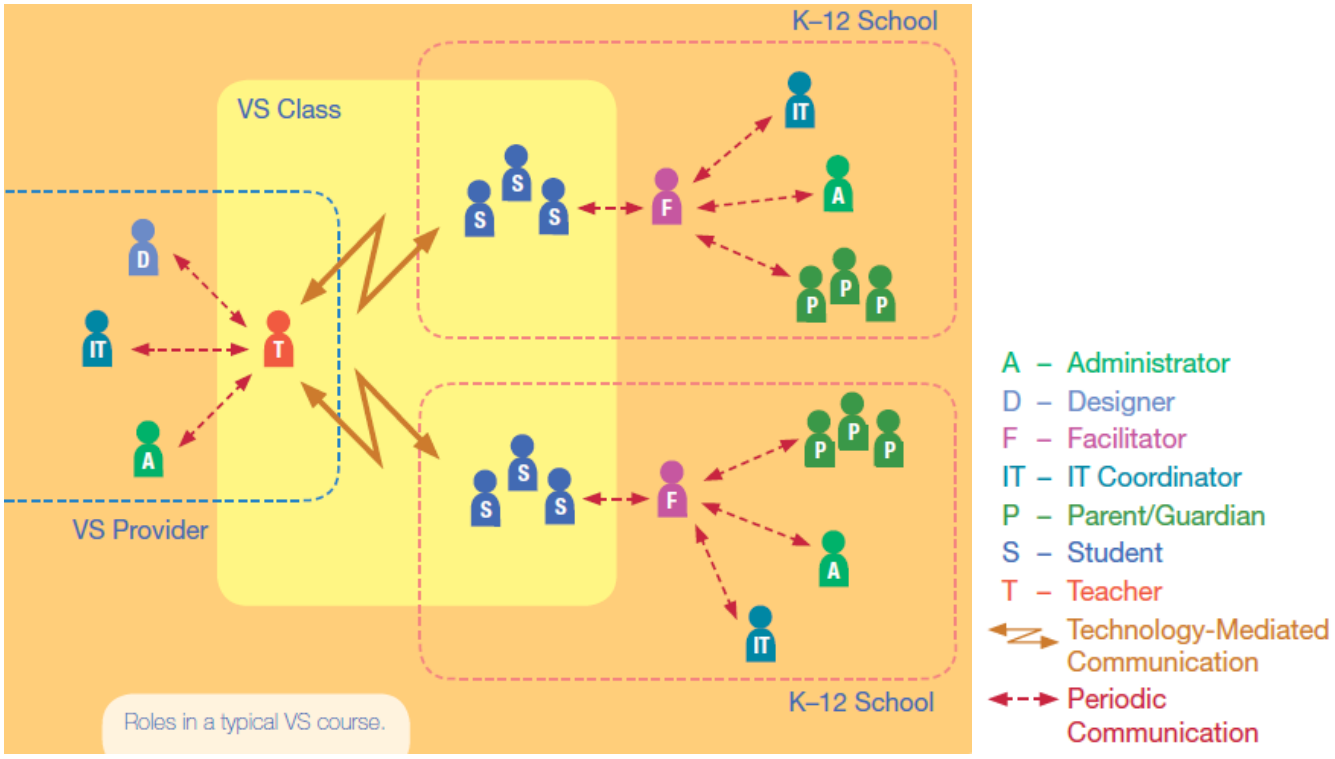


Figure 2: Roles in a typical VS course (Davis & Niederhauser, 2007, p. 12)

While the above model was developed to represent the elements and interactions of a virtual schooling system for a typical online course in the USA, there are many close parallels to the virtual schooling context of NZ's eLearning clusters, including:

- the teacher (T) employed by the VS provider teaches students (S) who are enrolled and located in two or more different and remote schools. This is similar to NZ's eTeacher and eLearners where videoconferences other ICTs such as learning management systems are used to communicate regularly in order to provide and sustain the teaching/learning;
- the VS Provider employs an administrator (A), IT coordinator (IT) and/or designer (D) to perform similar administrative and support roles to those performed by the ePrincipal for each of NZ's eLearning clusters; and
- each K-12 School has a Facilitator who communicates with the eLearners, parents and the school's personnel in order to provide support for the students in much the same way as NZ's Site Supervisors do.

Davis and Niederhauser (2007) argue that the success of virtual schooling requires substantial shifts in the roles and responsibilities for teachers, students, administrators and support staff. They identify three core roles in an eLearning cluster (virtual school) and delineate their responsibilities as:

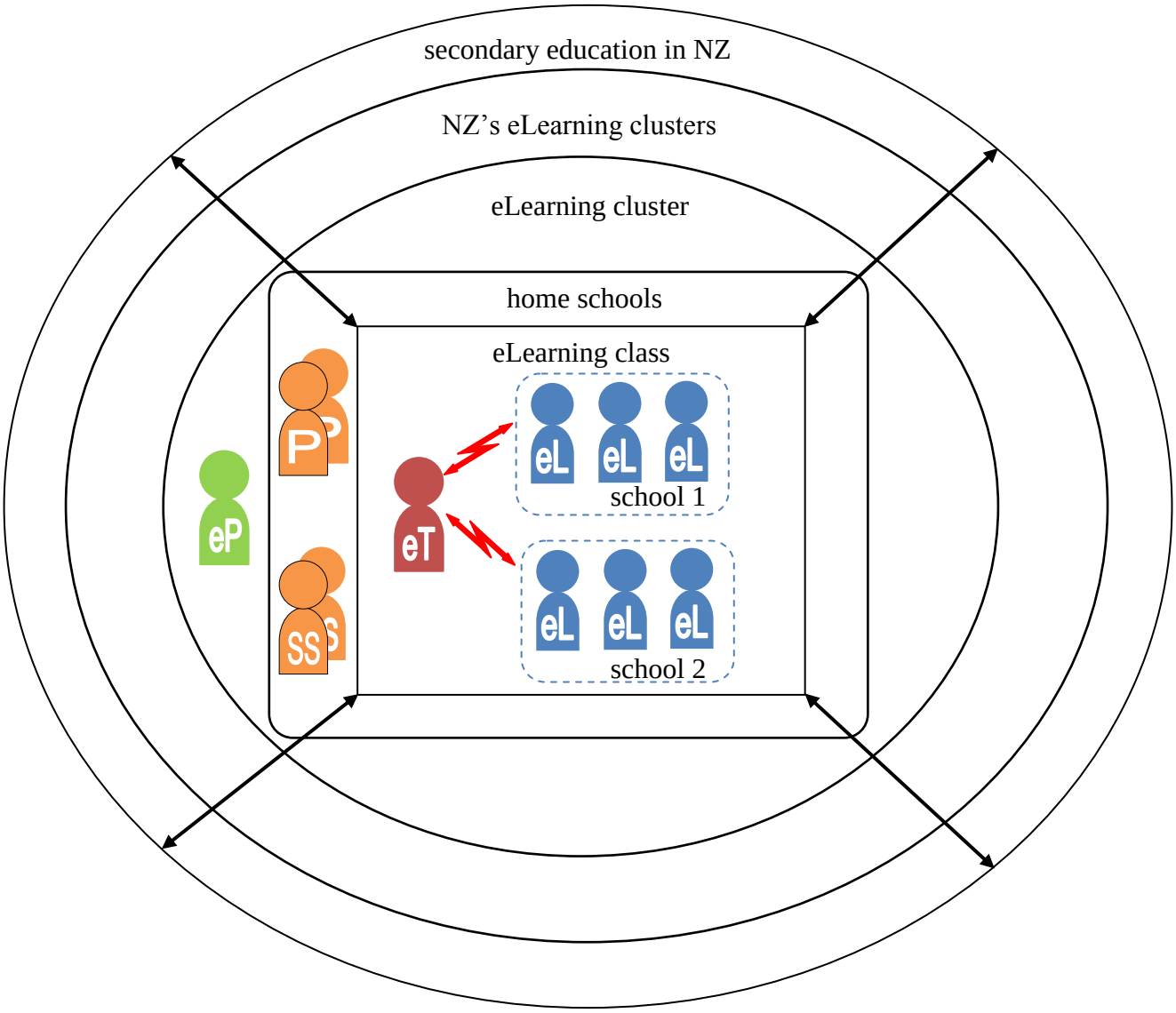
1. eTeacher (VS Teacher) creates a warm and supportive learning environment, monitors and engages students in learning activities, assesses student work to provide timely feedback, and produces course content and resources appropriate for the course/students/technology;
2. ePrincipal (Administrator and VS Site Facilitator) are responsible for: resource allocation, logistical coordination, collaborative arrangements, instructional leadership including course selection/development and evaluation, providing students with VS information and instructional support, advocating students' needs and liaison between the students' schools and the eTeachers; and
3. Site Supervisor (Facilitator) is a role which is crucial but often underestimated. Their responsibilities include: informing students of suitable online courses/options, preparing students for the demands and expectations of online learning, mentoring students and monitoring their progress, problem-solving as and when required (particularly for technology related problems), liaison with students' parents or guardians, encouraging peer support amongst the eLearners at the school and feedback to eTeachers about student issues/perceptions.

Since Davis and Niederhauser's (2007) model so closely resembles the organisational structure used for one of NZ's eLearning classes, it is also useful as an organisational model which provides a succinct structural framework for this research. However, it must be remembered that the model represents only the organisational structure associated with the provision of *one* online course from one VS provider. NZ's eLearning clusters (VS providers) offer approximately 7-15 eLearning courses and each course is taught by a different eTeacher to eLearners from a range of schools. Hence the overall organisational structures associated with NZ's eLearning clusters are much more complex and multifaceted than that depicted in this model.

To cope with multifaceted organisational complexity, Zhao and Frank (2003) develop an ecological perspective which serves as a unifying framework, enabling many different but interrelated factors to be considered in relation to each other and as connected parts of the greater system which they comprise. Davis (2008) uses this ecological perspective and recognises an array of nested ecosystems, ranging from the micro-level of the classroom to the macro-levels of the national and global educational biospheres. She argues that these ecosystems interact across a range of dimensions including professional, political, commercial and bureaucratic to comprise the "global educational biosphere" (p. 508).

While the context of this research is different to that of Davis (2008) or Zhao and Frank (2003), a similar ecological framework adapted to this context is useful for describing and analysing some of the complexity associated with the leadership of eLearning clusters. The framework depicted in Figure 3 on the following page is adapted from Davis' (2008) ecosystem model for this context but limits the 'global biosphere' perspective to that of secondary education in NZ. The framework also incorporates relevant aspects of Davis and Niederhauser's (2007) virtual schooling model, to produce a hybrid model for this research context. The framework is developed here as an initial model for use in the analysis of data and, with further refinement, for use as an explanatory model in the discussion of the findings (Chapter Five).

Figure 3: Draft Ecological Perspective Model for NZ's eLearning Clusters



Key:

eT = eTeacher eL = eLearner eP = ePrincipal

SS = Site supervisor (for each home school) P = Principal (of each home school)

= IT communication which makes possible the distance teaching and learning

= systemic dimensions that support/enable/constrain virtual schooling.

Within virtual schooling structures, Roblyer (2006) identifies four key systems which are necessary for successful online learning/teaching programmes, including systems for:

1. *preparing students for success* because students need to be prepared prior to enrolment in order for them to succeed;
2. *preparing teachers for success* because effective eTeachers need to develop additional skills and understandings to teach online successfully;
3. *monitoring and supporting teachers* is a feature of nearly every successful online programme and includes "high support for teachers in their work with students, along with constant monitoring to ensure that teachers comply with program expectations and standards" (p. 35); and
4. *monitoring and supporting students* requires teachers to interact personally with each student and provide support tailored to each student's learning and motivational needs. This also includes good systems for regularly monitoring and reporting student progress.

Roblyer's (2006) findings clearly advocate NZ's eLearning clusters and/or their contributing schools develop good systems for:

- preparing and resourcing students for online learning;
- initial teacher training and also ongoing professional learning with other online teachers;
- monitoring and supporting eTeachers; and
- monitoring and supporting eLearners.

The recently updated LCO Handbook (Ministry of Education, 2011) has been developed by leading eLearning practitioners to provide school leaders who have eLearning responsibilities with practical advice, resources and examples of best practice. Because the Handbook is intended as practical support for NZ's schools/clusters, this advice and support is critiqued in Chapter Five whenever it is relevant to the discussion of the findings.

Overall, NZ's eLearning clusters can be considered to be complex organisations where leadership is distributed across multiple professionals with various roles and responsibilities; collectively they provide the infrastructure required to support eLearning and eTeaching. Three professionals are identified as being critical: eTeachers, Site Supervisors and ePrincipals. Systems required for effective eLearning and eTeaching include: preparing students and teachers for the expectations and skills required for online learning/teaching; and monitoring and supporting the students and teachers.

Technology Adoption in Schools

All school change is complex and challenging but "when the infusion of technology is also involved, then change is even more multifaceted" (Schrum & Levin, 2009, p. 104). Hence, as schools move to institutionalise ICTs to enhance teaching and learning, greater understanding of technology adoption in the classroom becomes even more important (Sherry, Billig, Tavalin, & Gibson, 2000). The virtual classrooms of NZ's eLearning clusters are considered as "ICT immersion environments" (Lin & Bolstad, 2010) and may therefore be subject to the rapid and ongoing change which Roblyer (2008) identifies occurring elsewhere in virtual schooling. It therefore follows that the implications of technology adoption also have an impact on NZ's eLearning clusters which adds a significant complicating factor for the leadership.

Several authors have developed models to explain technology adoption in schools. For example, Davis (2008) identifies five stages that schools may progress through as they adapt their practice when adopting IT. However, she also points out that "differing school ecologies cannot be assumed to follow the same path with IT applications" (p. 512). Davis' five stages of maturity are:

1. localised exploitation - when one or more teachers begin to adopt IT innovation(s);
2. internal integration - occurs when IT activities flourish amongst teachers and students;
3. transformation of pedagogy and educational practice - involves users working together to transform their practice;
4. embedding of IT – involves redesign of the school's external networks such as forming collaborative partnerships like those in NZ's eLearning clusters; and
5. the revolutionary stage – a stage that few schools reach and requires them to redefine their scope of work.

Similarly, Schrum and Levin (2009) outline the principles of the Concerns-Based Adoption Model (CBAM), a linear model that adopts a process-oriented approach to innovation adoption in schools. The CBAM is based on individual teachers' perspectives of technology adoption with seven sequential 'stages of concern' which progress from the teacher's focus on self, to his/her focus on the task and eventually to his/her focus on the impact in the classroom. Given that schools are large and complex organisations, invariably there will be individuals spread across the spectrum of these stages of concern. Hence Schrum and Levin argue for leaders to: keep open lines of communication, acknowledge individual's concerns and to plan differentiated PD for teachers based on their needs.

Sherry et al. (2000) develop the Integrated Technology Adoption and Diffusion Model (ITADM) as an alternative and nonlinear model of technology adoption among teachers. The ITADM describes a cyclical process in which teachers evolve through five stages of learning/adoption: from learners, to adopters of educational technology, to co-learners with their students, to a reaffirmation/rejection decision and finally to teacher as leader for the 'reaffirmers'. Sherry et al. argue for differentiated PD and identify a range of PD strategies which are effective for supporting teachers at each stage of the ITADM. They also caution that when teachers reach the 'teacher as leader' stage their skills become portable. Hence Sherry and Gibson (2002) argue that it is important for schools to develop new positions (such as ePrincipals and eTeachers) in schools to retain their teacher-leaders in order to retain their skills and so that systemic and sustained innovation adoption is realised.

Overall, the technology-rich and rapidly evolving nature of virtual schooling adds another dimension to the leadership challenges for NZ's eLearning clusters. The generic principles of transformational, distributed and instructional leadership still apply but are insufficient on their own to cope with the rate of innovation adoption required. Additional requirements include: sound change management skills and understanding; good communication, thoughtful planning and differentiated PD; development and retention of teacher-leaders; and additional time, support and access to equipment and resources for the teachers involved.

Summary

In summary then, online courses offer students viable and effective alternatives to traditional face-to-face courses. However the literature regarding virtual schooling is limited so only tentative recommendations for online practices can be made. There is emerging evidence that supports the development of interactive online courses which are based upon constructivist and social-constructivist pedagogical principles. This style of teaching requires eTeachers to adopt a much more facilitative approach with students to enable them to construct their knowledge collaboratively and interactively with others in online learning communities. However this is not the current reality for most of NZ's eLearners in their virtual and their face-to-face classes.

NZ's eLearning clusters are complex social organisations involving multiple people with different roles and responsibilities working together to provide the infrastructure required to support the eLearning and eTeaching. However, unlike most traditional schools, eLearning clusters have added layers of complexity due to the collaborative manner in which they operate. Three roles are identified in the literature as being core to the effective provision of eLearning: eTeachers, ePrincipals and Site Supervisors. Systems required for effective eLearning include: preparing students/teachers for the expectations and skills required for online learning/teaching; providing interactive and flexible courses; and monitoring and supporting students/teachers to sustain their online learning/teaching.

Finally, the technology-rich and rapidly evolving nature of virtual schooling brings another dimension to the challenges for the leadership of NZ's eLearning clusters. The generic principles of transformational, distributed and instructional leadership still apply but are insufficient on their own to cope with the rate of innovation adoption required. Additional implications for eLeadership include: sound change management skills and understanding are required; good communication, thoughtful planning and differentiated PD are also necessary; development and retention of teacher-leaders is an effective strategy for sustained and systemic innovation adoption; and teachers need time, support (including online support), access to equipment and resources.

DISCUSSION of the LITERATURE REVIEW

This research is situated in a context which sits between and draws upon two distinct areas of literature:

1. traditional educational leadership perspectives that are developed in and for conventional schooling; and
2. online teaching and learning concepts, particularly aspects related to virtual schooling.

This discussion attempts to draw significant aspects of the literature together, in order to locate and justify the overall position adopted for this research.

The literature available for conventional educational leadership is extensive, multifaceted and still evolving. Empirical studies, particularly for instructional leadership dimensions, quantify the effects of leadership practices on outcomes for students and provide some evidence for recommended leadership practice in schools. Many leadership perspectives acknowledge the importance of context for practice and research but there is a paucity of literature regarding leadership of virtual schooling. The inclusion of technology leadership dimensions (which have their roots in online teaching and learning literature) helps to complement the conventional educational leadership perspectives but it is unknown how applicable they are to the context of this research.

The literature for online teaching and learning emphasises the significance of pedagogy, professional learning and organisational structures/systems. Implications for leadership are developed but most are largely provisional because of limited literature about virtual schooling and its leadership and also the rapidly evolving nature of virtual schooling itself. While some evidence is emerging about effective virtual schooling practices it is tentative rather than definitive and the implications for leadership are equally provisional, at best.

Comparing and contrasting relevant findings from the separate sections of the literature review reveals some commonalities and also some significant differences, including:

Educational leadership	**Virtual schooling**
Instructional leadership advocates: • promoting and participating in teacher learning and development; • establishing goals and expectations; • planning, coordinating and evaluating teaching and the curriculum. (Robinson, et al., 2009).	Virtual schooling advocates: • preparing students and teachers for online learning/teaching; and • monitoring and supporting students and teachers to sustain their online learning/teaching (Roblyer, 2006).

Educational leadership	Virtual schooling
A range of distributed leadership perspectives is espoused in the literature. The perspective adopted for this research views DL as: • spread across many members of each eLearning cluster; • focused on student learning; • contributing to cluster improvement; and • creating and sustaining an environment where core pedagogical decisions become a collective professional responsibility. This research focuses on the distribution of leadership functions rather than interactions or influence.	Complex layers of interacting social ecosystems comprise NZ's eLearning clusters. Multiple people with different roles and responsibilities work together to provide the infrastructure required to support the eLearning/eTeaching. Three roles are identified as being core to the effective provision of eLearning: eTeachers, ePrincipals and Site Supervisors (Davis & Niederhauser, 2007). The national context ecosystem interacts with and influences leadership within the eLearning clusters.
The generic principles of distributed and instructional leadership may be applicable but are insufficient on their own for the technology-immersion environment of NZ's eLearning clusters.	The technology-rich and rapidly evolving nature of virtual schooling brings another set of requirements for the leadership of NZ's eLearning clusters including: • change management and communication skills; • careful planning of differentiated PD; and • providing teachers with time, support and access to resources. (Sherry, et al., 2000) The development of online courses that are more interactive and based on constructivist pedagogical principles is recommended. This style of teaching requires a much more learner-centred, facilitative and collaborative approach with students than they currently experience in their virtual and their face-to-face classes (Lin & Bolstad, 2010).

The differences between the implications of the separate sections of the literature review are self-evident. However, the research compels the adoption of a set of priorities as the framework for the research questions. Furthermore, the priorities need to be based upon theoretical perspectives but the divergence of the perspectives makes this process imprecise and heavily reliant upon the researcher's judgement. Hence, it is important to not only locate the perspectives adopted but to also justify their selection for the research.

The context of this research is essentially a distance teaching/learning environment which has elements of both traditional schooling and virtual schooling contexts. The traditional schooling aspects include that: the students and teachers are physically based in bricks-and-mortar secondary schools throughout NZ; the courses offered are predominantly standard NCEA subjects found in nearly all secondary schools throughout NZ (Ministry of Education, 2010b); and many lessons are teacher-planned and directed with little emphasis on constructivist pedagogy and little student interaction (Bolstad & Lin, 2009). The virtual schooling aspects include: the physical separation of the eTeachers from their virtual students; ICTs immersion as the medium for the teaching and learning (Bolstad & Lin, 2009); and, the rapidly evolving nature of the technology and the virtual schooling environment itself (Roblyer, 2008). On balance, the eLearning context appears to necessitate the adoption of perspectives from both contexts, with particular emphasis on leadership practices that support teaching and learning in a distance environment.

It is on that basis that this research adopts the following aspects as priorities for the investigation of leadership practices that support teaching and learning in eLearning clusters:

- Leadership is shared but *how*? This notion is not only consistent with distributed leadership perspectives but also the complex/interactive ecological view of NZ's eLearning clusters. While this position accepts the distribution of leadership as a given, it also requires the research to investigate how the leadership is distributed. This research investigates how *leadership functions* are distributed by investigating the roles and responsibilities of the leaders within and beyond the eLearning clusters;
- The particular leadership dimensions are determined by selecting functions which are most likely to influence the learning outcomes for students in a distance eLearning/eTeaching environment. This notion is founded on instructional leadership principles but the dimensions are tailored for the virtual schooling context. Commonalities and specific emphases in the different sections of the literature review suggest that the most important aspects of leadership are:
    - PD for eTeachers and/or the formation of professional learning communities;
    - monitoring eTeaching and supporting eTeachers;
    - monitoring eLearning and supporting eLearners; and
    - preparing eLearners and eTeachers for online learning/teaching.

All of the above aspects of leadership are likely to have organisational structures and systems that enable and sustain them, with different combinations of school/cluster/inter-cluster/national personnel performing varying roles. However particular attention is paid to the roles and responsibilities of Site Supervisors, eTeachers and ePrincipals.

CHAPTER THREE: RESEARCH METHODOLOGY

This chapter provides an outline of the research methodology in order to locate the methods used and to justify their selection for this research project. It commences with a very brief overview of generic research methodology before narrowing the focus to aspects which are particularly relevant and applicable in this context. These aspects include qualitative research methodology and specific research methods such as case studies, interviews and document analysis. Sampling methods, data analysis, and ethical considerations are also identified and explained in this chapter.

METHODOLOGY

"We should be on our guard not to overestimate science and scientific methods when it is a question of human problems" (Einstein, 2009, p. 56). This quotation serves as a reminder that social research and knowledge itself exists in different forms and can be investigated in many different ways. However, the goal of social research is to improve the way people comprehend the social world through the creation of new frameworks for understandings or theories and educational research is one form of social research (Tolich & Davidson, 2003).

Cohen, Manion and Morrison (2007) and Clough and Nutbrown (2002) identify a variety of frameworks used to categorise educational research, including: qualitative/quantitative, positivist/interpretative and normative/interpretative/critical. All these methodologies are concerned with various ways to comprehend social environments and each is grounded in differing underlying ontological and epistemological assumptions.

However Clough and Nutbrown (2002) argue that educational researchers should choose the best combination of methodologies for each research project, rather than adopting a more purist approach. Several authors concur; for example Cohen, Manion and Morrison (2007) advise researchers to use 'fitness for purpose' as the guiding principle for determining which research methodologies are most suited to their research. Similarly, Bogdan and Biklen (1998) also encourage researchers to be pragmatic and to choose the research methodologies and tools that are most naturally suited to their research, arguing "particular problems demand particular solutions. Research should always be tailor-made" (p. 21).

Moreover, Janesick (2003) argues that once a researcher has a question, site and participant, "he or she needs to decide what data collection strategies are most suited to the study" (p. 54). Similarly, Mutch (2005) describes typical qualitative research design as beginning with an issue the researcher wants to know more about. She argues that the research questions emerging from this interest drive the process of designing the research, including the selection of appropriate methodologies and methods for collecting the information or data required.

From this perspective, the intention of this research project is to develop greater understanding of leadership systems and practices that enable and sustain eLearning/eTeaching across two of NZ's eLearning clusters. Collating the formal and informal leaders' stories and interpreting the findings will provide some tentative insights into leadership in this emergent educational context. However, there is no intention to seek findings that can be generalised across all eLearning clusters.

Bogdan and Biklen (1998) recognise 'qualitative research' as an umbrella term which encompasses several research strategies that have the following characteristics:

- the data collected is descriptive and is collected through sustained contact with people in their own settings;
- the research questions are framed to investigate complex phenomena in situ and are concerned with understanding behaviour from the participant's perspective; and
- theories are developed constructively through an inductive analysis of the data.

This research is suited to the rich and deep, but relatively narrow, insights offered by a qualitative methodology rather than the broader but shallower overview that a quantitative research methodology typically provides.

Within the broad field of qualitative research methodology, numerous research methods and tools are identified which are applicable to this research project. For example, Mutch (2005) identifies the case study as being suitable for gathering rich information from a relatively limited range of sources and Bogdan and Biklen (1998) identify interviews and document analysis as the most common approaches used in qualitative research. Hence these methods are explored in greater detail in the next section.

An alternative methodological perspective is provided by Cohen, Manion and Morrison (2007), who identify normative and interpretative research paradigms. The criteria for these are well defined and are useful for clarifying where this research project is located within the gamut of research approaches. They identify interpretative research as being suitable for reaching specific conclusions within a very limited context. Interpretative aspects of this research project include that it:

- is of practical interest to practitioners involved in secondary teaching, particularly educators involved in NZ's eLearning clusters;
- contains questions and utilises practices which explore the perspectives of a few individuals;
- seeks to understand actions rather than causes;
- involves the researcher personally; and
- involves small-scale research that is subjective.

However a significant normative aspect of the research project is that the questions regarding instructional leadership practices are pre-determined and based on positivist views of leadership dimensions that are currently thought to make the most difference to eTeaching and eLearning.

On balance, this research is much more closely aligned to the interpretative paradigm than the normative but there are some aspects of both paradigms.

METHODS

Interviews

Kvale (1996) argues that the qualitative 'inter-view' constructs knowledge, as opposed to just collecting it because it provides an opportunity for the exchange of views. It is a powerful and flexible tool, enabling deep and complex issues to be explored. However, interviews have the disadvantages of: time, interviewer bias, inconvenience, interviewee fatigue and difficulty with anonymity (Cohen, et al., 2007).

Interviews are categorised by many different systems based on such factors as: the degree of structure, formality and openness of the questions. Robinson and Lai (2006) use a simple system to categorise interviews: structured interviews ask the interviewees to respond to the interviewer's ideas to check their applicability; and unstructured interviews are used to discover the interviewees' ideas so open questions are used to explore their thinking.

Mutch (2005) expands these categories by adding the semi-structured interview which she defines as "an interview where a set of guiding questions is used but where the interview is open to changes along the way" (p. 225). She argues that qualitative interviews are usually semi-structured or unstructured and are conducted one-to-one in order to gain in-depth understanding from the participant's perspective. Opie (2003) concurs, adding that a loosely structured interview is particularly powerful as a research tool when the topic is complex and/or little is known about it, as is the case with this research.

This research used semi-structured interviews as the primary method to collect the data. Sets of key questions were used to guide the interviews (see Appendices 1 & 2) but the interviews were allowed to develop and unfold in a relatively open-ended manner within these broad parameters. The main benefits of semi-structured interviews for this research project are that:

- the participants may have had very different understandings of their leadership roles so they could have interpreted the questions in different ways. The interview process allowed me to check participants' understanding of the questions and also enabled better understanding of the participants' thinking, the contexts of their cluster/school and the exploration of any significant subtleties in their responses;
- a semi-structured approach allowed for a more natural discussion and potentially richer source of data;
- successful interviews rely on interviewer-interviewee relationships and I had already developed professional relationships with many of the interviewees through my recent involvement in rural secondary education; and
- the time intensive nature of interviews was less of a consideration in this instance as the number of research participants to be interviewed was relatively small, 16 people only in total.

Different interview schedules were developed for school-based research participants and for National Officials (see the section on Research Questions and Appendices 1 & 2 for details). As already noted, the interview schedules were used in a very flexible manner throughout the interviews to guide the discussions.

Document Analysis

While the primary data gathering method was the semi-structured interview, some participants wanted to provide existing documents in support of the verbal information they gave.

Cohen et al. (2007) identify document analysis as a data collection method that is suitable for researching case studies such as these eLearning clusters. Their availability, low cost and factual nature are all identified as advantages of document analysis. Additionally, Timperley (2009) identifies existing documentation as artefacts which provide a rich potential source of information about the distribution of leadership. Hence document analysis appears to be particularly suitable as a secondary source of information for this research.

However, Cohen et al. (2007) identify several concerns/issues that need to be addressed when using documents for research, including:

- most documents have "been written for a purpose, agenda and audience other than researchers, and this raises questions about their reliability and validity" (p. 201);
- they may be unrepresentative, selective, lack objectivity and be of unknown validity;
- documents do not exist in isolation so they must be considered within the context of a range of factors that were occurring when they were written; and
- some documents may be unavailable to the researcher, resulting in limited and potentially biased findings.

Overall, the position adopted regarding the use of documents in this research was that documents were used only when:

- they were relevant to the study;
- they were volunteered by the participants; and
- the context/background for the document had been explained during the interview.

Case Study

Cohen et al. (2007) define the case study as "a specific instance that is frequently designed to illustrate a more general principle" (p. 253). Case studies are characterised by: rich and vivid descriptions, chronological narrative, blending description with analysis and a focus on the participants. Their strengths lie in their: use of everyday language, strong reality, potential for insights into other similar situations and being able to be completed by an individual researcher. Their weaknesses include that they are: not always easily generalised to other situations, subjective and prone to problems of observer bias. Semi-structured and open interviews, observation, narrative accounts and document analysis are all identified as data collection methods which are commonly associated with case studies.

Stake (2003) distinguishes between two forms of case studies:

1. intrinsic case studies are primarily concerned with understanding one particular case; and
2. instrumental case studies are those which use the case to provide insights or generalisations for a wider issue.

This research investigates educational leadership within and across just two of NZ's 15 eLearning clusters. From that perspective, it could be considered as two intrinsic case studies. However, the primary data collection method is restricted to just semi-structured interviews so it must be acknowledged that this falls well short of the comprehensive range of data gathering over an extended period that would normally be required for case studies (Cohen, et al., 2007). Hence this research is better thought of as a limited study of two cases rather than two case studies. However, for ethical reasons (mainly anonymity), the two cases are not identified and the data from both cases are merged together in the findings; this not only helps to provide greater anonymity but also provides more instrumental findings than would otherwise have been the case.

Sampling Method and Sample Size

Selection of participants for this research project was determined by a combination of two sampling methods: purposive and snowball. A brief outline of their characteristics and suitability for this research project is presented below.

Purposive sampling is a sampling method where researchers handpick the participants based on the suitability of their characteristics for the research (Cohen, et al., 2007). They argue that purposive sampling is particularly suitable for situations that require the researcher to access people who have the in-depth knowledge and other attributes required for the research. In this study, two ePrincipals and four National Officials comprised the purposive sample. The ePrincipals were the first two participants to be interviewed because of their expertise, experience and ability to identify/recommend other potential participants.

Snowball sampling involves using participants as informants to identify and possibly introduce the researcher to, other suitable participants who qualify for inclusion (Cohen, et al., 2007). These secondary participants may then be used to identify other suitable participants and so on; hence the term snowball sampling. This sampling technique was adopted for this research project because, at the outset, it was unknown to me who the individuals were that comprised the web of formal and informal leaders within the eLearning clusters. The two ePrincipals not only knew who the other leaders were in their eLearning clusters but also knew their roles and responsibilities. Therefore not only was snowball sampling suitable for this research but the selection of the two ePrincipals as the first two interviewees was an obvious choice.

The sample size of 16 research participants is composed of 12 school-based participants (ePrincipals, eTeachers, Site Supervisors and Principals) and four National Officials. Six professionals from each eLearning cluster comprise the school-based participants. This sample size is large enough to include many of the significant (formal and informal) leaders within the eLearning clusters and also comprises a significant proportion of the officials with national responsibilities for eLearning.

The research participants and the time/text of their interviews is summarised in Table 1 below:

Research participant	Abbreviation	Interview time (mins)	Interview text (words)
ePrincipal 1	eP1	58	7437
ePrincipal 1	eP2	72	5523
Principal 1	P1	34	3834
Principal 2	P2	25	3042
Principal 3	P3	42	4466
eTeacher 1	eT1	36	4292
eTeacher 2/ Site Supervisor 2	eT2/SS2	32	3893
eTeacher 3/ Site Supervisor 3	eT3/SS3	73	8372
eTeacher 4	eT4	29	3891
eTeacher 5	eT5	33	3285
Site Supervisor 1	SS1	32	4821
Site Supervisor 4	SS4	39	4510
National Official 1	NO1	106	14015
National Official 2	NO2	80	8595
National Official 3	NO3	62	7613
National Official 4	NO4	54	5439
	TOTAL	807	93028
	AVERAGE	50.4	5814

Table 1: Summary of Research Participants and Interview Durations

Data Analysis

The interviews were recorded (with each participant's permission) and transcribed verbatim into text documents. The transcripts and other useful documents provided by the participants were then imported into a qualitative data analysis software package (QSR NVivo 8). I used the software to classify the data according to the themes developed for the interview schedules and also for themes that emerged during the data analysis. The data for each of the themes was then collated, analysed and summarised to produce initial findings which were then provided in draft form to all the research participants. The purpose of this process was to enable participants to check the accuracy of the findings and also to seek their feedback and/or additional information prior to the findings being finalised. This was done to ensure the accuracy and completeness of the findings from the participants' perspective(s).

ETHICAL CONSIDERATIONS

As with all educational research, this project had to be conducted in such a manner that no harm was caused to the participants or to their clusters/schools through any of the actions of the researcher. The University of Canterbury requires that ethical approval is obtained prior to the commencement of the research, in order to ensure that ethical considerations are fully addressed and that any potential risks are identified and addressed.

Mutch (2005) identifies the following as important ethical considerations when embarking on a research project:

- informed consent;
- voluntary participation;
- right to withdraw;
- permission;
- coercion;
- deception;
- confidentiality;
- anonymity;
- privacy;
- participant safety;
- researcher safety; and
- dissemination.

All of these ethical considerations were addressed in this research project. Many of them were overtly addressed in the letters that were sent to all prospective participants and their principals – see Appendices 3, 4 and 5. The letters explained the purposes, conduct and dissemination of this research, sought the participants' consent to be involved and ensured that this was informed consent. Participants were free to choose whether or not to participate in the research and were free to withdraw at any stage (up until analysis of the data was completed) without consequences. Permission to access the school was also sought if the participant was not the principal. To ensure privacy, an offer to conduct the interview off the school site was made to all participants. No coercion was used to obtain participation in this research and participants were not deceived about the purposes or methods of this research.

All data provided, written or verbal, remains confidential to me and is securely stored in password protected facilities and/or locked storage at my private residence, where it will remain for up to five years when it will be destroyed. Anonymity was assured for all participants, their cluster and their school. Questions related solely to the purposes of the research so that participants' privacy and use of their time were respected. Participants were not subjected to any harm or repercussions and all were informed whom to approach if they had any concerns about the conduct of the research. I was not placed in any position of physical or emotional harm. The findings of the research were fairly and accurately reported, to be published as a thesis by the University of Canterbury. As a courtesy and thank you, all participants were provided with a summary of the findings and recommendations when the thesis was published. Collectively, these measures ensured that no harm could come to any participant, or their organisation, as a result of their participation in this research.

RESEARCH QUESTIONS

The research questions determine the selection of appropriate methodologies and methods for collecting the data (Mutch, 2005); hence their centrality to the research project. This section commences by outlining the overarching research question for the thesis, before describing and explaining the key questions that collectively address the overall research question. Different sets of key questions were developed for the school-based research participants (Appendix 1) and for the national participants (Appendix 2). Links to the literature are made overt, in order to locate and justify the compilation of the key questions.

Overall Research Question:

How do educational leadership practices enhance eTeaching and eLearning within and across NZ's eLearning clusters?

The overall research question not only reflects my interest at the outset but also the overall intent of the research project. However research into eLearning is invariably complex and multi-faceted so the overall research question is composed of several interrelated key questions and each of these has many possible dimensions. The following key questions examine the distribution of crucial instructional leadership practices in eLearning clusters; the possible sub-questions make explicit the particular leadership implications which the literature indentifies as being of potential interest.

Key Questions for School-Based Research Participants

Five key questions were used as the basis for interviews of school-based research participants:

1. How is professional learning/development promoted and provided?
2. How is eTeaching monitored and support provided for eTeachers?
3. How is eLearning monitored and support provided for eLearners?
4. How are eLearners/eTeachers prepared for online learning/teaching?
5. How is instructional leadership provided across multiple clusters?

These key questions collectively investigate the aspects of instructional leadership which the literature identifies as being most likely to significantly have an impact on eLearning. The following sections identify the literature which justified the selection/design of each key question and also the leadership dimensions which were probably of most significance at the outset. See Appendix 1 for the full interview schedule which was used to guide the interviews of school-based research participants (ePrincipals, eTeachers, Site Supervisors and Principals).

Key Question 1: How is professional learning/development promoted and provided?

Evidence for the efficacy of professional learning/development is unequivocal in both the instructional leadership literature (e.g. Hattie, 2009; Robinson, et al., 2009; Timperley, et al., 2007) and also the online learning literature (e.g. Dexter, 2008; Voogt & Knezek, 2008).

This key question not only investigated this vital leadership dimension but also provided a natural opportunity to explore other key aspects of leadership that may have been unique to the research context, such as organisational systems. The answers also helped to identify the range of functions and the web(s) of leaders within and beyond the eLearning clusters.

This key question was composed of many possible sub-dimensions such as: organisational structures (e.g. committees or groups) and/or systems (e.g. meetings, appraisals and reviews) which are used to provide the PD; professional learning communities; the use of student achievement data; and how professional learning/development is planned, monitored and reviewed.

Key Question 2: How is eTeaching monitored and support provided for eTeachers?

Monitoring eTeaching and supporting eTeachers is another leadership dimension which is identified in both instructional leadership literature (Hattie, 2009; Robinson, et al., 2009) and online learning literature (Dexter, 2008; Roblyer, 2006) as being vital for successful online learning programmes.

This key question not only continued the process of gathering information about the instructional leadership roles but it also aimed to uncover some of the cluster/school systems regarding eTeaching.

This key question was also composed of several probable sub-questions, including: how eTeaching is monitored and evaluated; how cluster and school systems work together; goals/expectations for eTeachers and/or eLearners; and links to eTeachers' PD.

Key Question 3: How is eLearning monitored and support provided for eLearners?

Similarly, monitoring eLearning and supporting eLearners is also widely regarded as being vital for successful online learning programmes in both the instructional leadership literature (Hattie, 2009; Robinson, et al., 2009) and the online learning literature (Dexter, 2008; Roblyer, 2006; Schrum & Levin, 2009).

This key question provided another angle from which to explore other key leadership aspects that may have been unique to the research context, such as the organisational structures and systems required to support students in this distance learning context.

Probable sub-questions included: how eLearners are monitored to ensure they are engaged in their learning and making satisfactory progress, including structures/systems which are used to do this; what home-school support is provided for eLearners; and what processes are used for eLearners to set goals and/or self-monitor their progress.

Key Question 4: How are eLearners and eTeachers prepared for online learning/teaching?

Roblyer (2006) argues strongly for the preparation of eLearners and eTeachers for their online learning/teaching as being particularly important for the virtual schooling context of this research, hence its inclusion as a key question.

Probable sub-questions included: how eLearners are prepared for the expectations, challenges and opportunities that are inherent in online learning, including structures and systems used to do this; and how eTeachers are prepared for the expectations, challenges and opportunities that are inherent in online teaching.

Key Question 5: How is instructional leadership provided across multiple clusters?

This key question extended the scope of the instructional leadership activities to encompass leadership role(s) across multiple clusters because several authors identify the wider context as a significant aspect to the leadership of eTeaching/eLearning (Davis, 2008; Davis & Niederhauser, 2007; Roblyer, 2008; Zhao & Frank, 2003).

The intent here was to gain insights into the instructional leadership dimensions across the clusters as opposed to within them. Probable sub-questions included: professional collaboration (such as professional learning and/or curriculum planning) between eLearning clusters; national support and guidance; the structures and systems that are used to develop/maintain the collaboration; and the processes that are used to monitor and review it.

Key Questions for National Research Participants

Davis (2008) argues for an ecological perspective of eTeaching/eLearning which recognises an array of nested ecosystems, ranging from the micro-level of the classroom to the macro-levels of the national (and global) educational biospheres. She views these ecosystems as interacting across four dimensions: professional, political, commercial and bureaucratic. Therefore the national context for eLearning comprises an important ecosystem which has an impact on the leadership of NZ's eLearning clusters.

Similarly, Law et al. (2008), in a major international study of ICT in education, argue for a conceptual framework which recognises national *system factors* as a key element that interacts with school/teacher factors to significantly influence teachers' practices and learning outcomes for students. Anderson and Plomp (2008) identify four major types of system-level factors: demographics, education system, pedagogical trends and ICT-related policies.

Whilst it was beyond the scope of this research project to investigate these system-level factors fully, it was nevertheless important to gain some understanding of how national education policies and resources were influencing the leadership of NZ's eLearning clusters. This not only justified the inclusion of national research participants in the research but also required the development of a different set of key questions for this aspect.

Appendix 2 provides the full interview schedule which was used for the interviews of National Officials regarding the national context for eTeaching/eLearning. These interviews explored significant aspects of the national context for eTeaching/eLearning identified by Law (2008a) including: developing leadership; promoting and providing professional learning/development; enabling professional collaboration between eLearning clusters; the infrastructure required for eTeaching/eLearning; preparing new eTeachers for teaching online; providing students/families with resources that enable access to eLearning, developing teachers' pedagogical practices; and national ICT-related policies and/or initiatives that support effective eTeaching/eLearning.

CHAPTER FOUR: FINDINGS

These findings not only describe the participants' responses to key questions but also identify significant connections, omissions or contradictions. The chapter commences with an analysis of the findings for the school-based participants' key questions. The focus then turns to findings related to the national context questions, before finishing with issues that arose during the research process. The findings seek only to make sense of the leadership eTeaching/eLearning from the participants' perspective(s), irrespective of any literature which may support or contradict these views.

FINDINGS for SCHOOL-BASED KEY QUESTIONS

Professional Learning and Development

This key question initially sought to investigate the structures and/or systems used to provide professional learning/development for eTeachers but its scope was extended to include Site Supervisors and ePrincipals due to the key roles they play in leading eLearning and eTeaching. Significant aspects of this key question included: professional learning communities; the use of student achievement data to inform PD; and how PD is planned, monitored and reviewed.

Responses from both ePrincipals and also from information contained in both of their job descriptions, indicate that it is their responsibility to plan and organise regular PD for eTeachers. The two strategies most highly favoured (by the ePrincipals) for providing eTeachers' PD are encouraging/facilitating professional sharing amongst the eTeachers at annual PD workshops and regular visits to the eTeachers in their schools to offer informal support:

- We have two days face-to-face PD at the end of the year… also have two days PD at the beginning of the following year… a chance for eTeachers to work by themselves together; it's sort of like working on developing their courses but sharing ideas with other teachers and me helping them to work as a group… I go in (to schools) at least once per term to support the eTeachers - I keep in touch, give them some PD, basically it's related to what they want but also targeting a few things… typically, at the end of the year, we would look at what has happened over the course of the year and do some brainstorming of challenges and issues and looking at ways forward… it's more of a sharing-working process, than structured PD... during this time we are also looking at new tools and things like Google Apps (eP1); and

- My responsibility is to ensure that PD happens, not necessarily that all the PD is delivered by me… We have two PD days that happen at the end of the preceding year and I am available for PD if and when, eTeachers need it. For example, at the start of this term I flicked out an e-mail to arrange a meeting with eTeachers to see how things were going… Most of the teachers were relatively experienced eTeachers so we concentrated on using Moodle to set up their courses… there were a few workshops run by the eTeachers themselves using their own expertise. And then on the second day, we had them in curriculum groups which is where they shared their experiences, looked at possible ways of working together and so on. A lot of it was actually about reflection rather than learning new things. (eP2).

However, eTeachers expressed a wide range of views as to the provision and the effectiveness of the PD including:

- Last year we had a combined training session with two other clusters and I went to that… so I have had a chance to talk to other eTeachers who teach XXXX (subject) by VC but I don't believe that I actually learnt much from that… Ongoing professional development, not really. We have occasionally had the odd cluster meeting… I have been learning on my feet… making things up as I go… (eT3); and
- Last year I was part of a two-day conference… and basically had a look at what people were doing… I definitely help people and offer my services in regard to ideas and things that they can actually do… for example, uploading pictures or voice recordings, or organising how to do a test... and the ePrincipal has been my main source of help and ideas and he is just fantastic so whenever I have any problems or queries then I give him a call and he will send me through some links or... we have pretty much had a meeting every term since I have started eTeaching and he (the ePrincipal) organises it… the two-day conference last year was about basically seeing how eLearning was actually working and different ideas from different eTeachers… there were also workshops to help you if you didn't know how to do something… so it was actually very helpful… and I find that a really good source of information is the Internet… like if I want to know how to do anything new, then I look on the Internet and there are some absolutely fantastic tutorials on there about different ways that you can do things so that makes it very easy (eT5).

The systems for planning, monitoring and reviewing PD appear to be a weakness in both eLearning clusters as there is little evidence of coherence, monitoring, evaluation or refinement in any of the interview transcripts. As ePrincipal 2 stated:

- That is probably one of the things that we need to do (plan, monitor and evaluate PD)… The first time we ran the joint workshop we didn't do the immediate feedback about what was useful or not so useful… but thinking about it now, it would be a very good thing to contact those teachers and ask what sort of PD they would like as a group together (eP2).

Another aspect of PD which this research investigates is the significance of professional learning communities (PLCs). Given the highly reciprocal environment and the emphasis that both ePrincipals place upon sharing best practice to provide PD, it is surprising that there is little evidence for the development of PLCs. Three eTeachers stated they did not participate in any ongoing PLCs but two eTeachers did identify some limited participation:

- We did have a go at trying to get online XXXX (subject) teachers all to be sort of part of a group but… there wasn't really the interest to keep it going. We do have meetings within our cluster with the other online teachers so we hear about interesting things that are working for them and what is not working so that saves us falling into the same traps (eT2); and
- From time to time XXXX (eTeacher) and I would have a chat… so yes, we do chat from time to time… and I found that group really useful but more when I was sitting down with individuals and asking about specific things… you know, meeting up with other people who use Moodle and finding out more about how it works and how they are using it (eT4).

In response to questions about the use of student achievement data to inform and/or evaluate eTeachers' professional learning and development, most participants could not identify specific ways that student achievement (NCEA) data is used. A typical response is:

- Student achievement data from NCEA from last year… is used as part of that conversation (with eTeachers) and also to Principals. The NCEA data, it is difficult to make a meaningful analysis of it because… at a statistical level it is probably fairly meaningless because of small classes but also because individual student data can be highly variable… really I use the data with eTeachers to have a conversation around, you know, "Are you aware about how your students did last year? Have you any explanations of why you think particular students may have done better or worse? What was your experience of the class compared to their experience?" (eP2).

Some participants identified cluster surveys of eLearners' perceptions/evaluations of eTeaching (which are indicators of student opinion/experience rather than student achievement data) as being useful to inform eTeachers' PD, although none specified exactly how the surveys had actually been used in eTeachers' PD. Principal 1's response is typical:

- The ePrincipal does some quite thorough surveying of students throughout the year and that surveying is … part of the (eTeachers') PD. So those surveys provide data which you can then look at and see what it is that the kids like about it, what they don't like about it and what they are finding difficult and address the (eTeachers') PD to that… (P1).

Professional learning and development for Site Supervisors was also investigated as part of this key question. Participants' responses indicate that Site Supervisors' PD is mostly informal and sporadic:

- I have a chat to them (Site Supervisors) and we talk about students etc. but nothing about how to do their job better so their PD has been quite limited… actually one of the key things with Site Supervisors is to get them connecting a bit more and sharing a bit more of their knowledge and what they do because we have got some very experienced ones so that is something I am going try and do more of in the future (eP1);
- We did get the group of Site Supervisors together for them to share experiences but it was difficult to know how much change in practice that made even though the feedback from the day was good… we have now moved to internet-based stuff like videos of how to do things so we have moved away from face-to-face PD and put a lot more of that back on individuals to be able to manage and control their own PD as needed… (eP2);
- The ePrincipal sometimes has online sessions for the Site Supervisors to share issues… you know getting together on VC to talk about the issues and how you handle it and so on… I see the informal discussions as just as valuable as the formal PD because it is specific and it is current (SS1); and
- Ongoing professional development, not really. We have occasionally had the odd cluster meeting… I had some basic training at the beginning and then after that I have been learning on my feet… making things up as I go… (SS3).

Similarly, professional learning and development for ePrincipals was also investigated but the findings are inconclusive because only one of the ePrincipals adequately addressed this question. One of the ePrincipals spoke positively about his (Ministry funded and organised) PD over the first two years and also the benefits of his own ongoing tertiary study in educational leadership. Whereas the other ePrincipal spoke mostly about the difficulties with his initial training as an ePrincipal (see later section on preparation of ePrincipals) rather than any ongoing PD.

Overall, the research participants identify that professional learning/development for eTeachers and Site Supervisors for the most part is collegial, informal, sporadic and serendipitous rather than well-planned, monitored and reviewed. Moreover their PD is not well-aligned to the professionals' learning needs, goals and appraisals. Little, if any use, is made of student achievement data to inform eTeachers' PD and improve eTeaching. These concerns are explored in greater detail in the discussion of the findings.

Monitoring eTeaching and Supporting eTeachers

This key question sought to explore how each cluster monitored eTeaching and provided support for eTeachers, particularly the systems used to monitor and evaluate eTeaching, professional goal-setting processes for eTeachers and any links to their appraisals/PD. The remainder of this section outlines these aspects in greater detail, with illustrative quotes from research participants where relevant.

Interestingly, neither of the eLearning cluster's policies and procedures manuals and neither of their ePrincipal's job descriptions, contained any reference as to how (or if) eTeachers would be appraised. However, it is a statutory requirement that all NZ secondary teachers are appraised annually *by their employing school* (Ministry of Education, 1999). The implication is that employing schools had retained full responsibility for appraising eTeachers rather than delegating this responsibility to, or sharing it with, the eLearning clusters.

However eTeaching is a highly specialised form of distance teaching which involves students who are learning from multiple sites and via a range of technologies. So it is unsurprising that none of the Principals expressed confidence in their own school's systems for appraising eTeachers and that all of them had confidence in the ePrincipal to do this. Conversely, the ePrincipals did not view formal eTeachers' appraisals as their direct responsibility, with both identifying roles of informal professional support for eTeachers and/or the employing schools. The following quotes illustrate well the dilemma of eTeachers' appraisals:

- I don't think that (eTeacher appraisal) is done very well at the moment. It is not done by us as the school and one of the things that we as a cluster want to do is to move into a more realistic appraisal system… I think somebody who is knowledgeable about eLearning needs to look at the eTeaching that is being done. I don't think that it is a very good idea for me to try to appraise somebody who is teaching via the VC because I really don't know if they are doing a good job or not to be quite honest… and I think the eTeacher appraisal really needs to be done by the ePrincipal (P1);
- So we haven't got an appraisal system this year, we've got a professional learning program… What we will move to next year, is that eTeachers' appraisals are part of their normal school appraisal. So if they are an eTeacher, one part of their school appraisal, one goal for example, is part of their eTeaching and it is my job to liaise with those schools to provide ongoing PD and guidance as to how they evaluate the eTeaching... So this year it is reasonably informal and to be honest in most years it has been… it can't just be me all the time because it is not sustainable having just one person doing all the eTeaching appraisal (eP1 – from the same cluster as P1 above);
- She (the eTeacher) is appraised by her HOD within the school but whether he does the VC thing… I wouldn't want him to do it, no I would want the ePrincipal to do that. And I am not clear in my own mind about how we have got that designed to feed back into our own systems (P3); and
- We have moved to a more informal system where teachers select opportunities for PD during the year… the more informal model really is intended to make them think that it is not appraisal but it is actually PD… the problem with having it informally is that it can fall behind which it has done… It is basically my job to ensure all eTeachers are feeling comfortable about what they are doing and also to have a conversation around, you know, "Have you tried this? Have you tried that?" to ensure that their practice is reflective. This term, I am again in the process of seeing eTeachers... it is a professional conversation (eP2– from the same cluster as P3 above).

Similarly, professional goal-setting, monitoring and reviewing is not well developed in either of the eLearning clusters, despite the efforts of one of the ePrincipals. Some of the difficulties and confusion of coordinating cluster and school systems for this are evident in the responses below:

- They (eTeachers) set a professional goal and they have to look at actions to implement to support that and then I support them in terms of achieving that… the professional goal had to be about eTeaching so it had to look at what was unique about that and I gave them some guidance about that… at the beginning of the year we got onto the online forum to share some ideas about what is unique about eTeaching and what is challenging about it compared to normal teaching. We started to tease out some key ideas in terms of general areas to focus on with their eTeaching and think about their own goals…one of the big ones was collaboration, reducing the isolation of the students (eP1);
- Yes I did (set goals for eTeaching)… and I think the goals were in Term 2… and now it is near the end of Term 3 and I haven't solved the problem yet… it was one of the (ePrincipal's) requirements that was e-mailed to me one day… and he wanted us to do those goals… but I don't know exactly what happened to them after I e-mailed them to him (eT1);
- The ePrincipal asked us to come up with some sort of goals that we could try and work on… my particular goal was that I wanted to make the students use Moodle a bit more, by making it a bit more attractive for them to get on to use it more and so that they could discuss questions amongst themselves… They don't actually interact much with each other in forums and that is what I was trying to get because it would have made it a lot easier if they could help each other with the questions (eT2);
- Initially, for the first couple of years, yes I did set professional goals for myself… it was part of my own school's PD and performance appraisal system… I decided to develop my VC program so that it works. I am now at the point where I refine it but don't have to reinvent it each year so I tend to make minor changes and maintain it because I find it makes my workload a lot more balanced…ultimately those goals are self-monitored … (eT3); and
- I think that the eTeacher sets goals within our school for her eTeaching, whether or not that is shared with the ePrincipal, I wouldn't know… (P3).

Given the above difficulties regarding systems for eTeachers' professional goal-setting and appraisals, it is unsurprising that interviewee's responses did not point to any strong links to eTeachers' PD. Hence, it appears that eTeachers' PD is not informed by their professional goals or any feedback they may receive from their appraisals. The current disconnection between these processes is likely to result in PD that is sporadic and ineffective in terms of sustained improvement to eTeachers' professional practice. These concerns are considered in greater detail in the discussion of the findings.

Overall, these findings underscore the tensions that arise between school and cluster systems for professional responsibilities when self-managing schools engage in close and ongoing professional collaboration. It is apparent that each of the schools has its own, quite distinct processes for teachers' appraisals, professional goal-setting and PD. Yet none of the schools' Principals are confident of their capability to carry out eTeachers' appraisals; the person they all identify as having the expertise to do these appraisals is the ePrincipal, who does not view this as his responsibility. As a consequence, monitoring eTeaching seems to be almost non-existent and support for eTeachers for the most part is informal and haphazard as opposed to part of a coherent and systematic programme for their professional appraisals, goal-setting and PD.

Monitoring eLearning and Supporting eLearners

This key question investigated how eLearners were monitored and supported in their learning. The focus was particularly on the systems used, in order to ascertain how the leadership of eLearning was distributed within each school and across the cluster. Specific questions were asked about student goal-setting and self-monitoring because of their particular significance in the literature regarding support for eLearners.

Research participants identify eTeachers, Site Supervisors and ePrincipals as the key professionals responsible for monitoring and supporting eLearners in their learning, with lesser roles also being identified for schools' NZQA Nominees, Principals and parents. Below is an outline of the interrelated roles and responsibilities for eTeachers, Site Supervisors and ePrincipals with respect to monitoring eLearning and supporting eLearners. However, it must be noted that there is significant variation in the practices of the professionals, particularly for school-based roles so most of this section describes *typical* roles and responsibilities unless otherwise stated.

Interestingly, the majority of interviewees chose to focus on student *engagement*, as opposed to student *progress*, when they were asked about how they monitored eLearning/eLearners. Not only were there more than double the number of responses (27 c.f. 12) for monitoring student engagement but the responses were also much fuller and more detailed.

Typically the responses about monitoring student engagement provide detailed descriptions of who is involved when student engagement is considered (by eTeachers and/or Site Supervisors) to be inadequate. Illustrative responses include:

- Generally if things are going very well, you don't really need to be in contact with anyone else, except for the administrative things. But when things are not going very well, I generally e-mail the student and send a copy to their Site Supervisor to start with… and if it continues to not go well then I start to communicate with the Site Supervisor and ask them to go and talk to the student because I obviously can't… So basically I use the Site Supervisor as a support person when things are not going too well (eT1);
- We have a system where the rolls for them are kept… so they come in and they sign-in… I also meet with all of the students and make it quite clear what the school's expectation of them is, in terms of where they are to be and how often they are to check in with me… and if I know that there is an internal assessment due, then I am up their talking to them about what they need to do to get it in on time (SS4); and
- When I go around schools, I talk to students as well, especially in the first term to get feedback about how things are going. Another way of doing it is to monitor what is happening online so I go in and look at it to see what they are doing (eP1).

The common assumption appears to be that if eLearners are meeting the attendance, behaviour and work completion requirements, then they are engaged in their learning and no further monitoring or support is required. However, if an eLearner fails to meet these requirements then the eTeacher initiates a process of communication, starting with the eStudent and progressing to involve the Site Supervisor and others such as Deans, Principals and ePrincipals to sort out the problem. Participants also identify these practices as the distance equivalent of what happens in their schools for the students in face-to-face classes.

By comparison, the systems used for monitoring student progress appear to be much less well developed and utilised when compared with the systems for lack of student engagement. Very few of the interviewees responded in any detail in response to direct questions about the monitoring of student progress, with most referring only to formal written reporting processes which occur once or twice per year along similar lines to their face-to-face school reporting procedures.

One particularly vigilant Site Supervisor had developed systems for monitoring student progress which may be an example of best practice in the eLearning clusters. The systems involve a combination of formal aspects where the eTeacher marks student assessments and returns them to the Site Supervisor who records the marks, with informal aspects where the Site Supervisor discusses progress with each eLearner when she returns the marked assessments to him/her:

- I find just by keeping in contact with the eTeacher and then every time I walk past (the student), you know "how is it going?"… I have a reasonably good record of who is working and who is not and when tests are returned they are addressed to me so I open the envelopes… when I return tests, I usually say "How do you think you went?" and then see their response and then give them their test back and then have a brief discussion with them about that particular test… (SS3).

Formal processes for setting and reviewing goals with eLearners are not part of the eLearning clusters' systems for monitoring and supporting eLearners, although some of the Site Supervisors appear to have developed informal processes for this. In schools where goal-setting is done as part of their systems for supporting face-to-face students in their learning, there is no connection to the Site Supervisor/eTeachers who are supporting the eLearners:

- I don't know whether or not their eTeacher does any goal-setting… probably for every single student I could tell you what their level of interest in the subject is, in what they are aiming to achieve… and that is just from talking to them and getting to know them and seeing how they are achieving and how much effort they are putting in (SS4);
- I don't sit down at the start of the year and ask them what their goals are for this subject but… that might be something that I would do in the future (eT4);
- They do goal-setting as a general student body (in this school), not specifically for eLearning… I am not quite clear on what they do... it is not part of my processes so I wouldn't know if they have set a goal about distance learning (SS1); and
- All our students do goal-setting through their form time so I don't deal with extra goals… those goals are monitored or reviewed through their form teacher… I don't see any goals for particular students, unless they happen to be in my form class (SS3).

The importance of the role of Site Supervisors for monitoring and supporting eLearners in their learning appears to be underestimated by some schools. Cluster documentation recommends that Site Supervisors be given one hour per week but some of the schools allocated the position even less time and status than this. Typically Site Supervisors are responsible for 10-20 eLearners in their school, although some have up to 30 eLearners. Given that most Site Supervisors are also busy with other teaching and/or school administrative duties, it is therefore unsurprising that they primarily attend to routine administrative tasks in the time that they are allocated, rather than developing more proactive systems for monitoring and supporting eLearners in their learning.

Research participants also identified a range of other school and/or cluster systems for supporting eLearners, including systems for:

- student enrolments in appropriate courses provided by the eLearning cluster and/or another eLearning cluster on the VLN;
- supervised study and/or systems for monitoring student attendance and work;
- access to ICT equipment and to a room with VC equipment. Typically the Site Supervisor also provided support to eLearners to ensure they knew how to use the VC equipment and online Learning Management Systems such as Moodle;
- eTeachers to formally report (usually through Site Supervisors) to students, parents and the school in which the eLearner was enrolled;
- eLearners to complete formal assessments, eTeachers to mark these, Site Supervisors to record the marks (for the school's and NZQA's records) and then return the marked work to the eLearners; and
- supplementary in-school support (usually tutorials) from subject specialist teachers to eLearners that they did not normally teach, as and when it was required.

The three professionals who have the greatest involvement in supporting eLearners in their learning are eTeachers, Site Supervisors and ePrincipals. While their roles and responsibilities are distinct, many are also interrelated and require a coordinated and collective effort for effective eLearner support. From this perspective, leadership for eLearning is distributed across these three key professionals and can be summarised and represented diagrammatically as:

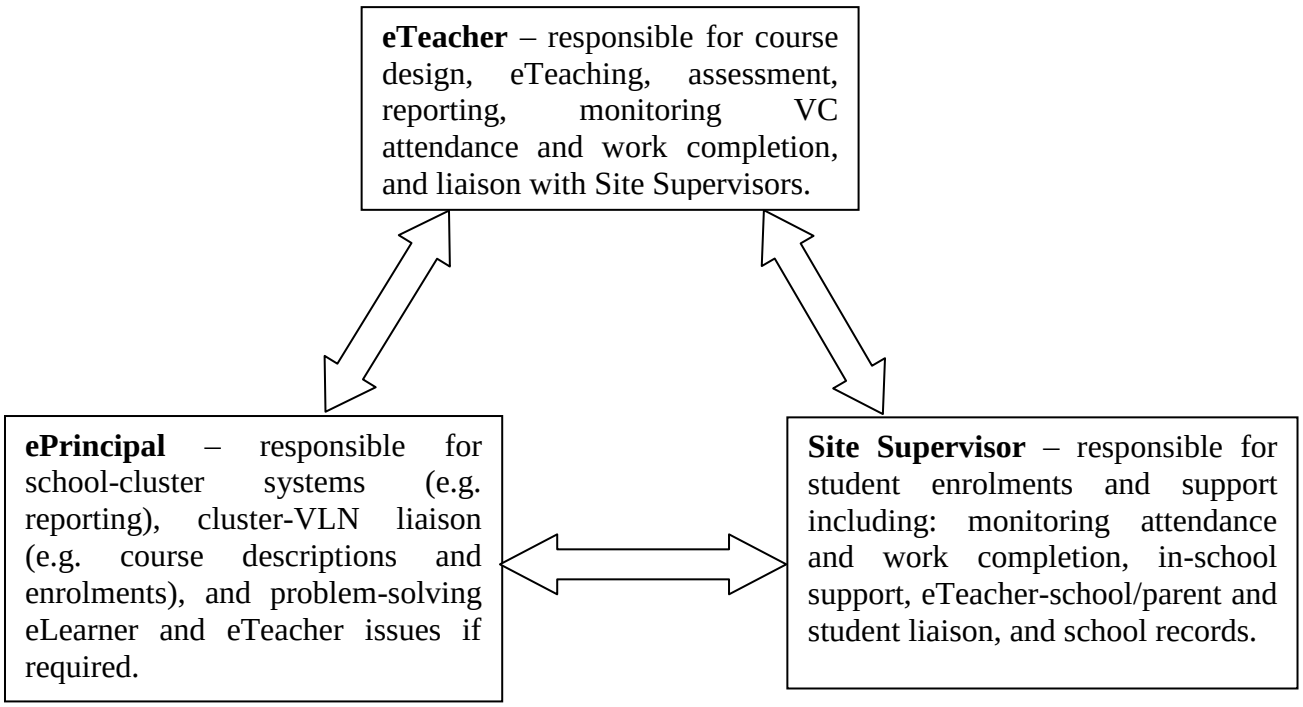


Figure 4: Site Supervisors', eTeachers' and ePrincipals' Roles for Supporting eLearners

The above roles and responsibilities appear to be the distance teaching/learning equivalents of those which operate in the students' face-to-face classes schools.

Overall the leadership for monitoring and supporting eLearners is distributed across Site Supervisors, eTeachers and (to a lesser extent) the ePrincipal. The systems are primarily aimed at ensuring students attend regularly, complete the work set and behave themselves, rather than being focused on students' learning. School and cluster systems for student goal-setting and self-monitoring to improve learning are not well developed or coordinated.

Preparation of New eTeachers, Site Supervisors and ePrincipals

Initially one focus of this research was on the preparation of new eTeachers for online teaching but the scope was extended to also include the preparation of new Site Supervisors and ePrincipals. To identify the leadership involved, I investigated how these professionals were prepared for the expectations, challenges and opportunities associated with eTeaching and eLearning. Particular attention was paid to school, cluster and/or national structures and systems that were used to prepare new eTeachers, Site Supervisors and ePrincipals.

Nearly all of the research participants view the preparation of new eTeachers as the responsibility of the eLearning cluster in general and the ePrincipal in particular, with some support also coming from within the schools. Cluster systems for the preparation of new eTeachers involve a combination of: support and guidance from the ePrincipal, PD workshops, collegial support and advice from more experienced eTeachers within the school/cluster and (sometimes) support from the school's Site Supervisor. Typical responses include:

- There is a teacher at a XXXX school who is going to be teaching XXXX (subject) next year and I will spend probably 2 to 3 days with her between now and the end of the year and she will also go to the PD days so there is fairly significant input of resourcing to ensure that teachers feel prepared to teach like this… all the preparation for new eTeachers is done by me (eP2);
- The ePrincipal meets with them (new eTeachers) and there are the two days of PD where they go through the differences between teaching face-to-face and teaching online…. And then on an ongoing basis, the ePrincipal will keep an eye on them and also the Site Supervisor keeps an eye on them so there is an internal school go-to person but then there is the ePrincipal who monitors it over the cluster (P1); and
- The ePrincipal came here quite a bit to work with new eTeachers... and he certainly had a huge role to play in preparing our eTeacher and he continued to support her through all of that year. So when she needed help, he would arrange to come and help her… and I also see my role as being supportive of the eTeachers (SS4).

Participants expressed a range of opinions as to the extent and effectiveness of the systems used for the preparation of new eTeachers. In part, this variation appears to be caused by large fluctuations in the demand for new eTeacher preparation and also the timing of when new eTeachers commenced their eTeaching. Responses from the more experienced eTeachers indicate that support for their preparation had been provided by a Ministry employee but that support no longer appears to be available to the clusters. Interviewee's responses which illustrate the wide range of eTeachers' perceptions regarding their preparation include:

- In the first couple of years we had the same eTeachers (so preparation for eTeaching was not required)… this year I had five new eTeachers and there was not quite enough support for them… the two PD days that we did at the end of last year (for all the eTeachers), just didn't work for them... they needed some time as new teachers to be taken through some things… so we need to develop a proper induction programme (eP1);
- This is my first year as an eTeacher… it was quite a learning curve because I was still learning how to be a face-to-face teacher in class… I think there was an intention to prepare the new eTeachers when we attended the two days of PD at the end of last year… it was not specific to new eTeachers… but those two days did not really go as well as planned… I think the PD should be split into two sections, one for new eTeachers and one for the more experienced eTeachers (eT1);
- Preparation for eTeaching… nothing. I really got thrown in the deep-end with it, in terms of training and support… I got briefly shown how to use the equipment by the ePrincipal… I got thrown in when a teacher had left (mid-year) and I was expected to take over the course… it was "this is the equipment, this is how you use it"… yes, I really got thrown in the deep end… but I have the feeling that it is not normal what I have been thrown into. I think for most eTeachers who went through the training that the whole system would be a whole lot easier… that was just due to the circumstances (eT4); and
- We had a session (a few years ago) there with XXXX (a Ministry person)… she just gave us ideas about the things that we should do, how to present the lessons, what the focus of your lessons should be… and that was for one or two days and it was incredibly helpful (eT5).

Investigating the preparation of new Site Supervisors proved difficult because only one of the Site Supervisors was relatively new to the position so particular attention was paid to how she was prepared for the role. Relevant responses from her and her ePrincipal, included:

- The ePrincipal was very helpful and the Site Supervisor at XXXX school was incredibly helpful to me. I met her a couple of times by VC and then I went and spent a day in XXXX school with her and she gave me a lot of electronic files that have been very helpful... it was the ePrincipal who put me in touch with her… and I also attended the ULearn conference that year which really helped me as well because I went to some of the sessions about VC… so that was really good because that gave me the big picture which I just needed to have… and an eTeacher let me sit-in on some of her sessions so that sort of gave me an idea of how VC session ran from the point of view of the eTeacher… And the IT technician here, he spent quite a bit of time with me just teaching me how to use the gear and what would happen if there were various problems and that kind of thing (SS4); and
- We found that the best training is mentoring by other Site Supervisors and in particular I can give one incidence which worked exceptionally well which was XXXX (SS4) was given time to see XXXX (experienced Site Supervisor) and they kept in regular contact... (eP2).

The above responses indicated that the preparation of a new Site Supervisor involves a combination of guidance from the ePrincipal, mentoring from a more experienced Site Supervisor and PD at a relevant conference.

Responses from the two ePrincipals regarding preparation for their roles showed a striking contrast of views:

- The previous ePrincipal took me through a lot of the administrative-type stuff that had to be done, enrolments etc… basically she gave me some training… and I spent a lot of time going through all the clusters' documentation… I had XXXX (Ministry VLN person) who came in and spent a day with me quite early on and took me through some PD in online learning, VC especially but also how to approach distance learning… and I also started connecting with some of the more experienced ePrincipals… we had regular PD that the Ministry organised for the first couple of years… we had a week away with all the ePrincipals together which was about leadership and was run by a group that trained Principals (eP1); and
- The Ministry put us (ePrincipals) on a short version of a course for new Principals which was quite useful… it had all the 'difficult-conversations' type stuff about dealing with people… but one of the problems about the leadership of a cluster is that… different schools want different things out of it (the cluster) and understand it for different purposes which makes the leadership of the cluster quite difficult from the ePrincipal's perspective… so some Principals do not really understand very clearly what my role is and I don't think that was covered very well in the ePrincipals' PD… some people are unsure about the vision and there wasn't much training about getting across your vision… XXXX (experienced Principal) was my mentor for the first couple of years and he was useful for mulling things over with, as was the group of other ePrincipals… but the truth is that many of us were in different situations so the problems we were having were all slightly different… I am not convinced that the role of an ePrincipal is defined enough yet to be able to train people properly for it (eP2).

The above responses indicate that the preparation of a new ePrincipals was funded and organised by the Ministry throughout 2008-2009 and included a combination of: guidance from the Ministry, mentoring from experienced Principals, PD at a course designed for new Principals and collegial support from other ePrincipals. However, as ePrincipal 2 points out, much of this was not tailored to the specific situation and professional learning needs of each ePrincipal.

Overall these findings indicate that the ePrincipal is largely responsible for organising the PD required for preparing new eTeachers and new Site Supervisors, with some support also coming from within the schools especially from the more experienced eTeachers and/or Site Supervisors. Highly variable demand for the preparation of new eTeachers and/or Site Supervisors makes this task somewhat difficult to plan for but the collegial support within the clusters is strong. Ministry support for the preparation of new eTeachers, Site Supervisors and ePrincipals had been provided in the past but appears to be available no longer to the clusters.

Preparation of New eLearners for Online Learning

Cluster and/or school structures/systems used to prepare new eLearners for the expectations, demands and opportunities that are inherent in online learning were also investigated. Particular attention was paid to who was involved and what their roles and responsibilities were for the preparation of new eLearners.

The main form of cluster-wide preparation of new eLearners is a face-to-face orientation day that is usually held at the start of the school year and involves the cluster's eLearners, eTeachers and ePrincipal. The purposes of the orientation day include providing students with: specific course information, access to online materials, general advice about eLearning and also an opportunity to meet their eTeacher(s) and fellow eLearner classmates. However, a recent trend of enrolling an increasing proportion of students from other eLearning clusters (located in distant geographical locations) and clashes with other school events meant that proportionally fewer eLearners attend these orientation days. An online introductory module is also available for student use but doesn't appear to be well used. Illustrative responses include:

- At the start of the academic year we run a 'meet your teacher' type of day because that face-to-face element is critically important for the teacher and for the learners because of the relationships… relationships are hugely important… We have an introductory course too preparing students for distance learning that is online but I'm not sure how effective that is… it is a self-teach sort of module (eP2);
- There is a whole-cluster day at the beginning of each year early in February, where they go to XXXX school and our students have found that valuable in the past… I think one of the big things is when they meet their teachers face-to-face. That is a good thing to happen at the beginning of the year because they feel a lot more comfortable after having met the teacher, discussed the course, how it is going to operate and how the assessments will work and all of those sorts of things (P1);

- They do have an orientation day but then most of my students are not with our cluster or they could not get to it because it was our sports day… So none of my VC students got to the actual orientation days that were offered for various reasons (SS4); and
- I had four students come (to the orientation day) out of a class of seven…with the four students we had a bit of a chat about what I was going to cover and then I took them to the computer room and I showed them where to find the Moodle site, how to enrol in the course… so they were enrolled, knew what to do, how to do it and things like that really helped. But the problem was… it was quite uneven for the three other students who could not attend, mainly because they were from another cluster so… there was not a lot I could do except for emailing them the instructions but that is not the same thing… the training at the start of the year helps and saves some time but some students could not get access online, or could not find the work, and a few fell behind because of that (eT1).

Within each of the schools, Site Supervisors are primarily responsible for the in-school preparation of new eLearners for online learning. Strategies for eLearners' in-school preparation include: providing students with general advice about eLearning, providing information such as how to use equipment or how to contact their eTeacher and demonstrating how to use VC and other ICT equipment. Typical responses include:

- The Site Supervisor shows them the technical aspects of going to the distance learning room and logging on… shows them how to use the document camera and all the technical side of things. He also talks to them about the differences between learning online and learning face-to-face and what they need to do and how they should spend the time they get off during the week. He will also show them how to go on to a Moodle website and how to be part of that, like the technical side of logging on and effectively using that technology (P1); and
- At the beginning of the year I also teach the students to help them understand what is required of them as an eLearner, in terms of being independent and how to contact their eTeachers… I also give them a little booklet with everything like that outlined including how to use the equipment and how to enter their pin number etc… they have got to know how to deal with the equipment and I do that. I give them a written booklet of it all and we usually have a morning or an hour or two where they come and learn how to do the logging-on and learn some of the basics of troubleshooting… I also explain to them about how they need to keep up with their deadlines (SS2).

Overall the complementary cluster-wide and in-school systems for preparing new eLearners appear to be well developed and effectively aimed at ensuring eLearners have a successful start to their online learning. However, low attendance rates at the cluster-wide orientation days reduce their effectiveness. The leadership of these systems is distributed, with ePrincipals and eTeachers primarily responsible for the cluster-wide preparation of new eLearners and Site Supervisors responsible for their in-school preparation.

Instructional Leadership Across Multiple-Cluster Collaboration

Research participants identify several benefits of cross-cluster collaboration, including cross-cluster eLearner enrolments and also combined PD workshops for eTeachers from three eLearning clusters. A regional ICTPD cluster which comprised three eLearning clusters had also formed and was focused on developing blended learning - this involved mostly face-to-face teachers (26 out of 30) but also included four eTeachers from the eLearning clusters. Participants'' responses about cross-cluster collaboration included:

- the whole Virtual Learning Network is very collaborative, you know there is a real reciprocity that goes on... we will teach students in your cluster and you will teach students in our cluster… so the whole thing works in a reciprocal way (P3);
- cross-cluster enrolments of students, facilitated through VLN brokerage, also directly provides educational benefits because "it enables the students at any school to hook into a much greater range of subjects from anywhere really" (P1); and
- the formation of the national committees for eLearning such as the Virtual Learning Network Community Council (VLNCC) which is a national body that is trying to... do a strategic plan for the development of Virtual Learning Networks throughout New Zealand to try to make ourselves sustainable (P3).

Overall, multiple-cluster collaboration is encouraged by the Ministry and sustained primarily by the reciprocity which permeates the eLearning clusters. In particular, the ePrincipals have developed close and collaborative working relationships with their peers and are at the forefront of cross-cluster collaboration. However, despite the best intentions of those involved, I could only identify reciprocity of eLearner enrolments and some recent multiple-cluster PD workshops as collaborative initiatives which have directly impacted on eLearning/eTeaching. Hence it appears that instructional leadership in a multiple-cluster environment is even more difficult and complex than it is within a single cluster.

FINDINGS for NATIONAL CONTEXT KEY QUESTIONS

Whilst it was not the primary focus, this research also investigated national context factors that influence the leaders and leadership practices of eLearning clusters. Four officials with national roles and responsibilities for eTeaching and eLearning (in the wider sense of these terms) were interviewed.

The key questions used for the National Officials (Appendix 2) were entirely different from those used for the school-based participants because the focus was on the national context for the leadership, rather than on the leadership itself. International literature regarding national factors that enable/constrain the use of ICT in education was used to guide the development of these questions, resulting in the following national context factors being investigated:

- developing leadership for eTeaching and/or eLearning;
- promoting and providing professional learning/development;
- enabling professional collaboration between eLearning clusters and/or between schools;
- providing the ICT infrastructure required for eTeaching and/or eLearning;
- preparing new eTeachers for teaching online;
- developing courses and/or curriculum and/or resources for eTeaching and/or eLearning;
- providing students and/or their families with resources that enable access to eLearning;
- developing teachers' overall pedagogical practices, particularly their use of ICT to enable teaching and learning;
- national ICT-related policies and/or initiatives that support effective eTeaching and/or eLearning; and
- any other important national aspects that enable eTeaching and/or eLearning that were not mentioned above.

The National Officials' responses indicate large variations in the significance of the above national context factors for NZ's eLearning clusters. The remainder of this section provides a summary of salient findings regarding the more significant aspects of the national context for eLearning in NZ, except for the two factors which appear to have minimal significance:

- preparing new eTeachers for teaching online is not considered to be a national responsibility because "preparing new eTeachers for teaching online is really the responsibility of the clusters themselves" (NO3); and

- providing students and/or their families with resources that enable access to eLearning is also not considered to be a national educational responsibility "because education in and of itself cannot be responsible for ensuring that all communities have the gear that is needed for children to learn in the 21st century… it is the responsibility of the parent to provide it and schools to step in where there is hardship… through philanthropic routes… or provided to some families through welfare benefits just like school uniforms and stationery are provided now" (NO4).

The most significant factor identified by the National Officials is clearly the national provision of ICT infrastructure that enables and supports eTeaching and eLearning. The National Officials' detailed and comprehensive responses depict a wide variety of expensive software and hardware which is readily available to all NZ schools including:

- The VLN website itself… the rollout of Ultrafast Broadband… the Schools Network Upgrade Project… the Tandberg Content Server, the video and audio conference bridge, the Moodle server, the LAMS server, the Mahara server, the ELG platform… server for Moodle… TKI… Digistore… I see it is an essential part of making that learning environment as stable and as accessible as possible so that things work (NO2).

National Officials reason that the Ministry needs to provide schools with ICT infrastructure that is reliable, affordable, safe and suitable for educational purposes. The central provision of enabling technologies for schools undoubtedly influences eTeaching/eLearning because they are reliant on the range and attributes of available ICTs, most of which are beyond the financial means of individual schools/clusters.

National Officials identify three primary strategies used to develop leadership for eTeaching and/or eLearning within NZ's eLearning clusters:

1. The Learning Communities Online (LCO) Handbook which was developed collaboratively by leading eTeaching practitioners and is "intended for use by school leaders… with an interest in or responsibility for the development of a learning community online (eLearning cluster) including… existing LCOs (clusters) for reflection and development" (Ministry of Education, 2011, p. 13);
2. The Ministry's initiative to subsidise the employment of ePrincipals throughout 2008-2009 and to provide the PD and support for them to develop their leadership skills and knowledge over that period; and
3. Fostering communities of practice on the VLN, by promoting and facilitating ongoing collaboration and dialogue, particularly amongst the ePrincipals.

Enabling professional collaboration between eLearning clusters and/or between schools is identified in the Ministry's overview of ICT in schools (2009) which states that one of the VLN's roles is to "initiate and coordinate collaborative partnerships between schools/staff/ principals and education resource providers." Interview transcripts with National Officials indicate that this role is being carried out in a generic manner in order to enhance wider aspects of eTeaching and eLearning in face-to-face classrooms rather than just for those involved in NZ's eLearning clusters. The main forms of national support for enabling professional collaboration within the eLearning clusters include: the brokerage of cross-cluster enrolment of eLearners, promoting ongoing collaborative professional dialogue (particularly amongst ePrincipals) and support for national ICTPD conferences (which are not targeted specifically at eLearning clusters' personnel).

The national development of resources for eTeaching/eLearning in NZ's eLearning clusters is limited to the development of generic resources which are suitable for use in wider forms of eTeaching/eLearning (which includes the online courses of NZ's eLearning clusters). Specific resources identified by research participants include the New Zealand Curriculum Online, Digistore and Software for Learning. One National Official also noted the significance of freely available online resources for teachers that have been developed internationally but that are still suitable for use in NZ, including WikiEducator, the Kahn Academy and YouTube.

The national provision of professional learning/development for eLearning clusters primarily occurred through the direct provision of PD for ePrincipals over 2008-2009 and also through ongoing professional collaboration and dialogue amongst the ePrincipals since then. Funding for wider aspects of eLearning PD for teachers (such as ICTPD clusters and national eLearning conferences) provides further PD opportunities for ePrincipals and, to a lesser extent, eTeachers and Site Supervisors. It appears that ePrincipals not only benefit from this professional learning and development but they also contributed to it as well. National Officials' responses indicate that specialised PD for eTeachers and Site Supervisors is considered to be an eLearning cluster's responsibility rather than a national one. Conversely, developing teachers' overall pedagogical practices with respect to their use of ICT in the classroom is considered a national responsibility which is addressed through more generic forms of national PD for eTeaching and eLearning, such as funding for ICTPD clusters and support for national conferences related to eLearning (in the wider sense).

An interesting recent development is a regional ICTPD cluster which has been formed by three of NZ's eLearning clusters. The ICTPD cluster's aim is to personalise student learning, primarily by promoting and developing blended learning programmes of study. So, whilst the ICTPD cluster had arisen from collaboration between the three eLearning clusters, its focus is not on eLearning or eTeachers; rather, the focus is on development of blended learning programmes in face-to-face classes. From this perspective, the instructional leadership of the ICTPD cluster has shifted from distance eLearning to face-to-face blended learning and from eTeachers to mostly face-to-face teachers.

National Officials identify a range of national ICT-related policies and/or initiatives which they view as supporting eTeaching and eLearning. These include the national provision of ICT infrastructure and ICTPD, the possible development of a National Education Network (NEN) and also the framework provided by two documents: the NZ Curriculum (Ministry of Education, 2007b) and Enabling the 21st Century Learner (Ministry of Education, 2006). However some concerns about a lack of national ICT-related strategic planning and policy development are identified by one of the National Officials.

Overall it appears that national support for eLearning in NZ is targeted primarily towards providing:

- the ICT infrastructure for wider forms of eLearning and eTeaching, including the ICT infrastructure used by NZ's eLearning clusters;
- developing teachers' overall pedagogical practices with respect to their use of ICT in the classroom rather than the more specialised forms of PD tailored for eTeachers and Site Supervisors; and
- support for ePrincipals' informal professional learning, primarily through the formation of communities of practice with their peers.

FINDINGS for OTHER ISSUES

As is to be expected from a series of semi-structured interviews, other issues, beyond those which were predetermined for the interviews, arose throughout the research process. These other issues also influence, or are influenced by, the leadership of eTeaching/eLearning. In no particular order, the most significant of the other issues are:

- the (lack of) instructional leadership role by the clusters' management committees;
- differing understandings/expectations of the ePrincipal's role;
- the effect of NCEA;
- the impact of asynchronous aspects of eTeaching/eLearning (e.g. Moodle);
- selection of students for eLearning;
- cross-cluster enrolment of eLearners;
- funding/sustainability issues;
- tensions that arise from inter-school (cluster) collaboration in NZ's self-managing schools' environment; and
- the national roll-out of Ultrafast Broadband (UFB) to schools.

A significant omission in these findings is the conspicuous absence of any identified instructional leadership role being identified for either of the eLearning cluster's management committees, despite interviews with three Principals and two ePrincipals, all of whom were members of the management committees. It is possible that the particular dimensions of instructional leadership which were investigated for this research had been delegated to other individuals or groups and that the cluster's management committees were focused on other (less influential) aspects of educational leadership. None-the-less it is of some concern that the management committees appear to be so far removed from the eTeaching and eLearning that it raises questions as to what their leadership role is and whether or not this needs to change in order to provide better monitoring, governance and strategic decision-making.

Similarly, one the ePrincipals also identifies a lack of clarity about his leadership role:

- one of the problems about the leadership of a cluster is that… the framework is not actually very rigid… so different schools get different things out of it and use the cluster for different purposes which makes the leadership of the cluster quite difficult from the ePrincipal's perspective… so some Principals do not really understand very clearly what my role is… I am not convinced that the role of an ePrincipal is defined enough yet (eP2).

The effect of NCEA on eTeaching/eLearning arose repeatedly throughout the interviews. Three National Officials identify that the main reason NZ's eLearning clusters had formed was the common need for rural secondary schools to provide their senior students with a wider range of NCEA courses and qualifications. However, five of the research participants also identify subsequent effects that NCEA has on eTeaching and eLearning, including:

- teacher-centred pedagogy in online (and face-to-face) NCEA classes where eTeachers design and teach pre-determined courses that are based on the NCEA standards;
- the need for schools to select only those students for eLearning who are capable of passing these NCEA courses in a distance learning environment; and
- the ongoing need for rural schools to continue to provide these NCEA courses/qualifications as one reason why eLearning clusters have not developed a wider range of more innovative eTeaching programmes.

Six research participants identify the increasing use of asynchronous technologies, particularly Moodle, in eLearning and eTeaching. An ePrincipal stated that this is causing changes to the nature of eTeaching to a more socio-constructivist pedagogy where "the VC lessons now are becoming more of a tutorial… The importance of VC is now about developing the social community with the students" (eP1). He also observed that one consequence of this more socio-constructivist approach is that it makes the appraisal of eTeaching more complex and specialised because the synchronous VC lessons have to be appraised within the wider framework of the whole online course, including the asynchronous elements. Site Supervisors also identify their own PD needs about Moodle so that they can provide effective support to the students.

Selection of suitable students for eLearning is another issue which arose repeatedly throughout the interviews. Eleven of the twelve school-based research participants consider that it is important for schools to have stringent selection policies and procedures that allow only suitable students to undertake eLearning. Typically the selection of eLearners is done by each school's Site Supervisor and/or Deans and/or Principal and usually on the advice of face-to-face teachers who teach the students. Principal 2's remarks are representative:

- We don't let any student do it (eLearning), they need to have what we think is a good chance of success because they are self-motivated… probably it is more about personal skills, although often academic skills are linked in terms of organisational skills… those sorts of students (uncommitted/disorganised students) seem to struggle but you need to be self-motivated… so the selection process for the students is important (P2).

Research participants also observe an increasing trend of enrolling eLearners in online courses provided by other clusters. The main benefit of this is to provide (suitable) students with a wider range of courses to choose from. However this practice causes lower attendance rates at the clusters' orientation days and, as noted by Principal 3, the schools' rigorous selection policies mean that student access to this enhanced range of courses is only available to some students:

- On the one hand, I quite like the fact that there is this huge selection of courses for our students but on the other hand I know that there are some students out there perhaps who shouldn't be allowed to do it (P3).

Concerns over funding/sustainability of the eLearning clusters are identified by both ePrincipals and all three Principals, particularly regarding the overhead and ongoing cost of employing an ePrincipal but not all are pessimistic about the future. Representative comments include:

- Funding is a big issue to me. It's like everything else isn't it? It (eLearning) will work best if it is resourced properly and schools are still struggling to meet the (financial) demands of the new technologies (P1);
- We still need some sort of structure to support it (eLearning) and that is a bit of a worry with the support being taken away from the clusters in terms of paying for the ePrincipals. So some schools are talking about pulling out of it now (P2); and
- Economic sustainability was dealt a blow by the removal of funding for ePrincipals… I was pretty disappointed when we lost the funding for the ePrincipals but there is still a chance, especially if the virtual learning network community really does pull together and collaborates well, that we could come up with a really first-class system (P3).

Conversely, the National Officials appear to be unconcerned about the sustainability of eLearning clusters, even though at least two of them knew that several of the eLearning clusters were already downsizing the ePrincipals' positions. National Officials identify a typical 'self-managing schools' rationale as the underlying reason for the Ministry's decision to fund ePrincipals positions for just two years. A typical response which outlines this rationale from a national perspective is:

- Over the two years of 2008 and 2009 there was a funding stream… to enable the ePrincipals to be employed over two years but at the end of that… if that was valued by the schools then they would take those positions over and continue to employ those ePrincipals… that money was never expected to be long-term … so there is no direct funding as far as support for schools is concerned for eLearning clusters… all of that now really falls on schools themselves to make their own organisational decisions (NO3).

Short-term funding is just one of several tensions that arise from inter-school (cluster) collaboration in NZ's self-managing schools' environment. To allow them to operate effectively and to reduce/prevent some of the tension, each eLearning cluster had developed documentation including a 'Memorandum of Understanding' (MOU) that clarifies the cluster's status and attempts to formalise the relationships between the schools involved. However the MOUs acknowledge "that it is not legally binding and has no legal effect" and that it really just outlines how the schools are expected to work together and maintain relationships "of mutual benefit based on goodwill, co-operation and partnership". Moreover, the MOUs allow any of the schools to exit the eLearning cluster with just "30 days notice in writing". As a founding constitutional framework that provides for the long-term operational/organisational demands of running an eLearning cluster the MOUs can only be described as inherently weak. However, it is also difficult to imagine a stronger version of the MOUs for inter-school collaboration in NZ's self-managing schools' environment.

Three research participants outlined their perspectives about inter-school collaboration to provide eLearning in NZ's self-managing schools' (sometimes called 'Tomorrow's Schools') environment. Collectively their responses indicate that the current self-managing schools' model makes eLearning collaboration difficult and that this is becoming increasingly evident:

- Tomorrow's Schools is a broken model because it doesn't fit with where schools are actually at now. So we need something that lets those collaborations between schools actually thrive but the framework of Tomorrow's Schools doesn't help that at all (eP2);
- Tomorrow's Schools is yesterday's solution… we need to change the policy and the mechanism around funding… what we need is a release of funding and there are international models that could be implemented… but they would have to be done in the bowels of government because schools couldn't do it… there is a model that was adopted by British Columbia… the rationale behind the model, is that three eighths goes to the school that you're physically associated with to cover the overhead costs of the library and sports teams… and the other five eighths covers the contribution to the five core subjects that you will be doing as part of your learning… so the nett cost doesn't change in the system but what changes though is the ease with which that transaction can take place to recognise who is getting rewarded for doing the teaching… that would be something that we could easily adopt in NZ… the whole thing (eTeaching/eLearning) is stymied but every school has to go through this burden of seeing it as an additive thing which is not part of the core system that we run… (NO1); and

- The (Ministry) policy people are investigating them (self-managing schools issues) and I think as we move into a world where the eLearning element becomes stronger and stronger… there are organisational things around staffing and so on, that are under consideration and I am confident… there will be some changes there which will enable those sorts of arrangements like the year-to-year commitments when circumstances change to be reorganised so that they better support schools today as opposed to when Tomorrow's Schools was set up 20 years ago when no one was thinking about eLearning… what we are doing is informing the policymakers within the Ministry as they look at how to shape the sector going into the future (NO4).

The national roll-out of UFB to nearly all NZ schools appears to be at least part of the reason why the Ministry is considering changes to schooling policies. Several research participants identify educational opportunities/challenges associated with UFB and view the present eLearning clusters as valuable sources of information to guide the national development of eLearning. Their comments included:

- The national upgrade to UFB is going to make a huge difference to schools… schools in the greater XXXX (district) are setting up a learning network… it is not just sharing the technological side of it but it is also sharing the pedagogical side of it (P1);
- The UFB fibre rollout presents a whole new opportunity for the definition of what cluster-schools might be and what a networked learning environment might emerge as… we are very involved with what is happening in XXXX (district) now with the rollout of a (UFB) network… focusing on how UFB can transform, in quite innovative and far-reaching ways, the ways schools even think about what they are as schools… we're on the brink of yet another minor paradigm change where… possibly every school in the country is attached to an infrastructural connectivity and… which is going to require participation and collaboration in the way that their rural and remote counterparts have been doing for some years... in 10 years time we should be able to sit down and look at what has been accomplished in NZ for developing a completely networked learning environment (NO1);
- With the new government focused on the rollout of UFB, there is a rapidly growing awareness of the impact and the potential impact this environment will have… there are a number of policy people working with the UFB people and this is basically going to the government about what we actually need to put in place to do some of the things that they are talking about are things like equity, timetabling, costs of eTeachers and other people we need like ePrincipals (NO2); and

- We are also looking at the possible establishment of an education network for schools that would be based around UFB fibre connectivity and would provide services and content in a managed environment to all schools in NZ… that is something that we are investigating at the moment but the government have not decided how, or if, they are going to proceed with that…we will have more and more clusters as we get better quality connectivity which enables that collaboration (NO3).

The findings for other issues that arose during the research process are presented in no particular order because many appear to be separate and disconnected entities. However some of the findings may help to explain why the leadership roles of the clusters' management committees and for the ePrincipals themselves are somewhat unclear, particularly when one takes into consideration the constitutional vacuum and the ongoing funding concerns that each cluster is dealing with.

It is also apparent that recent technological developments, both within the eLearning clusters (e.g. Moodle) and also within NZ (particularly UFB), are not only currently influencing the educational leadership of eLearning at all ecosystem levels but are likely to do so for the foreseeable future.

CHAPTER FIVE: DISCUSSION of the FINDINGS

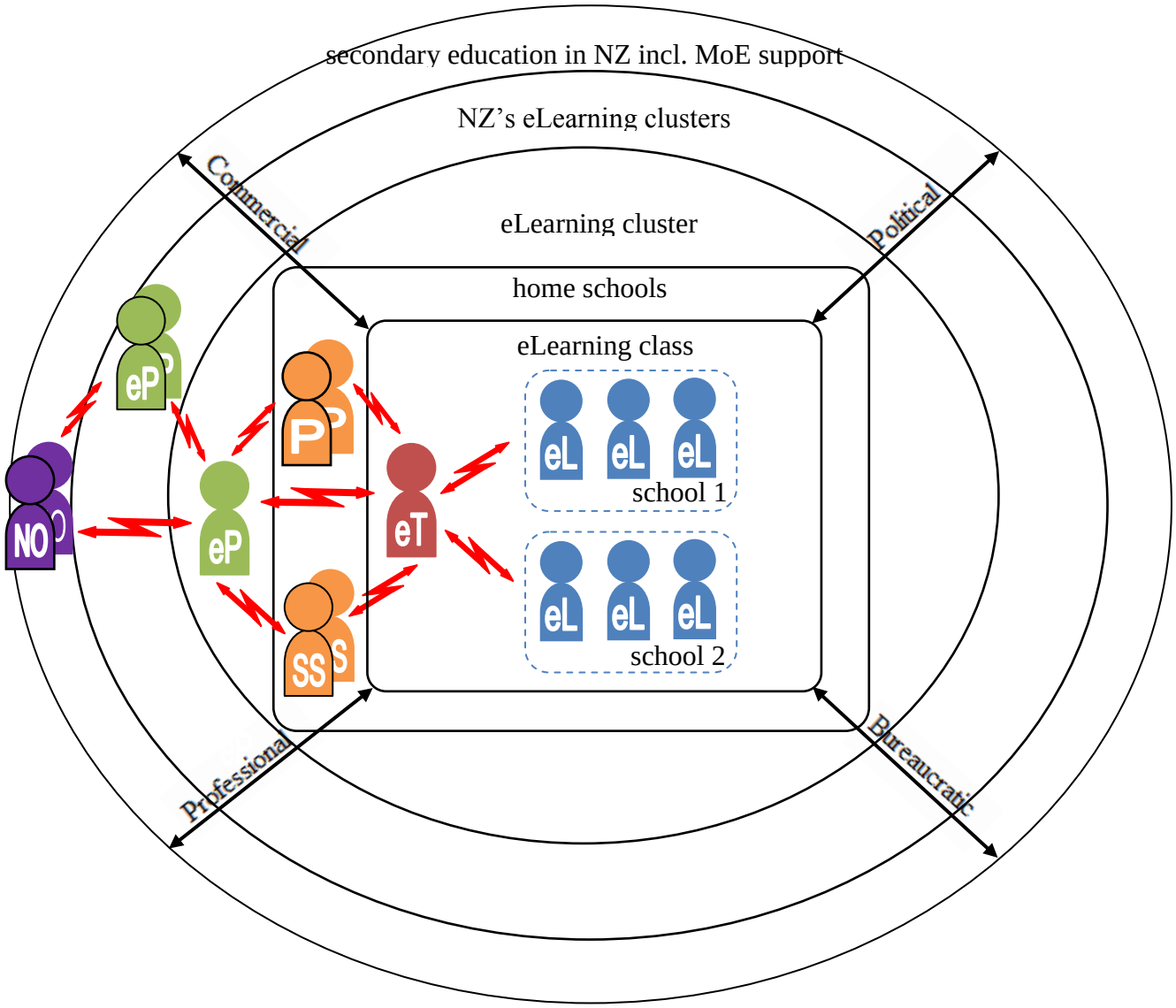
In this chapter the findings are discussed, primarily by critiquing them against, and referencing them to, international literature regarding best practice for the leadership of eLearning/eTeaching. To a lesser extent, my own experiences as a secondary school principal are also used to discuss some of the findings. Interrogation of the findings from these wider perspectives not only enhances their robustness but also potentially makes for a greater contribution to the literature itself.

At the outset, this research aimed to investigate educational leadership that supports and enhances eTeaching and eLearning in two of NZ's eLearning clusters. However, as Conole and Oliver (2007) observe, eLearning research is a multi-faceted and complex area; an observation which became all too evident to me as this research unfolded. Rather than the key research questions being discrete aspects of the eLearning clusters, in reality they are closely inter-connected dimensions of what are dynamic, complex, interconnected and multi-layered systems for the leadership of eTeaching and eLearning.

Due to the multi-layered complexity of the research context, an ecological perspective model of eLearning/eTeaching is used as the framework for the discussion – see Figure 5 on next page. This model is adapted from Davis' (2008) ecological perspective to this research context and is further modified to incorporate aspects of Davis & Niederhauser's (2007) virtual schooling model.

The discussion progressively focuses on each of the nested ecosystems, starting at the micro-level of an eLearning class, then shifts through the school and eLearning cluster levels, before finishing with the macro-levels of multiple clusters and secondary education in NZ. At each ecosystem level the key themes for the research are explored and described; any links which connect the levels are also identified. A summary then draws the discussion together and concludes the chapter.

Figure 5: Ecological framework for eLearning and eTeaching in NZ's eLearning clusters



Key:

eT = eTeacher eL = eLearner eP = ePrincipal SS = Site supervisor (for each home school)

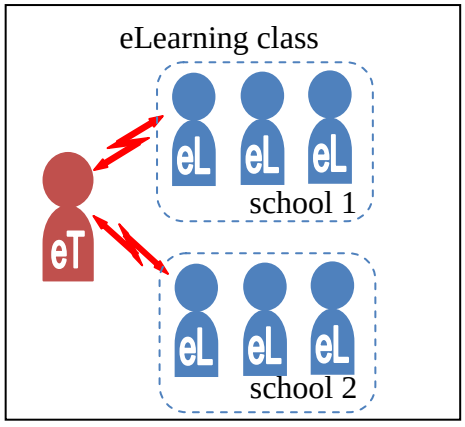
P = Principal (of each home school) NO = National Official

= IT communication which makes possible the distance teaching and learning

= systemic dimensions that support/enable/constrain virtual schooling

The systemic leadership dimensions that support/enable/constrain eLearning are those used by Davis (2008) to denote flow across the ecosystem levels based on four categories that she identified: commercial, political, bureaucratic and professional. This investigation focused primarily on aspects of the professional and bureaucratic dimensions because of its leadership context.

eLEARNING CLASS



Data from eTeachers' interviews indicates that leadership of eLearning within each eLearning class resides primarily with the eTeacher, in much the same way as it would in face-to-face classes.

eTeachers design their course and its assessment (based on NCEA criteria), teach the eLearners synchronously via timetabled VC lessons and provide for the students' asynchronous learning by developing online and/or paper-based lessons, resources, and activities. The eTeacher also supports the eLearners by providing curricular feedback and some pastoral support.

Perhaps the greatest differences between eTeaching and face-to-face teaching are that the students are remote from the eTeacher and they are usually enrolled from multiple schools across the cluster's region and/or nationally. These factors have significant ramifications for not only the nature of the teaching but also the manner in which support is provided for the students.

The main advantage of cross-cluster collaboration identified by research participants is students' access to an enhanced range of courses because eLearning "enables the students at any school to hook into a much greater range of subjects from anywhere really" (P1).

However, as Lin and Bolstad (2010) observe, only a relatively small proportion of senior secondary students is considered suitable for the enhanced range of courses offered via eLearning because they need to be motivated and independent learners to be successful. Eleven of the twelve school-based participants in this research also share these views – Principal 2's comments are typical: "We don't let any student do it (eLearning), they need to have what we think is a good chance of success because they are self-motivated… probably it is more about personal skills, although often academic skills are linked in terms of organisational skills… students need to be self-motivated… so the selection process for the students is important" (P2). Hence the schools typically adopt selection policies which regulate access for students who wish to study via eLearning to just those who are considered to be suitable. The only exception to this is one of Site Supervisors who indicated that her school allowed students to make the decision to enrol for eLearning courses.

An inevitable consequence of the schools' stringent student selection policies is inequitable student access to eLearning courses which Principal 3 identifies: "So on the one hand I quite like the fact that there is this huge selection of courses for our students but on the other hand I know that there are some students out there perhaps who shouldn't be allowed to do it" (P3). Inequitable access to eLearning is not unique to NZ students, with Barbour & Reeves (2009) also identifying similar discrimination of eLearners who are "a very select group of academically capable, motivated, independent learners" (p. 412) in their study of virtual schools in the USA. However, as Bolstad & Lin (2009) argue, "this type of idealised model of the virtual learner may become increasingly unhelpful as a wider range of students take up virtual learning" (p. xi). There can be no doubt that this issue will become more significant for NZ's schools and students as eLearning continues to become more widely accessible through such initiatives as the current roll-out of UFB to NZ schools.

Another key theme of successful eLearning is the preparation of students for online learning (Roblyer, 2006). Both of the eLearning clusters have a cluster-wide, face-to-face orientation day at the start of the school year in order to provide their students with specific course information, general advice about eLearning and to provide an opportunity to meet their eTeacher(s) and fellow eLearner classmates. The development of teacher-student and student-student relationships is also viewed by participants as an important aspect of preparing students for successful eLearning: "At the start of the academic year we run a 'meet your teacher' type of day because that face-to-face element is critically important for the teacher and for the learners because of the relationships… relationships are hugely important" (eP2).

However, a recent trend of enrolling an increasing proportion of students from other eLearning clusters located in remote geographical regions throughout NZ has resulted in proportionally fewer eLearners attending the orientation days. This causes disparity of student preparation for eLearning: "I had four students come (to the orientation day) out of a class of seven… it was quite uneven for the three other students who could not attend, mainly because they were from another cluster so they could not travel to XXXX (school)… I think the training at the start of the year helps and saves some time but some students could not get access online, or could not find the work, and a few fell behind because of that…." (eT1).

Monitoring and supporting students is another key theme identified in the literature as an important element of successful student learning, not only for face-to-face learning (Davies, 2005; Robinson, et al., 2009) but also for eLearning in particular (Roblyer, 2006; York-Barr & Duke, 2004). Interviews with the eTeachers reveal that they monitor eLearners closely only for lack of engagement in their eLearning, primarily by monitoring their attendance in the synchronous VC classes and their completion of learning activities and assessments; eTeacher 1's response is typical: "Generally if things are going very well, you don't really need to be in contact with anyone else, except for the administrative things. But when things are not going very well, I generally email the student and send a copy to their Site Supervisor to start with… and if it continues to not go well then I start to communicate with the Site Supervisor and ask them to go and talk to the student" (eT1).

This level of monitoring and support for eLearners falls short of recommended best practice which involves a process of setting and reviewing learning goals with each eLearner and providing them with personalised feedback and support to reach those goals (Roblyer, 2006). None of the transcripts provide any evidence of any formal goal-setting processes, although two eTeachers did claim to know what their students could or should achieve. However, as noted by Lin and Bolstad (2010), this lack of learner-centred teaching approach and support is typical, not only for NZ secondary students in their virtual classes but also in their face-to-face classes. Hence it is symptomatic of a wider concern regarding secondary education in NZ, rather than being one which is specific to eLearning.

From the eTeachers' perspective, there appears to be somewhat limited and sporadic systems for preparing new eTeachers for online teaching and also for the ongoing monitoring and support of their eTeaching. These issues are discussed in greater detail at the individual cluster level of this discussion because nearly all of the school-based participants view this as the cluster's responsibility. However, given the widespread belief that the preparation of eTeachers and the monitoring/support of eTeaching are critical factors for effective eTeaching in virtual schooling and wider eTeaching contexts (e.g. Dexter, 2008; Roblyer, 2006; Voogt & Knezek, 2008), it follows that these factors are having a significant impact on eTeaching and eLearning at the level of most eLearning classes in the clusters.

INDIVDUAL SCHOOL

The individual school level of this discussion is somewhat problematic because of differences in the systems and practices between the participants' schools. This is not only problematic for the discussion but also appears to be the cause for some of the tensions within the eLearning clusters.

Both of the eLearning clusters have developed policies and procedures to establish expectations and improve the consistency of practices; however significant differences in school systems and cultures still exist, particularly at the school level. For example, one school actively encourages and enrols 30 students as eLearners in a wide range of eLearning courses, whereas another school, of similar size and decile, does not enrol any students at all as eLearners. This is just one example, albeit an extreme one, which illustrates the range of schools' views as to what constitutes valid learning and teaching and what support systems should therefore be provided to the students.

This research did not attempt to identify the full gamut of practices within the schools involved. Hence, unless otherwise stated, this section outlines only typical or most commonly reported leadership practices for eTeaching/eLearning at the individual school level.

In the literature, several notable scholars (e.g.Bolstad & Lin, 2009; Davis & Niederhauser, 2007; Roblyer, 2006; Schrum & Levin, 2009) observe that the Site Supervisors' in-school role of monitoring eLearning and supporting eLearners is critical to their success; however this role is often underestimated and under-resourced (Davis & Niederhauser, 2007). The findings from this research are consistent with these notions from the literature. Even the term 'Site Supervisor' does an injustice to the range of tasks performed by these professionals and the impact they appear to have on eLearners at their schools. Research participants identify the following tasks as being the most commonplace roles performed by Site Supervisors:

- promote eLearning to (suitable) students and disseminate related information to them and their parents/teachers;
- select suitable students and enrol them in appropriate eLearning courses listed on the VLN website;
- provide information and support to eLearners at the start of the year to ensure they could access synchronous VC lessons and asynchronous course materials, communicate with their eTeacher and attend the cluster-wide orientation day;
- establish systems and expectations for attendance, behaviour and work completion;

- ensure students complete assessed tasks in a timely and appropriate manner; collect and send student work for assessment to the eTeachers; receive the marked work, record the marks and return the work to the students;
- liaise with eTeachers, particularly to collect and pass on reports about individual students;
- liaise with the school's NZQA liaison teacher to ensure each eLearner is entered for all the relevant NCEA assessments and that all marks for internally assessed standards are submitted and recorded accurately;
- liaise with the school's ICT coordinator/technician and provide ongoing support to students to ensure that the equipment is working properly and students can use it;
- follow-up with students any concerns regarding attendance and/or completion of work and provide support to resolve the underlying reasons for this; and
- provide generic pastoral support for eLearners and encouragement to complete their course(s).

Both of the LCO Handbooks (Ministry of Education, 2005, 2011) make similar recommendations regarding the role of Site Supervisors that are predominantly concerned with administrative duties such as tracking sheets for students' work and systems for recording students' absences and marks. The Handbooks' recommended tasks for Site Supervisors correlate very closely to the tasks identified by the research participants, with the exception that the Handbooks also stress the need for Site Supervisors to collect feedback from students regularly and to pass it on to the eTeachers. Hence it appears that the LCO Handbooks may have influenced Site Supervisors' practices.

Site Supervisors gave a variety of responses about student goal-setting which not only indicate that a range of practices operate in each of the schools but that there is also a disconnection between school and cluster systems. The best in-school practices are identified by two of the Site Supervisors who have developed informal systems for keeping track of what the students want to achieve and how well they are making progress towards these goals: "Probably for every single student I could tell you what they are aiming to achieve… and that is just from talking to them, getting to know them, seeing how they are achieving and how much effort they are putting in" (SS4). However this information is not shared with the eTeachers. Similarly, two of the eTeachers also appear to have developed their own impressions of what their students want to achieve (or what the eTeacher thought they are capable of achieving) but they do not share this information with the Site Supervisors.

Research by Roblyer (2006) regarding the significance of student goal-setting for the success of eLearners strongly suggests that the development of school/cluster systems for setting and reviewing goals with eLearners has a powerful impact on eLearning. Therefore, given the current lack of emphasis placed on student goal-setting in the clusters, this is an aspect of leadership in eLearning with considerable potential for development.

Three significant aspects of the leadership of eTeaching are: the promotion and provision of PD for eTeachers and Site Supervisors; monitoring eTeachers, through formal or informal appraisals of their eTeaching; and the preparation of new eTeachers and Site Supervisors for their roles in online teaching and learning. Research participants viewed all of these as primarily the cluster's responsibility (as opposed to the school's responsibility) so they are all discussed in greater detail at the individual cluster level of this discussion.

An exception to this generalisation is that two of the eTeachers identify PD provided by their school as invaluable to their role as an eTeacher. However the beneficial overlap between school-provided and cluster-provided PD seems to be more serendipitous than planned, which is unsurprising when one considers the wide range of PD programmes that would be operating in up to 14 self-managing schools. Another exception is that two of the Site Supervisors provided some of the support for the preparation of new eTeachers. These exceptions aside, overall there is considerably greater emphasis on the leadership of eLearning than the leadership of eTeaching at the individual school level.

eLEARNING CLUSTER

At the individual eLearning cluster level, the focus of the instructional leadership shifts to being predominantly on the leadership of eTeaching rather than on eLearning. This is not surprising though because an ePrincipal would really only be able to significantly affect eLearning indirectly by influencing the teaching practices of the eTeachers (Southworth, 2009).

However Roblyer (2006) identifies preparing new eLearners for online learning, together with monitoring and supporting eLearners in their learning, as two key elements of successful eLearning. Research participants identify a cluster-wide orientation day for eLearners as a significant step in their preparation for eLearning. The main personnel involved are:

1. the ePrincipal - who organises the day and venue, liaises with the venue's ICT coordinator to provide student access to eLearning resources, informs the schools of the arrangements, speaks in person at the day to give generic information and advice to eLearners and also provides support to eTeachers regarding their student workshops;
2. the eTeachers – who run the student workshops which are typically aimed at outlining the course, informing students of the assessments and other requirements, ensuring students could access the online resources, distributing written materials and textbooks and also starting the process of developing student-teacher and student-student relationships; and
3. the Site Supervisors – who informs the students about the orientation day arrangements, organises their transport arrangements and tries to resolve any clashes between cluster and school activities.

Overall the cluster-wide preparation of new eLearners for online learning appears to be a well-coordinated process with several professionals assuming different and complementary roles.

Unfortunately, the same cannot be said for the ongoing monitoring of eLearning and provision of support for eLearners. Within the eLearning classes and contributing schools, considerable attention is paid by eTeachers and Site Supervisors to monitoring student attendance and work completion requirements. Typically the ePrincipal is not involved in this monitoring or any subsequent discussion, unless there are significant and/or ongoing problems with students which require greater support/leverage to resolve than is able to be provided directly by the eTeacher and/or the Site Supervisor.

Similarly, cluster-wide monitoring of eLearners' feedback also occurs to a limited extent. One of the clusters surveys student opinion biannually about their learning and that information is passed on to the eTeachers for their consideration and reflection. However none of the eTeachers identified any professional outcomes from this process and the information does not appear to be used by the cluster for other aspects such as setting cluster-wide strategic goals.

Similarly, attempts to monitor student achievement are also evident in one of the eLearning clusters. At the request of the cluster's management committee, one of the ePrincipals had analysed NCEA student achievement data for all their eLearners and had reported his analysis to the cluster's management committee. This process indicates that the management committee intended to take a strategic approach to student achievement as is recommended by the LCO Handbook (Ministry of Education, 2011); however, neither the ePrincipal nor Principals on the management committee identified any further use that was made of this data to enhance eTeaching/eLearning. Furthermore, it is unclear what instructional leadership role was being provided by either of the cluster's management committees.

Instructional leadership literature (Robinson, et al., 2009) and eLearning literature (Roblyer, 2006) suggests that the of use of student achievement data is a key leadership dimension for enhancing eLearning. This view is reinforced by the LCO Handbook's recommendation to provide eTeachers with professional learning opportunities which are based on "student feedback, attendance and achievement data" (Ministry of Education, 2011, p. 42). Hence the use of student achievement data, not only to inform eLearners' goal-setting but also to inform and guide eTeachers' professional goal-setting/PD/appraisals, is another aspect which requires considerable development by the eLearning clusters.

Rather than doing this in a piecemeal manner, a cluster-wide strategic approach to raising student achievement is recommended by the LCO Handbook (Ministry of Education, 2011). The Handbook advises each cluster's management committee to set strategic goals and to monitor progress towards these goals by collecting and using student achievement data/anecdotal data/feedback to provide milestone reports against their objectives. Moreover, the Handbook states that "this can be achieved through the community's (cluster's) Learning Management System, feedback from online surveys, and analysis of achievement results from NCEA data" (p. 45). However, none of the school-based research participants referred to any cluster-wide strategic goals or milestone reporting and the use of student feedback appears to be limited to individual eTeacher's and ePrincipal's reflections. Hence the clusters' use of student achievement data and feedback is well short of recommended practices for strategic planning and reporting to improve students' learning.

However my own experience of processes used to monitor and plan strategically for improved student achievement in self-managing schools is that this is a particularly complex and challenging task that demands high-level analytical, communication and inter-personal skills from the leaders involved. Rather than being a technical process which can be achieved almost robotically through the smart use of ICTs, it is a deeply human and professionally demanding process that is strongly influenced by a multitude of factors. Leithwood et al. (2009) concur and identify a range of activities which are critical to 'setting direction', including: developing and articulating a vision, fostering acceptance of shared goals, creating high expectations of performance and effective communication. Hence the Handbook's (2011) advice that this can be achieved through the use of ICTs to collate and analyse students' feedback and achievement seriously underestimates the depth and range of professional activities and skills which are inevitably required. The lack of any practicable exemplars/resources in the Handbook also suggests that this task is more complex and difficult than is implied by the Handbook, although this may be just a temporary anomaly as the Handbook is unashamedly a "living document" (p. 13) which will grow and change over time, particularly from practitioner's contributions.

As already noted, the emphasis of instructional leadership at the eLearning cluster level is predominantly on the leadership of eTeaching, as opposed to eLearning. This is illustrated by the ongoing cluster-wide provision of PD for eTeachers and, to a lesser extent, Site Supervisors.

Research participants view eTeachers' PD as being primarily one of the ePrincipal's key leadership responsibilities. The ePrincipals organise regular eTeachers' PD that is a collaborative endeavour, with ePrincipals providing some of the PD themselves and eTeachers also providing some of the expertise. Some of the more recent PD for eTeachers has involved workshops with eTeachers from multiple clusters, possibly due to the formation of a regional ICTPD cluster.

Regular visits by ePrincipals to the eTeachers and Site Supervisors in their schools to offer informal professional support are also identified by research participants as valuable to their professional learning. Typically the ePrincipals visit each school about once or twice per year and organise videoconference meetings as a matter of routine but if the need arises (such as for the preparation of a new eTeacher) then the visits become much more frequent. Much of the PD appears to be of a technological nature, such as how to use Moodle or other applications like Google Apps, rather than of a more generic educational nature. This is probably a reflection, not only of the technology leadership role and background of the ePrincipals but also the rapidly changing nature of the technology itself.

The eTeachers' PD closely resembles that advocated by the LCO Handbook (Ministry of Education, 2011) in that it takes "various forms such as attending conferences, doing study, shared learning with other teachers, peer teaching and learning, regular meetings, huis etc." (p. 49). Conversely, the PD is not "based on student feedback, attendance and achievement data" (p. 42) and appears to lack planning and cohesiveness. However the Handbook does not provide any information about how eTeachers' PD should be planned and coordinated across a cluster so it is unsurprising that the systems for this were not yet well developed by either of the eLearning clusters.

As an experienced secondary principal, I know only too well how difficult it is to develop a school-wide comprehensive PD programme that is based on student achievement data and is tailored to the professional learning needs of each teacher. The complexity and difficulty of this task across a group of up to 14 remote eTeachers must be much greater than it is in a single self-managing school. Furthermore, if other recommendations for eTeacher PD from the literature, such as Law's (2008b, p. 432) advice to "go beyond knowledge to encompass the enhancement of metacognitive, social, and socio-metacognitive capacities" and to "address issues of values and beliefs", then the whole notion of providing an effective PD programme for eTeachers suddenly appears herculean in complexity.

Despite the inherent difficulty, monitoring eLearning/eTeaching more closely and using the information to provide proactive and customised support for eLearners/eTeachers/Site Supervisors stands out as an area with considerable potential for the future development of the eLearning clusters.

Similarly, the ePrincipal plays a leading role in providing professional support for new eTeachers and Site Supervisors to help them prepare for their roles. Out of necessity, much of this support focuses on technological advice and guidance; after all, how else could a novice eTeacher start to teach online if he/she doesn't know how to use the equipment and software?

Another key theme of this research is monitoring (appraising) eTeaching and supporting eTeachers which Roblyer (2006) identifies as a feature of nearly every successful online programme. However this is an aspect of educational leadership which is fraught with difficulties, not only for eLearning clusters but also for many schools. Legislation requires all NZ state schools to assess teachers' performance and competency (Ministry of Education, 1999) but this regulatory framework has caused many NZ schools to move towards counterproductive bureaucratic systems of performance management which place teachers' appraisers in contradictory relationships with their colleagues (Fitzgerald, Youngs, & Grootenboer, 2003).

If monitoring teaching and providing effective support for teachers is difficult within a single traditional school, then it is even more problematic for the eLearning clusters because additional factors come into play. For example, all three Principals clearly identify the ePrincipals as having the expertise needed to monitor eTeaching and provide eTeachers with effective feedback and support; Principal 1's views are typical: "I think somebody who is knowledgeable about eLearning needs to look at the eTeaching… and I think the eTeacher appraisal really needs to be done by the ePrincipal" (P1). Conversely, the ePrincipal from the same cluster provides a contradictory view: "It (eTeacher appraisal) is part of the normal school appraisal…. and it is my job to liaise with those schools to provide ongoing PD and guidance… as to how they evaluate the eTeaching. So it's like part of the normal school appraisal" (eP1). Unsurprisingly, school-based research participants are vague about the systems for eTeachers' appraisals and/or confused about how the systems work. Principal 3's remarks illustrate this confusion well: "She (the eTeacher) is appraised by her HOD within the school but whether he does the VC thing… I wouldn't want him to do it, no I would want the ePrincipal to do that. And I am not clear in my own mind about how we have got that designed to feed back into our own systems" (P3).

The confused and contradictory participants' understandings of the system for the appraisal and support of eTeachers are also reflected in the sketchy national advice to clusters regarding eTeachers' appraisals. Neither of the LCO Handbooks (Ministry of Education, 2005, 2011) expand much on the leadership of, and systems for, eTeachers' monitoring and support. The 2005 version of the LCO Handbook has almost no information related to this professional responsibility and the 2011 version provides only simplistic and generic direction when it advocates eLearning clusters to develop a system "for the collection, collation and distribution of formal and informal feedback from students, teachers and coordinators/mentors" (p. 41). There is no information about the systems clusters and schools could/should adopt to ensure that the feedback is effectively integrated into each eTeacher's appraisal/goal-setting/PD and so that strategic goals are addressed.

Monitoring eTeaching and supporting eTeachers effectively is clearly a difficult task, made even more so by this complex, multi-layered environment; hence it is unsurprising that the eLearning clusters have not yet developed cohesive and effective systems for this. However, Roblyer's (2006) observation that monitoring eTeaching and supporting eTeachers is a feature of nearly every successful online programme (offered by new virtual schools), suggests that this is an important issue which should be addressed urgently, not only by the eLearning clusters but also in the LCO Handbook (Ministry of Education, 2011).

Overall there appears to be much greater emphasis on the leadership of eTeaching than the leadership of eLearning at the individual cluster ecosystem level. However the systems for monitoring and supporting eLearners/eTeachers/Site Supervisors, including providing effective PD programmes for eTeachers/Site Supervisors, all require considerable development. Conversely it appears that the eLearning clusters have developed good systems for the preparation of new eLearners for online learning.

MULTIPLE eLEARNING CLUSTERS

Questions about the impact of inter-cluster leadership on eTeaching/eLearning within the clusters proved to be difficult for research participants. This may have been due to several factors, such as the unique nature of each cluster, or my questioning skills. Whatever the reason(s), inter-cluster instructional leadership of *eTeaching* (within the clusters) is not highly visible in these research findings, despite the obviously close and collaborative relationships between the ePrincipals. Conversely, the influence of inter-cluster leadership of *eLearning* is very evident, primarily because of the clusters' willingness to reciprocate by enrolling eLearners in each other's classes. However this willingness to reciprocate with eLearners does not seem to extend to professional collaboration between the clusters, except for some recent multi-cluster PD workshops for eTeachers.

Another exception is the formation of a regional ICTPD cluster which comprises three eLearning clusters and is focused on blended learning PD for teachers. Without doubt, this ICTPD cluster formed as a direct result of the professional relationships that had been established through eLearning, primarily between the ePrincipals. Nor can there be any doubt that the nature of the ICTPD itself is well-aligned with eTeaching. However only a few of the teachers involved are eTeachers (4 out of 30) so the impact on eTeaching itself is considerably diluted.

Despite the lack of formal structures for inter-cluster instructional leadership, there appears to be significant informal sharing of ideas and resources, particularly between the ePrincipals and others who are active at the national level of eLearning and eTeaching. The Ministry, particularly the VLN, is supportive of these national professional networks, not only providing the enabling ICT infrastructural support but also the personnel to lead and encourage their ongoing work and development. These networks undoubtedly contribute to the professional understanding and skills of the ePrincipals and others involved through the formation of communities of practice. However, it is not obvious from any of the interview transcripts as to how these national networks have influenced practices within either of the eLearning clusters.

SECONDARY EDUCATION in NZ

Conole and Oliver (2007) describe eLearning research as a multi-faceted and complex area that "covers a vast range of topics… and address issues concerned with the impact of technologies on learning, teaching, professional roles and identities, organisational structures and associated strategy and policy" (p. 3). Furthermore, they argue that eLearning research falls into four overlapping and inter-connected themes: pedagogical, technical, organisational and wider socio-cultural factors. From that perspective, this research falls primarily into the organisational and pedagogical themes. However, as Conole and Oliver contend, wider socio-cultural factors (such as national educational policies and initiatives) cut across the other three themes because they comprise the wider context within which the (leadership of) eLearning occurs. Therefore, some analysis of the national context for the leadership of eLearning is vital in order to provide greater understanding of the system's complexity.

However the purpose of this section is not to provide an exhaustive and authoritative account of NZ's secondary education policies and initiatives which collectively comprise the national context. Instead, its purpose is to inform the research findings by providing an outline of those aspects of NZ's system for secondary education which have the most influence on the national context for leadership of eLearning and eTeaching in NZ. Within this scope, the research is focused primarily on those aspects which international research literature (e.g. Law, 2008a) indentify as critical aspects of national contexts for eLearning.

The Ministry identifies a broad range of national ICT-related policies and initiatives that support effective eTeaching/eLearning and collectively comprise much of the context for NZ's eLearning clusters (Ministry of Education, 2009). Supporting and providing impetus to these policies are a plethora of national ICT-initiatives including: Software for Schools, Managed Online Learning Environments, Digital Opportunities, Video Conferencing Bridge, TELA Laptops for Teachers, Principals' Laptops, Project Probe, ICT Helpdesk for Schools, e-Admin and Student Management Systems. Most of these initiatives, except perhaps the VC Bridge, have been developed for all NZ schools and all forms of eLearning. However, they also influence the leadership of NZ's eLearning clusters because the available technologies determine the parameters for what is possible with eLearning and eTeaching.

Research participants identify three primary national strategies that are used to develop the leadership of eTeaching/eLearning within NZ's eLearning clusters:

1. the Learning Communities Online (LCO) Handbooks (Ministry of Education, 2005, 2011);
2. the ePrincipals funding project for 2008-2009 (Ministry of Education, 2007a); and
3. fostering communities of practice on the VLN, particularly amongst the ePrincipals.

Draft versions of the recently revised LCO Handbook (Ministry of Education, 2011) are identified by the research participants as useful for developing leadership in NZ's eLearning clusters because they offer practical guidance to eLearning clusters for the development of best practices, including leadership practices. Furthermore the development process itself is considered to be a form of PD for those involved because it was developed collaboratively by leading eTeaching practitioners. However, during the interviews of the school-based personnel, none of the research participants referred to either of the LCO Handbooks as a resource that is used to develop instructional leadership practices within either of the clusters. Whilst there are some practices in the clusters that obviously resemble the Handbooks' recommendations, these are primarily for routine administrative duties (such as Site Supervisors' record keeping tasks) rather than the more complex instructional leadership responsibilities (such as integrated systems for eTeachers' appraisals/PD/goal-setting, and cluster-wide strategic planning).

The Ministry's initiative to subsidise the employment of ePrincipals over the period 2008-2009 is also cited as a form of national support for the development of leadership in NZ's eLearning clusters. However, as all of the National Officials stated, this initiative was only ever intended to be centrally funded by the Ministry for the first two years and then schools and clusters would need to decide if and how, these positions would be funded over the longer term. According to National Official 3, the early indications (less than one year after the Ministry funding had ceased) are that many of the eLearning clusters are already downsizing the ePrincipal roles and/or intending to merge with other eLearning clusters. Therefore, any positive effects of the Ministry's partial funding of ePrincipals are likely to be short-lived. The issue of funding is discussed in greater detail later in this section.

In addition to the ePrincipal funding, the Ministry also provided PD and other support for the ePrincipals to develop their leadership skills and knowledge over 2008-2009, including: the provision of experienced educational leadership mentors for ePrincipals, a week-long PD course in educational leadership and the development of professional learning communities for ePrincipals which the VLN facilitated (Erb, 2008). Much of this initial Ministry support for ePrincipals is no longer being provided, except for support for the ongoing professional collaboration and dialogue between the ePrincipals. This ongoing collaboration and dialogue is promoted and facilitated by the Ministry, particularly through the VLN and utilises ICTs to support the development of communities of practice, particularly amongst the ePrincipals: "We use Adobe Connect for a working group (with other ePrincipals and VLN personnel) and we meet online Wednesday evenings once a month so that makes it really easy… and I have been able to develop myself professionally" (eP1).

Conversely, there is little in the way of national support provided for the PD of eTeachers and Site Supervisors, or for the preparation of new eTeachers and Site Supervisors. All of the National Officials view this as an eLearning cluster's responsibility rather than a national responsibility. However some support is potentially available for eTeachers' PD through other national initiatives such as ICTPD clusters and the associated conferences. Four participants indicate that they have benefitted from and sometimes contributed to, some of these more generic forms of national PD for teachers; for example, "I also attended the ULearn conference which really helped me as well because I went to some of the sessions about VC… so that was really good because that gave me the big picture which I just needed to have" (SS4).

Another important national aspect of eLearning is the ability of eLearners to access online aspects of their course from their homes (Ainley, Enger, & Searle, 2008). This is also crucial for NZ's eLearners because many eLearning resources are posted on web-based Learning Management Systems (such as Moodle) and accessed by students asynchronously from home. However, the National Officials state that student access to online aspects of eLearning from home is primarily the responsibility of their family, with philanthropic and welfare sources providing some support for needy families. Conversely one of the National Officials identifies the government's current roll-out of UFB to NZ schools as having "spin-offs for students and their families in terms of having greater access to and cheaper availability of, fast connectivity in their homes" (NO4) due to the wider distribution of fibre to communities.

The national provision of enabling ICT infrastructure that supports eTeaching/eLearning is identified by all National Officials as a significant Ministry responsibility in NZ. The significant government investment in the national ICT infrastructure for eTeaching and eLearning (Ministry of Education, 2010a) is clear evidence that this is a Ministry priority and that it has been for some time. National Officials identified the following initiatives as collectively providing the ICT infrastructure which enables and supports all forms of eTeaching and eLearning in NZ: the VC bridge, the VLN website/service, UFB, School Network Upgrade Project, TELA laptops for teachers scheme, school software agreements, Moodle/Tandberg/Adobe Connect/LAMS/Mahara servers and Digistore. According to the National Officials, the Ministry's aim is to provide a national ICTs infrastructure that is reliable, affordable, safe and suitable for educational purposes.

In addition to the enabling infrastructure, the development of resources nationally for eTeaching and eLearning has also occurred but has been limited to generic resources which are suitable for use in wider forms of eTeaching (which includes the online courses of NZ's eLearning clusters). Examples of these generic eTeaching/eLearning resources which are identified includes: the New Zealand Curriculum Online, Digistore and Software for Learning.

Beyond the infrastructural aspects, research participants identify a wide range of issues which they view as having an impact on eTeaching and/or eLearning. These issues include: the national provision of PD for teachers, a lack of national ICT-related strategic planning and policy development, the possible development of a National Education Network and also the framework provided by the NZ Curriculum and Enabling the 21st Century Learner documents.

Underlying National Issues

Three underlying issues which are related to national educational policies also emerged as significant themes throughout the research process and appear to be at the root of many of the tensions faced by the eLearning clusters. These themes are:

1. funding/sustainability of eLearning clusters;
2. inter-school collaboration in NZ's self-managing schools' environment; and
3. the effects of NCEA on eTeaching and eLearning.

Whilst any one of these issues could be a research topic in its own right, it is nonetheless important to acknowledge their significance and to explain their impact on the leadership of eLearning clusters. Each of these issues is briefly outlined below.

Funding for eLearning clusters in general and for ePrincipals positions in particular, arises repeatedly throughout this research. As an experienced secondary principal, I am very familiar with the Ministry's recent policy for funding inter-school collaborative initiatives, based on my involvement with several clusters including: an ICTPD cluster, an Enhancing High Standards Across Schools (EHSAS) cluster and the ePrincipal funding for an eLearning cluster. Over the past decade the Ministry's strategies for funding these inter-school collaborative initiatives have been based on three common underlying principles:

1. the funding is contestable so clusters of schools need to compete to be selected;
2. as part of the selection process, schools need to prioritise some of their own funding in order to demonstrate their commitment to the collaborative venture (one third in the case of the ePrincipals funding); and
3. the funding is provided for a limited time (2 years for the ePrincipals funding) and then the schools are expected to build the collaboration into their routine operations and prioritise their own operational funding or source other funds to sustain it.

Whilst these strategies are no doubt well-intended (by both the Ministry and the schools involved), I am unaware of any long-term sustained collaboration between schools that have resulted from clusters of schools which are developed in this manner. Ongoing issues such as trying to do more with the same amount of money, changes to schools' staffing (including Principals) and shifting schools' circumstances/priorities always seem to arise. The inevitable consequence is that any educational benefits resulting from these collaborations are almost as short-lived as the Ministry subsidy itself. The downsizing of many of the ePrincipals' positions (identified by NO3) within a year of the cessation of Ministry funding is but one example of this.

In contrast, other forms of inter-school clusters I have been involved with, such as Itinerant Teachers of Music (ITM) and Resource Teachers of Learning and Behaviour (RTLB) clusters, have not only proven themselves to be sustainable for the long term but have also significantly improved educational outcomes for the students involved (Stevens, 2008). The greatest difference with these clusters is that ongoing Ministry funding and staffing is provided to the schools/clusters to sustain them. Therefore, it appears that ongoing funding brings sustainable collaboration and ongoing educational benefits, whereas short-term funding (such as ePrincipals' funding) seems almost destined to bring short-term educational benefits.

The Ministry's advice regarding funding and sustainability of eLearning clusters is straightforward: "long term sustainability of the LCO (eLearning cluster) will depend on embedding appropriate budget provision in each school's 5-year plan" (Ministry of Education, 2011, p. 52). This clearly outlines the Ministry's view that sustainability of collaborative eLearning clusters is easily achievable in a 'self-managing schools' environment and within existing funding provided to schools. However, it is my experience that this simplistic position completely underestimates the difficulty of achieving the long-term commitment of up to 14 independent self-managing schools, all with differing financial, educational and political/community circumstances. Hence it is unsurprising that sustainability of both eLearning clusters is identified as a significant concern by both the ePrincipals and all three of the Principals interviewed and that these concerns were being expressed soon after the cessation of Ministry funding.

This viewpoint concurs with Browning's (2005) observations that the funding and staffing formulae for NZ's schools are inadequate and inappropriate to resource NZ's eLearning clusters. So it appears that, despite the two-year Ministry subsidy for the employment of ePrincipals, little progress has been made toward changes in national funding policies to provide a sustainable platform for eLearning clusters.

The implications of the current national roll-out of UFB not only extend Browning's concerns to include all NZ schools but also increase the urgency required to address them. The National Officials indicate that the Ministry is aware of national policy implications which arise as a result of collaborative teaching and learning opportunities in a networked-schools' environment when UFB connectivity is widespread. One of the National Officials states that progress is underway to address the policy implications:

- There are a number of (Ministry) policy people working with the UFB people and this is basically going to the government about what we actually need to put in place… things like equity, timetabling, costs of eTeachers and other people we need like ePrincipals… all the parties involved like parents, Boards, schools… so it (policy) is continuing to be looked at and I think more urgency is being put into it (NO2).

However it is unclear whether or not the experiences of NZ's eLearning clusters are being considered in these UFB-related national policy discussions.

The striking contrast in the literature between the relatively pessimistic views of transforming face-to-face schooling through the adoption of ICT (e.g.Voogt, 2008), compared with the rapid and successful uptake of virtual schooling (Roblyer, 2008), strongly suggests that there is much to be gained if NZ focuses on the virtual schooling opportunities that are enabled by UFB. Because the rural secondary eLearning clusters are the strongest examples of virtual schooling operating in NZ, the implications for national educational policies are self-evident and unequivocal:

- development of national educational policies and initiatives which support/provide virtual schooling opportunities for NZ students is paramount if UFB is to make a timely and significant contribution to education in NZ; and
- it is imperative that the hard lessons learnt by NZ's rural secondary eLearning clusters are used as one valuable source of data to inform and guide the development of national educational policies and initiatives.

Furthermore, virtual schooling is already well-developed in some countries overseas, therefore selective adoption of international experiences, initiatives and policies associated with best-practices in virtual schooling should also be considered. For example, the Florida Virtual School (Florida Virtual School, 2011a) offers a wide range of innovative virtual schooling courses, such as Conspiracy Code (Florida Virtual School, 2011b) where students learn about American history entirely through an educational online gaming programme. It is inconceivable that any of NZ's small eLearning clusters would ever have the resources to develop programmes such as Conspiracy Code so there is probably a case for the development of a national virtual school in NZ. This could be achieved by extending the role of the existing national distance learning provider, Te Aho o Te Kura Pounamu – The Correspondence School. Another option would be to amalgamate some or all of the existing eLearning clusters into a national virtual school and to legislate for its inclusion in NZ's education system – this would not only ensure sustainability but also clarify the rights and responsibilities of students, teachers, administrators, home schools, Ministry and the government.

Barriers that prevent students from enrolling in virtual schooling courses is another issue which needs to be addressed at the national policy level, not only to provide equitable access for all students but also to reward those who provide the teaching. This could be achieved by a combination of:

- legislated rights for student access to virtual learning course(s); and
- changes to the funding/staffing formulae to schools which take into account where students access their learning from (such as the British Columbian method advocated by National Official 1 on p. 89).

In any event, it is clear that national policy development should be geared towards utilisation of UFB to provide enhanced virtual schooling options in NZ and that the best-practices from overseas and NZ's own eLearning clusters should inform and guide this policy development.

The recently released LCO Handbook (Ministry of Education, 2011) provides some cause for concern regarding national educational policies that enable and support virtual schooling in NZ. According to the Handbook, schools in urban areas have been the first to be connected to UFB and 97% of NZ schools will be connected by 2016. However, the Handbook also states that "*schools in urban areas are beginning to think* of how connection to such networks might enable them to expand the options for access to courses for students" (p. 6, emphasis added). The concern is that inexperienced self-managing urban schools "are beginning to think" of this, when it is self-evident that this situation will quickly become a national phenomenon and that so much has already been learned (the hard way) by their rural secondary counterparts in the eLearning clusters.

Furthermore, the urban schools' simple ideals of sharing teachers and students online (Ministry of Education, 2011), in practice have been accompanied by a raft of complex tensions and dilemmas in NZ's eLearning clusters, most of which are either not identified or not addressed in the Handbook. This gives little credibility to the Ministry's prediction that the VLN will "grow and expand so that it embraces all schools in NZ, not just those in rural and provincial areas" (p. 6), unless the experiences of NZ's eLearning clusters are used as lessons to inform future national policy development and to guide the evolution of this new networked-school environment. Failure to do so could mean that the full educational rewards which are enabled by UFB may not be reaped by NZ's students and teachers.

Perhaps the LCO Handbook (Ministry of Education, 2011) is just an example of a Ministry publication which outwardly supports and legitimates the government's preferred policies (Thrupp, 2010), rather than reflecting the true depth of the Ministry's understanding of this situation. Assuming this is the case, there may be cause for greater optimism than is currently provided by the LCO Handbook.

The second major theme, inter-school collaboration in the ubiquitous environment of NZ's self-managing schools, has a pervasive affect on all leadership and operational activities in the eLearning clusters and schools. National educational policies and procedures seem to be geared towards supporting NZ's self-managing schools but poorly designed for supporting collaborative teaching and learning. For example, each school has its own legal identity, the right to employ whoever they choose, responsibilities for their teachers' professional performance and guaranteed sources of direct and ongoing government funding (Government of New Zealand, 1989). In contrast, the eLearning clusters have no legal identity, typically rely on the lead school to employ the ePrincipal (usually on an annual contract), have no say over which eTeachers are selected because each school decides this and are financially reliant upon annual funding decisions made by each of its contributing schools. Moreover, the ePrincipal really has no formal authority to deal with professional issues such as eTeachers' performance, appraisal, competence and participation in PD programmes. The overall effect of this is that leadership within and across NZ's eLearning clusters is based almost entirely on goodwill and occurs in something of an organisational and constitutional vacuum.

So, whilst this research is primarily focused on leadership practices at the micro-levels (eLearning class, school and cluster) of the ecological perspective of eTeaching/eLearning, it is evident that the macro-level of NZ's educational policies (such as self-managing schools) is closely intertwined and plays a significant role in constraining and/or enabling the leadership practices within the eLearning clusters.

The third and final major theme arises because NZ's eLearning clusters have developed from a common need for rural secondary schools to share their senior students and teachers online; hence almost all of the courses offered are NCEA level 1, 2 & 3 courses. This has at least two obvious but separate effects. Firstly, the demands and requirements of the NCEA qualification system causes eTeachers to design pre-determined courses which are based on the required standards rather than on the needs of the students. This teacher-centred pedagogy also requires rigorous procedures for the selection of suitable students which causes inequitable student access to eLearning.

The second effect of NCEA is caused by the ongoing need for students to acquire NCEA qualifications so the schools/clusters therefore need to prioritise their resources to ensure these courses are continued. This appears to be at least part of the reason why eLearning clusters have largely failed to develop a range of innovative personalised 21st century eTeaching programmes such as PLENK - Personal Learning Environments, Networks and Knowledge (Downes, Siemens, Cormier, & Kop, 2010). National Officials are concerned by the lack of progress towards developing innovative eLearning courses: "I have talked to the ePrincipals and said 'look, it is fantastic work that you are doing but you really haven't moved on from Year 11, 12 and 13 rural NCEA from what I can see'." (NO2). However, it should be noted that even when the Ministry was subsidising the ePrincipals' employment there was no requirement for the eLearning clusters to develop a range of innovative programs (Ministry of Education, 2007a). This issue appears to have created something of a disconnection between the national leaders of eLearning and the ePrincipals/eLearning clusters and may have been related to the Ministry's disinterest in negotiations for the renewal of ePrincipals' funding contracts.

SUMMARY

In this chapter the leadership of eTeaching/eLearning is analysed and discussed using an ecological perspective of eLearning as the unifying framework because the leadership is such a complex, dynamic and multi-faceted phenomenon. The use of multi-layered, inter-connected and interdependent ecosystems as the framework for the discussion not only allows the leadership to be discussed in depth for each of the ecosystems but also as connected parts of the greater system which they collectively comprise.

A complex picture of leadership emerges from the findings, with changing but interconnected and interdependent leadership roles and challenges at each of the ecosystem levels. A brief (but simplistic) overview of leadership trends/themes for each of the ecosystems is outlined in Table 2 below:

Table 2: Overview of Leadership Trends/Themes for each Ecosystem Level

Ecosystem	Leadership Focus	Leaders and leadership activities	Links to Leaders of other Ecosystem levels	Significant Leadership Benefits and Challenges Identified by this Research
An eLearning class	eLearning and eLearners	eTeacher – course design, eTeaching and assessment.	Site Supervisors ePrincipals	Student access to eTeachers' expertise. Reliance on Site Supervisors for in-school student monitoring and support.
An individual school	eLearning and eLearners	Site Supervisor – student selection and enrolments, pastoral and technical support for students, collating student work and assessments and liaison with ICT coordinator, parents and school. Principal – resourcing decisions, selection of school's eTeacher, and some also involved with cluster governance.	eTeachers ePrincipal VLN	Ongoing development of eTeacher expertise (subject & eTeaching). Underestimation and under-resourcing of Site Supervisor's role. Wider range of courses but also equitable student access dilemma. Funding implications of eTeaching and eLearning.

Ecosystem	Leadership Focus	Leaders and leadership activities	Links to Leaders of other Ecosystem levels	Significant Leadership Benefits and Challenges Identified by this Research
An eLearning cluster	eTeaching and eTeachers	ePrincipal – student enrolments, problem solving and professional advice, PD for eTeachers and Site Supervisors Principals – eLearning cluster management group.	VLN Other ePrincipals and their eLearning clusters	Enrolment of eLearners in suitable courses. Ongoing funding concerns. Tensions between school and cluster systems, particularly for complex instructional leadership roles.
NZ's eLearning clusters	eTeaching and ePrincipals/ eTeachers	ePrincipals – sharing resources and ideas, liaison with VLN and other sectors of the MOE. VLN and MOE personnel – national strategies and support for eLearning clusters/ePrincipals.	Regional clusters such as ICTPD clusters. VLN and MOE and other personnel.	Inter-cluster enrolments of eLearners – enhances the range of subjects available to students but creates issues for differences in the preparation and support of eLearners. Professional communities of practice for ePrincipals. National committees for eLearning.

Ecosystem	Leadership Focus	Leaders and leadership activities	Links to Leaders of other Ecosystem levels	Significant Leadership Benefits and Challenges Identified by this Research
Secondary education in NZ	Support for all forms of eLearning including eLearning clusters	VLN – national coordination and brokerage of eLearning classes and fostering inter-cluster collaboration. Ministry – 2-year funding for ePrincipals and LCO Handbooks. Other generic Ministry support including: ICT infrastructure (VC, SNUP, TELA and UFB), software agreements, ICTPD and some curriculum resource development.	A range of people involved including: VLN and MOE personnel, tertiary providers, independent contractors, ePrincipals and other school leaders.	Current national provision of ICT infrastructure and resources for eLearning and eTeaching. National conferences, particularly for ICTPD. Factors impacting on NZ's eLearning clusters such as: funding and staffing; the self-managing schools' environment; and the effect of NCEA on eTeaching and eLearning. The educational potential and the national policy implications of a networked-schools' environment with UFB connectivity.

Table 2 is an over-simplified two-dimensional representation of what in reality is a complex, messy, perplexing, multifaceted and multi-dimensional ecological system for the leadership of eTeaching/eLearning. Hence it needs to be interpreted cautiously and used sparingly. It does however draw together many of the key elements of leadership in NZ's eLearning clusters and serves to summarise most of the significant leadership challenges identified by this research which need to be addressed if eTeaching and eLearning are to reach their full potential in these clusters.

The ecological perspective on which this discussion is based, lends itself to making an array of interconnected recommendations to improve the leadership of eLearning and eTeaching at all ecosystem levels, rather than as discrete and simplistic suggestions/solutions. The range of the recommendations should not be interpreted as a negative judgement of the eLearning clusters, their personnel, or the national support for eLearning. To the contrary, I am greatly impressed by the research participants, their professionalism and their determination to make a difference for eLearners, often in the face of challenges that are neither of their making nor within their domain to resolve. Besides, many of the recommendations are equally applicable to face-to-face schooling in NZ.

The recommendations are intended to provide some guidance as to how the leadership eLearning/eTeaching may be improved, in order to reap the full rewards that it potentially offers NZ's students. From the ecological viewpoint, the recommendations should be seen as suggestions for the next phase in the ongoing evolution of eLearning and this is the basis of the recommendations which follow.

CHAPTER SIX: CONCLUSION and RECOMMENDATIONS

CONCLUSION

This study sought to investigate how instructional leadership is distributed within and across two of NZ's eLearning clusters – a relatively straightforward notion which not only belied the complexity of the research but also that of the leadership itself.

The literature review (Chapter Two) identifies two complementary theoretical perspectives of educational leadership that are used to frame the investigation: instructional and distributed leadership. Several key instructional leadership dimensions were actively explored during the interviews, including: professional learning/development (Dexter, 2008; Hattie, 2009; Robinson, et al., 2009; Timperley, et al., 2007; Voogt & Knezek, 2008); monitoring and support for eTeachers (Dexter, 2008; Hattie, 2009; Robinson, et al., 2009; Roblyer, 2006); monitoring and support for eLearners (Dexter, 2008; Hattie, 2009; Robinson, et al., 2009; Roblyer, 2006; Schrum & Levin, 2009); preparation for eLearning and eTeaching (Roblyer, 2006); and instructional leadership across multiple clusters (Davis, 2008; Davis & Niederhauser, 2007; Roblyer, 2008; Zhao & Frank, 2003). In addition, the national context for eLearning/eTeaching was also investigated because this influences its leadership (Anderson & Plomp, 2008; Davis, 2008; Law, 2008a; Law, et al., 2008).

The findings (Chapter Four) from the interviews and other documents were collated and analysed according to the above key leadership dimensions. Overall, the findings show that:

- eTeachers' and Site Supervisors' professional learning/development is primarily collegial, informal and sporadic, rather than well-planned and well-aligned to their professional learning needs, goals and appraisals. Little, if any, use is made of student achievement data to inform eTeachers' PD and improve eTeaching;
- tensions between school and cluster systems meant that eTeaching is poorly monitored. Consequently eTeachers' feedback and support is informal and haphazard rather than part of an integrated and proactive system for professional appraisals/goal-setting and PD;

- the leadership for monitoring and supporting eLearners is distributed across Site Supervisors, eTeachers and, to a lesser extent, the ePrincipal. The systems they use are primarily aimed at ensuring students attend regularly, complete the work set and behave themselves, rather than being focused on students' learning. School and cluster systems for student goal-setting and self-monitoring to improve learning are not well developed or coordinated;
- the preparation of new eTeachers and Site Supervisors is mainly the ePrincipal's responsibility, with some support also being provided by more experienced eTeachers and Site Supervisors from within the cluster;
- the preparation of new ePrincipals was supported by the Ministry for 2008/2009 and included a combination of: experienced leadership mentors, PD courses, conferences and collegial support from other ePrincipals. Much of this support is no longer available for ePrincipals' ongoing PD needs, apart from the collegial support and ICTPD conferences;
- leadership for the preparation of new eLearners is distributed across ePrincipals, eTeachers and Site Supervisors. The systems they use are well established but tensions between school and cluster activities and inter-cluster enrolments reduce their effectiveness;
- instructional leadership across multiple clusters does not feature prominently for eTeaching but it does for eLearning because of the highly reciprocal nature of the eLearning clusters regarding student enrolments; and
- nationally, the main forms of support provided for eLearning and its leadership include: significant investment in the enabling ICT infrastructure, developing teachers' overall pedagogic practices and informal support for ePrincipals' PD through the formation of collegial communities of practice. Little, if any, national support is provided specifically for eLearners, eTeachers, and Site Supervisors.

Findings also emerged for several other leadership issues which arose throughout the research process. Whilst many of these appear to be discrete issues, some are connected and these connections appear to help explain why some aspects of the clusters' leadership are so complex and confused. Significant findings for other issues that arose during the interview process include:

- neither of the eLearning cluster's management committees appears to have a significant role in the instructional leadership of the cluster;
- the ePrincipal's role is open to interpretation and misunderstanding;
- almost all eLearning courses are NCEA courses which dictates teacher-centred pedagogy, requires stringent student selection policies and also stifles the development of more innovative eLearning courses;
- asynchronous technologies are affecting eLearning and eTeaching, possibly by causing the development of a more socio-constructivist pedagogy;
- most schools have rigorous selection policies for prospective students to become eLearners which inevitably results in inequitable access for students to eLearning;
- increases in cross-cluster enrolments of eLearners has extended the range of courses available to (suitable) students but is also accompanied by greater difficulty for the cluster-wide preparation of new eLearners;
- funding and sustainability concerns are widespread amongst ePrincipals and Principals but not shared by the National Officials who typically adopt a 'self-managing schools' rationale;
- inter-school collaboration in an environment that is geared almost exclusively to support self-managing schools is repeatedly identified as problematic and appears to be at the root of many of the tensions faced by the eLearning clusters; and
- the current national roll-out of UFB is identified as positioning NZ at the brink of a new educational paradigm with significant opportunities and challenges for NZ's schools. The rural secondary eLearning clusters are viewed as microcosms of the issues that are likely to soon be faced by all NZ schools.

The discussion of the findings (Chapter Five) confirms that the leadership of eLearning/eTeaching is a very complex and multi-faceted phenomenon which occurs in a challenging, multi-layered environment. The findings are analysed and discussed using an ecological perspective of eLearning for each ecosystem level; key elements of the leadership within each level are described and connections to other levels are also identified. A complex picture of the leadership emerges from the discussion, with different but interconnected and interdependent leadership roles and challenges within and across all of the ecosystem levels. The ecological perspective proved itself to be useful, not only as a unifying framework for discussing/analysing the findings but also for generating an array of interconnected recommendations at all ecosystem levels to inform and guide future improvements to eLearning/eTeaching leadership practices. These recommendations should be viewed as suggestions for the next phase in the ongoing evolution of eLearning, rather than as criticisms of the existing clusters.

RECOMMENDATIONS

In keeping with the interconnected and interdependent nature of the findings, the recommendations below are presented as two 'bundles' of interrelated suggestions to improve eLearning/eTeaching leadership practices. The first bundle is aimed at enhancing leadership practices and systems in the existing rural, secondary, NCEA-focused eLearning clusters. The second bundle represents a more radical viewpoint by offering recommendations for disruptive innovations to improve the leadership of eLearning in NZ. Recommendations for further research are then identified, before a final word regarding this research concludes the chapter and the thesis.

Recommendations to Improve eLearning Clusters

eLearning clusters should review their systems for monitoring and supporting eTeachers, Site Supervisors and ePrincipals. School and/or cluster systems for professional development, professional goal-setting and appraisals should be developed so that they are well-aligned with the professionals' learning needs and are cohesive, comprehensive and integrated. In turn, the professionals' learning needs should be informed by analyses of feedback from students about their learning and also student achievement data. Timperley et al.'s (2007) professional learning cycle (Figure 6 below) is suitable to use as the underlying framework for the development of cluster systems for PD in an eLearning context because it is a knowledge-building cycle that starts and ends with the identified learning needs of students. If this cycle is used as the foundation for eLearning clusters' professional development systems, professional goal-setting could be easily incorporated into Step 2 and appraisals would form part of the monitoring and reflection at Step 5.

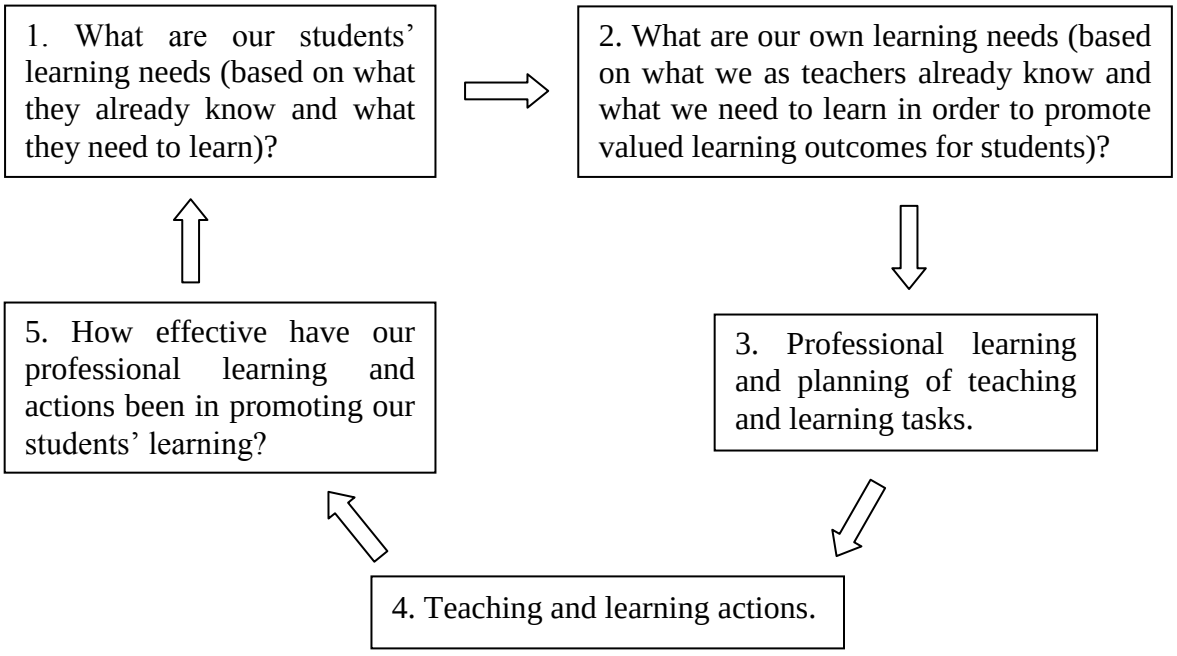


Figure 6: Timperley et al.'s (2007) Professional Learning Cycle

Regardless of whether or not this model is adopted, Principals and ePrincipals should play leading roles in the development and implementation of their systems to ensure school and cluster systems work in unison.

The formation of formal professional learning communities has the potential to further enhance the professional development/learning in Step 3 above (Dexter, 2008; Hallinger, 2003; D Hopkins, 2003) but it would also add another layer of complexity to what is already a challenging issue and therefore carries some risk of making the system less effective.

Similarly, eLearning clusters should also review their systems for monitoring and supporting eLearners, particularly to develop well-coordinated systems for student goal-setting and self-monitoring (Means, et al., 2009). Site Supervisors should play a leading role in the development of these systems to ensure that students' learning needs remain paramount. The smart use of ICTs should also feature in these systems to ensure that the school's deans and teachers, the student's eTeacher(s) and parent(s), the ePrincipal and the eLearning management committee are appropriately informed about the learning goals and progress towards them; systems for this reporting should be incorporated into Steps 1 and 5 of Figure 6 if this model for professional learning/development is adopted.

The eLearning clusters' management committees should also review their leadership roles, with a view to developing greater responsibilities for instructional leadership, particularly by adopting a much more strategic approach to improving student learning (Ministry of Education, 2011).

The Ministry of Education should review their systems/policies for the support of eLearning clusters. Specialised professional development/learning for eTeachers, Site Supervisors and ePrincipals should be provided nationally because these professionals are, or could easily become, technology leaders (Riel & Becker, 2008) within the schools thus increasing the return manyfold on the Ministry's investment. Ongoing streams of funding and/or staffing should be provided to eLearning clusters to enable them to develop and sustain the quality management systems described above, rather than allowing NZ's self-managing schools' system (which appears poorly designed for inter-school collaboration) to erode the quality and provision of eLearning opportunities. Finally, the Ministry should fund further development of the LCO Handbook (Ministry of Education, 2011) to provide detailed advice, with examples and resources, that describes and explains to schools and clusters how they can develop and sustain quality management systems for the effective monitoring and support of eLearners, eTeachers, Site Supervisors and ePrincipals.

Recommendations for Disruptive Innovations to Improve eLearning and its Leadership

Christensen (2009) adopts a business perspective when he defines a 'disruptive innovation' as a new product/service that "allows a whole new population of consumers access to a product or service that was historically only accessible to consumers with a lot of money or a lot of skill." This term applies equally to schools if education is considered to be a service and that students and their family/whanau are potential consumers of that service.

This research identifies that many students are denied access to eLearning because most schools apply rigorous student selection policies. The main underlying reason for this is that the courses are almost exclusively traditional teacher-centred NCEA level courses with predetermined structures and entry requirements. The overall effect of this is to deny many students access to eLearning. However, as Christensen (2009) observes, this also makes eLearning fertile ground for a disruptive innovation, particularly if the barrier of perceived perquisite students' skills is removed to allow more open access.

The clue for how to achieve this is provided by the eLearning literature which contains recurring themes of constructivist pedagogy, personalised learning and 21st century learning skills (e.g. Lin & Bolstad, 2010). Constructivist teaching and learning strategies that are enabled through the innovative use of ICTs typically aim to develop students' abilities to: construct new knowledge, think creatively and critically, solve problems, communicate with others and make connections. Importantly, these are all skills which every student could and should develop.

However the National Officials in this research quite rightly identify that little progress has been made towards developing innovative teaching and learning programmes by NZ's rural secondary eLearning clusters. Hence a disruptive innovation in eLearning may be required to make it more easily accessible to those students who are currently denied access because they are perceived to lack the prerequisite skills.

Research participants identify the current national roll-out of UFB as a timely opportunity to develop more innovative eLearning programmes and that this is likely to occur through faster connectivity and enhanced inter-school collaboration in a more networked schooling environment. However, the experience of the current eLearning clusters would suggest that this is unlikely because they have networked and collaborated for some time, with little evidence of innovative practice. This also reflects international experience because the literature shows that efforts to transform traditional schooling through the adoption of ICT have in the main been unsuccessful (e.g.Voogt, 2008). Conversely virtual schooling has undergone rapid and successful growth (Roblyer, 2008).

Davis and Roblyer (2005) argue that the underlying driver for the growth of virtual schooling in the USA has been due to a fundamental shift in student demand, primarily from rural/underserved students wanting better access to a wider range of courses to nearly all of today's students who demand anytime-anywhere access to self-paced, flexible and connected learning programmes. Furthermore Davis and Niederhauser (2005) find significant advantages of delivering virtual schooling through a specialised virtual school compared with the 'coordinated schools' model used by NZ's eLearning clusters.

This strongly suggests that there is much to be gained if NZ focuses on virtual schooling opportunities that are enabled by UFB and that a disruptive innovation should be adopted which is specifically designed for providing easy access to personalised, 21st century eLearning opportunities to every student. However it must be acknowledged that this recognition comes loaded with a raft of inherent implications for national educational policies that would also need to be addressed, including:

- legislation enabling (or requiring) student rights to enrolment with multiple schooling providers;
- regulations that describe and explain school's rights and responsibilities for student learning in a multiple-schooling environment and also the resources/systems that enable them to perform their functions;
- changes to funding and staffing formulae for all schools which acknowledge and reward those who provide for students' learning;

- resourcing implications (such as access to computers and UFB) to enable access for all students to synchronous and asynchronous eLearning opportunities, from their homes and schools;
- parental access to their children's records of learning/eLearning and to their schooling providers; and
- changes to the NCEA qualification system that recognise a wider range of students' skills (e.g. constructing new knowledge, thinking creatively, and working collaboratively to solve problems) and/or reduce the assessment demands on students in Years 11, 12 and 13.

A wide range of virtual schooling providers are evolving in the USA (Watson, Gemim, Ryan, & Wicks, 2009) so there are many options available for developing virtual schooling further in NZ. One approach may be to change national educational policies to encourage the establishment of many virtual schooling providers that specialise in unique or niche forms of personalised eLearning such as PLENK (Downes, et al., 2010). This suggestion would diversify the virtual learning opportunities and reduce the risk associated with backing a single provider but it would also dilute the resources unduly and possibly preclude the development of resource-intensive innovative programmes such as Conspiracy Code (Florida Virtual School, 2011b) where students learn about American history through an online gaming programme.

Furthermore, the development of virtual schooling should be considered within an international educational context rather than just a national one. For example, Florida Virtual School currently offers: franchise opportunities for schools to establish their own virtual school, learning opportunities to students in 46 different countries and virtual leadership training for educators globally (Florida Virtual School, 2011a). This not only implies that international virtual schooling providers could be part of NZ's delivery of virtual schooling but that international opportunities would exist for NZ's virtual schooling providers if they were to develop world-class programmes either independently or in collaborative partnerships with international VS providers.

Rather than attempting to provide an exhaustive list of suggestions, I recommend that the Ministry of Education completes a thorough investigation into potential models of virtual schooling and their implications. This review needs to be completed urgently so that the Ministry can put their recommendation(s) to the government for a timely decision, thus ensuring that the investment in UFB provides an optimal educational return for all NZ students.

Further Research

As already noted in the literature review, there is currently a dearth of research in the fields of:

- eTeaching and eLearning, particularly in primary and secondary schools (Means, et al., 2009);
- educational research that is focused primarily on distributed leadership in action (Harris, 2009; Spillane, et al., 2009); and
- and the leadership of virtual schooling (Roblyer, 2008).

This research project has done little to rectify this situation because of its limited methodology and scope; hence more research of this nature is still required.

Furthermore, this research has raised several specific unanswered questions at all ecosystem levels of eLearning in NZ that are worthy of further research in the future. For example, at the eLearning class level, what examples of innovative and constructivist teaching practice exist and how may these be promoted and nurtured elsewhere?

At the individual school level, how do schools' student selection policies/procedures affect participation and success in eLearning? What conditions are required to promote and sustain effective student goal-setting and self monitoring? How can teaching and learning strategies developed for eLearning be used to enhance blended learning in face-to-face classes?

For individual eLearning clusters, what effective leadership roles are performed by ePrincipals and eLearning Management Committees for enhancing eTeaching/eLearning? Do effective systems and structures exist for eTeachers' and Site Supervisors' professional development, appraisals and goal-setting? If so, what conditions are required for these to be promoted and sustained in all eLearning clusters? How can clusters promote the development of innovative courses and eTeaching practice?

Across multiple eLearning clusters, how does inter-cluster instructional leadership influence eTeaching and/or eLearning, and how can this be enhanced further?

At the level of secondary education in NZ, which form(s) of virtual schooling models used internationally are most effective for enhancing student learning? What is/are the best option(s) for developing virtual schooling in NZ? What are the educational policy implications of enhanced inter-school collaboration in a 'networked-schools' environment? Do fixed-term Ministry subsidised collaborative initiatives provide good long-term returns on the investment?

A Final Word

"Ki ngā whakaeke haumi" which literally means "join those who can join sections of a canoe" (Landcare Research Manaaki Whenua, 2003). The background to this Māori proverb is that some canoes consisted of two or three sections and that joining them required considerable skill and great teamwork. This proverb implies that difficult and complex tasks are best achieved by leaders who have a clear vision of the big picture, understand how the component parts work and who possess the team leadership skills required to lead diverse groups that are working collaboratively.

The parallels of the proverb for the leadership of eLearning (at all ecosystem/canoe-section levels) are self-evident. Leaders who seek to improve eLearning, be they at school, cluster or national level, irrespective of whether they lean more towards improving current eLearning clusters or more radical options, will only be successful if they are able to galvanise diverse groups of people into effective teams. Hence improving eLearning will ultimately depend upon leaders with the instructional knowledge and the distributed leadership skills to achieve it.

As has already been stated elsewhere throughout this thesis, I have the utmost respect for, and confidence in, the leaders of eLearning so it is with a sense of optimism and anticipation that I await future developments in the ongoing evolution of eLearning in NZ.

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APPENDICES

APPENDIX 1: Interview Schedule for School-Based Participants

The sub-questions below were merely aspects of each key question that possibly required exploration during the interviews. The interviews explored significant lines that emerged during the interview, rather than using this schedule as a standard and exhaustive list of sub-questions.

Key Question 1: How does your eLearning cluster promote and provide professional learning/development for eTeachers?
Probable sub-questions include:

- What organisational structures (such as committees or groups) and/or systems (such as meetings, appraisals and reviews) are used to provide professional development/learning?
- How do these structures and/or systems operate? Who is involved, and what are their main roles and responsibilities?
- Are there any examples of professional learning communities operating within your cluster or with other clusters? If so, who is involved and how do these operate?
- How is student achievement data used to inform/guide professional development or learning?
- How is eTeacher learning and development planned, monitored, and reviewed?

Key Question 2: How does your cluster monitor eTeaching and provide support for eTeachers?
Probable sub-questions include:

- How is eTeaching monitored and evaluated to ensure quality eTeaching and to provide feedback to eTeachers?
    - What cluster and/or school structures (such as committees or groups) and systems (such as meetings, appraisals, templates, and forms) are used to do this?
    - Who is involved? What are their roles and responsibilities?
- If necessary, what systems are used to ensure cluster and school processes work together?
- Are goals/expectations for eTeachers and/or eLearners overt? If so, how are the goals developed and how are they used in the evaluation of eTeaching?
- How is information from eTeachers' appraisals used in their professional development?
- How are the goals and expectations monitored and reviewed?

Key Question 3: How is eLearning monitored and support provided for eLearners in your eLearning cluster/schools?
Probable sub-questions include:

- How are eLearners monitored to ensure they are engaged in their learning and making satisfactory progress?
    - What cluster and/or school structures (such as committees or groups) and systems (such as meetings, templates, and forms) are used to do this?
    - Who is involved? What are their roles and responsibilities?
- Specifically, what home-school support is provided for eLearners? How is information from the eTeacher/cluster provided to home-schools to enable this support?
- If necessary, what systems are used to ensure cluster and school processes work together?
- Are eLearners encouraged to set goals and/or supported to self-monitor their progress? If so, how is this support provided?

Key Question 4: How are your eLearners and eTeachers prepared for online learning/teaching?

Probable sub-questions include:

- How are eLearners prepared for the expectations, challenges and opportunities that are inherent in online learning?
    - What cluster and/or school structures and systems are used to do this?
    - Who is involved? What are their roles and responsibilities?
    - If necessary, what systems are used to ensure cluster and school processes work together?
- How are eTeachers prepared for the expectations, challenges and opportunities that are inherent in online teaching?
    - What cluster and/or school structures and systems are used to do this?
    - Who is involved? What are their roles and responsibilities?
    - If necessary, what systems are used to ensure cluster and school processes work together?

Key Question 5: How is instructional leadership provided across multiple clusters?

Probable sub-questions include:

- Are there any examples of professional collaboration (such as professional learning and/or curriculum planning) between eLearning clusters?
    - If so, who is involved from the eLearning clusters, and what are their roles and responsibilities?
    - What national support and guidance is provided? Who does this, and what are their roles and responsibilities?
    - What processes, tools (such as templates, forms and resources), structures (such as committees or groups) and routines (such as meetings, appraisals and reviews) are used to maintain and develop these initiatives?
    - How are these initiatives monitored and reviewed?

APPENDIX 2: Interview Schedule for National Officials

Note: The interviews were based on only the most relevant aspects of the Key Question below, from each National Official's perspective.

Introduction: Please introduce yourself and outline your role/responsibilities for eLearning.

Key Question: What support/guidance is provided nationally for eLearning clusters? Possible aspects of national support/guidance include:

- developing leadership for eTeaching and/or eLearning?
- promoting and providing professional learning/development for ePrincipals and/or eTeachers and/or site supervisors?
- enabling professional collaboration between eLearning clusters and/or between schools?
- providing the infrastructure required for eTeaching/eLearning?
- preparing new eTeachers for teaching online?
- developing courses and/or curriculum and/or resources for eTeaching/eLearning?
- providing students/families with resources that enable access to eLearning?
- developing teachers' overall pedagogical practices generally and specifically their ICT-using pedagogical practices within that?
- national ICT-related policies and/or initiatives that support effective eTeaching/eLearning?
- any other important national aspects that enable eTeaching/eLearning that are not mentioned above – please specify.

For the most relevant aspects of national support/guidance listed above, please outline:

1. How the support/guidance is provided, who is involved, and what are their roles/responsibilities?
2. How clusters/schools/students may access the support/guidance?
3. What expectations and/or conditions are placed on clusters/schools/students that access the support/guidance?
4. How the support/guidance is planned, monitored and evaluated?

Any other comments regarding eTeaching, eLearning, and NZ's eLearning clusters?

APPENDIX 3: Letter to ePrincipals

Tel: 03 693 7442
Email: kstevens@xtra.co.nz

The ePrincipal
XXXXX eLearning cluster
XXXXX address
30 July 2010

Dear XXXX

Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership

I am currently enrolled at the University of Canterbury as a student in the Master of Education (MEd) programme. This letter is a follow-up to a recent phone call inviting you to take part in the study I am conducting to find out how educational leadership operates within and across two eLearning clusters. I am undertaking this research project for a thesis under the supervision of Prof. Niki Davis and Jan Daley, both of the University of Canterbury.

The working title of my project is, *"Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership."* This project is designed to investigate educational leadership in eLearning clusters that is focused on providing and enhancing quality eTeaching and eLearning. The aim is to tell the stories of ePrincipals and others involved in this leadership with respect to these emerging roles, responsibilities and relationships. I hope to be able to identify effective leadership practices within and across eLearning clusters. The findings will be published as a MEd thesis at the University of Canterbury and may be useful as a reflective tool for eLearning clusters in their future development.

As an ePrincipal you are invited to participate in a private interview of approximately 45-60 minutes duration. With permission, the interview will be recorded so that I can refer to your responses to ensure my data analysis is accurate. However if this is not acceptable then I will take written notes during the interview. Ideally the interview will take place at your school (or by videoconference) at a time and date that is mutually acceptable, and preferably before the end of August 2010. Approx. 4-6 others, who you identify as also performing significant leadership roles in/for your eLearning cluster, will also be invited to participate in a similar interview.

Please note that participation in this study is voluntary. If you do participate, you have the right to decline to answer any questions and to withdraw from the study at any time without penalty. If you withdraw, I will do my best to remove any information relating to you, provided this is practically achievable. Particular care will be made to ensure confidentiality of all data gathered for this study and to ensure the anonymity of participants and their schools in all publications of the findings. All data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed. All participants will receive a report on the findings of this study.

The University of Canterbury Educational Research Human Ethics Committee has reviewed and approved this project. The University requires that all participants be informed that if they have any complaint concerning the manner in which a research project is conducted, it may be given to the researcher, or, if an independent person is preferred, to:

The Chairperson
Educational Research Human Ethics Committee
University of Canterbury
Private Bag 4800
Christchurch
or email: human-ethics@canterbury.ac.nz

If you have any questions about this research at any stage, please do not hesitate to contact me or either of my supervisors. Our contact details are:

Researcher:
Kerry Stevens
Phone: 03 693 7442 or 021 043 6651
Email: kstevens@xtra.co.nz
Postal: 435 Winchester-Geraldine Road, RD21, Geraldine 7991

Supervisors:
Prof. Niki Davis
Professor of E-Learning
College of Education
University of Canterbury
Phone: 03 345 8246
Email: niki.davis@canterbury.ac.nz

Jan Daley
Senior Lecturer & Co-ordinator Educational Leadership Qualifications
College of Education
University of Canterbury
Phone: 03 345 8248
Email: jan.daley@canterbury.ac.nz

Thank you for your consideration of my request to participate in this research project. If you understand the requirements and agree to participate in this study, please complete and sign the attached Declaration of Consent form and return it to me in the enclosed self-addressed envelope as soon as possible (and before 14 Aug 2010). Thank you in advance for your participation and contribution to this research.

Yours sincerely

Kerry Stevens

DECLARATION OF CONSENT - ePrincipals

I consent to participate in the research project, "*Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership"* under the conditions outlined below.

I have read and understood the information provided to me concerning the research project and what will be required of me if I participate in the project.

In particular, I understand that:

- my participation in the project is voluntary - I may withdraw from the project at any time without incurring any penalty and if I withdraw the researcher will take all practical steps to remove information related to me from the study;
- my involvement comprises participating in an interview of approximately 45-60 minutes duration regarding educational leadership in eLearning clusters;
- the interview will be recorded in order for the researcher to check accuracy of my answers and that any stage I can ask for the recording to be stopped;
- all data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed;
- the information I provide to the researcher will be treated as confidential and that no findings that could identify either me or my cluster/schools will be published;
- the findings will be published in a MEd thesis at the University of Canterbury and that a summary of the findings will be provided to all participants;
- if I have any questions about this research at any stage, I should contact the researcher (Kerry Stevens) or either of his supervisors (Prof. Niki Davis and Jan Daley, both at the University of Canterbury);
- any complaints I may have regarding this research may be made to:
  The Chairperson, Educational Research Human Ethics Committee, University of Canterbury,
  Private Bag 4800, Christchurch or email: human-ethics@canterbury.ac.nz

Name: _____ Date: _____

Signed: _____ email: _____

If you agree to participate, please complete and sign this consent form as soon as you are able to and return it in the enclosed self-addressed envelope on or before 14 Aug 2010 to:

Kerry Stevens
435 Winchester-Geraldine Road
RD21
Geraldine 7991

APPENDIX 4: Letter to Other Participants

Tel: 03 693 7442
Email: kstevens@xtra.co.nz

XXX eTeacher/XXX Site Supervisor/other
XXXXX school/organisation
XXXXX address
14 Aug 2010

Dear XXXX

Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership

I am currently enrolled at the University of Canterbury as a student in the Master of Education (MEd) programme. You have been identified by an ePrincipal as a person with a significant leadership role in eLearning, so I would like to invite you to take part in a study I am conducting to find out how educational leadership operates within and across two eLearning clusters. I am undertaking this research project for a thesis under the supervision of Prof. Niki Davis and Jan Daley, both of the University of Canterbury.

The working title of my project is, *"Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership."* This project is designed to investigate educational leadership in eLearning clusters that is focused on providing and enhancing quality eTeaching and eLearning. The aim is to tell the stories of ePrincipals and significant others involved in this leadership with respect to these emerging roles, responsibilities and relationships. I hope to be able to identify effective leadership practices within and across eLearning clusters. The findings will be published as a MEd thesis at the University of Canterbury and may be useful as a reflective tool for eLearning clusters in their future development.

As a person involved with eLearning leadership you are invited to participate in a private interview of approximately 45-60 minutes duration. With permission, the interview will be recorded so that I can refer to your responses to ensure my data analysis is accurate. However if this is not acceptable then I will take written notes during the interview. Ideally the interview will take place at your school/organisation (or by videoconference) at a time and date that is mutually acceptable, and preferably before mid-September 2010. Your principal will also be contacted to seek his/her permission for you to participate and for me to access the school site for the interview.

Please note that participation in this study is voluntary. If you do participate, you have the right to decline to answer any questions and to withdraw from the study at any time without penalty. If you withdraw, I will do my best to remove any information relating to you, provided this is practically achievable. Particular care will be made to ensure confidentiality of all data gathered for this study and to ensure the anonymity of participants and their schools in all publications of the findings. All data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed. All participants will receive a report on the findings of this study.

The University of Canterbury Educational Research Human Ethics Committee has reviewed and approved this project. The University requires that all participants be informed that if they have any complaint concerning the manner in which a research project is conducted, it may be given to the researcher, or, if an independent person is preferred, to:

The Chairperson
Educational Research Human Ethics Committee
University of Canterbury
Private Bag 4800
Christchurch
or email: human-ethics@canterbury.ac.nz

If you have any questions about this research at any stage, please do not hesitate to contact me or either of my supervisors. Our contact details are:

Researcher:
Kerry Stevens
Phone: 03 693 7442 or 021 043 6651
Email: kstevens@xtra.co.nz
Postal: 435 Winchester-Geraldine Road, RD21, Geraldine 7991

Supervisors:
Prof. Niki Davis
Professor of E-Learning
College of Education
University of Canterbury
Phone: 03 345 8246
Email: niki.davis@canterbury.ac.nz

Jan Daley
Senior Lecturer & Co-ordinator Educational Leadership Qualifications
College of Education
University of Canterbury
Phone: 03 345 8248
Email: jan.daley@canterbury.ac.nz

Thank you for your consideration of my request to participate in this research project. If you understand the requirements and agree to participate in this study, please complete and sign the attached Declaration of Consent form and return it to me in the enclosed self-addressed envelope as soon as possible (and before 28 Aug 2010). Thank you in advance for your participation and contribution to this research.

Yours sincerely

Kerry Stevens

DECLARATION OF CONSENT – other participants

I consent to participate in the research project, "*Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership"* under the conditions outlined below.

I have read and understood the information provided to me concerning the research project and what will be required of me if I participate in the project.

In particular, I understand that:

- my participation in the project is voluntary - I may withdraw from the project at any time without incurring any penalty and if I withdraw the researcher will take all practical steps to remove information related to me from the study;
- my involvement comprises participating in an interview of approximately 45-60 minutes duration regarding educational leadership in eLearning clusters;
- the interview will be recorded in order for the researcher to check accuracy of my answers and that any stage I can ask for the recording to be stopped;
- all data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed;
- the information I provide to the researcher will be treated as confidential and that no findings that could identify either me or my school/cluster will be published;
- the findings will be published in a MEd thesis at the University of Canterbury and that a summary of the findings will be provided to all participants;
- if I have any questions about this research at any stage, I should contact the researcher (Kerry Stevens) or either of his supervisors (Prof. Niki Davis and Jan Daley, both at the University of Canterbury);
- any complaints I may have regarding this research may be made to:
  The Chairperson, Educational Research Human Ethics Committee, University of Canterbury,
  Private Bag 4800, Christchurch or email: human-ethics@canterbury.ac.nz

Name: _____ Date: _____

Signed: _____ email: _____

If you agree to participate, please complete and sign this consent form as soon as you are able to and return it in the enclosed self-addressed envelope on or before 28 Aug 2010 to:

Kerry Stevens
435 Winchester-Geraldine Road
RD21
Geraldine 7991

APPENDIX 5: Letter to Principals of Teacher Participants

Tel: 03 693 7442
Email: kstevens@xtra.co.nz

The Principal
XXXXX School
XXXXX address
14 Aug 2010

Dear XXXX

Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership

I am currently enrolled at the University of Canterbury as a student in the Master of Education (MEd) programme. This letter is a follow-up to a recent phone call seeking your permission to interview teacher(s) from your school in order to find out how educational leadership operates within and across two eLearning clusters. I am undertaking this research project for a thesis under the supervision of Prof. Niki Davis and Jan Daley, both of the University of Canterbury.

The working title of my project is, *"Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership."* This project is designed to investigate educational leadership in eLearning clusters that is focused on providing and enhancing quality eTeaching and eLearning. The aim is to tell the stories of ePrincipals and others involved in the leadership with respect to their emerging roles, responsibilities and relationships. I hope to be able to identify effective leadership practices within and across eLearning clusters. The findings will be published as a MEd thesis at the University of Canterbury and may be useful as a reflective tool for eLearning clusters in their future development.

As Principal of XXXX School, I seek your consent to come onto your school site and conduct interview(s) with teacher(s) employed by your school in a private office for approximately 45-60 minutes duration per interview. With the teacher's permission, the interview will be recorded so that I can refer to their responses to ensure my data analysis is accurate. However if this is not acceptable then I will take written notes during the interview. Ideally the interview will take place at your school (or by videoconference) at a time and date that is mutually acceptable, and preferably before mid-September 2010.

Please note that participation in this study is voluntary. If your teacher(s) do participate, they have the right to decline to answer any questions and to withdraw from the study at any time without penalty. If they withdraw, I will do my best to remove any information relating to them, provided this is practically achievable. Particular care will be made to ensure confidentiality of all data gathered for this study and to ensure the anonymity of all participants and their school/cluster in all publications of the findings. All data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed. All participants will receive a report on the findings of this study.

The Educational Research Human Ethics Committee has reviewed and approved this project. The University requires that all participants be informed that if they have any complaint concerning the manner in which a research project is conducted, it may be given to the researcher, or, if an independent person is preferred, to:

The Chairperson
Educational Research Human Ethics Committee
University of Canterbury
Private Bag 4800
Christchurch
or email: human-ethics@canterbury.ac.nz

If you have any questions about this research at any stage, please do not hesitate to contact me or either of my supervisors. Our contact details are:

Researcher:
Kerry Stevens
Phone: 03 693 7442 or 021 043 6651
Email: kstevens@xtra.co.nz
Postal: 435 Winchester-Geraldine Road, RD21, Geraldine 7991

Supervisors:
Prof. Niki Davis
Professor of E-Learning
College of Education
University of Canterbury
Phone: 03 345 8246
Email: niki.davis@canterbury.ac.nz

Jan Daley
Senior Lecturer & Co-ordinator Educational Leadership Qualifications
College of Education
University of Canterbury
Phone: 03 345 8248
Email: jan.daley@canterbury.ac.nz

Thank you for your consideration of my request to participate in this research project. If you understand the requirements and agree to participate in this study, please complete and sign the attached Declaration of Consent form and return it to me in the enclosed self-addressed envelope as soon as possible (and before 28 Aug 2010). Thank you in advance for your participation and contribution to this research.

Yours sincerely

Kerry Stevens

DECLARATION OF CONSENT – Principals of Teacher Participants

I consent to teacher(s) from XXXX School participating in the research project, "*Educational leadership in eLearning clusters – a stereoscopic perspective of instructional and distributed leadership"* under the conditions outlined below.

I have read and understood the information provided to me concerning the research project and what will be required of me if I participate in the project.

In particular, I understand that:

- my participation in the project is voluntary - I may withdraw from the project at any time without incurring any penalty and if I withdraw the researcher will take all practical steps to remove information related to me from the study;
- my teacher's involvement comprises participating in an interview of approximately 45-60 minutes duration regarding educational leadership in eLearning clusters and that the researcher may need access to my school to conduct the interview;
- the interview will be recorded in order for the researcher to check accuracy of the answers and that any stage the teacher can ask for the recording to be stopped;
- all data is to be securely stored in password protected facilities and/or locked storage at the researcher's private residence for up to five years following the study and will then be destroyed;
- the information provided to the researcher will be treated as confidential and that no findings that could identify either my teacher(s) or my school/cluster will be published;
- the findings will be published in a MEd thesis at the University of Canterbury and that a summary of the findings will be provided to all participants;
- if I have any questions about this research at any stage, I should contact the researcher (Kerry Stevens) or either of his supervisors (Prof. Niki Davis and Jan Daley, both at the University of Canterbury); and
- any complaints I may have regarding this research may be made to:
  The Chairperson, Educational Research Human Ethics Committee, University of Canterbury, Private Bag 4800, Christchurch or email: human-ethics@canterbury.ac.nz

Name: _____ Date: _____

Signed: _____ email: _____

If you agree to teacher(s) at your school participating, please complete and sign this consent form as soon as you are able to and return it in the enclosed self-addressed envelope on or before 28 Aug 2010 to:

Kerry Stevens
435 Winchester-Geraldine Road
RD21
Geraldine 7991