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**Distributed leadership for innovative use of ICT in  
teaching and learning: Empowerment through culture,  
capacity and collaboration**

A thesis

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of the requirements for the degree

of

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THE UNIVERSITY OF  
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## **Abstract**

The explosion and advancements of information and communication technology (ICT) are shaping the skills and competencies our children will need for their future. School leaders are confronted with the challenge to redesign traditional models of schooling and embrace ICTs in order to create innovative school cultures to support 21<sup>st</sup> century learner needs. Opportunities that allow students to construct their own learning pathways, connect with each other and the world beyond their classroom, collaborate, reflect, and solve real problems will prepare our students to take an active role in a highly complex and demanding society. School leaders adopting a distributed leadership approach has shown potential to build school capacity to undertake innovation and change.

This research adopts the distributed leadership theory to understand how school leaders and teachers can implement innovative ICT pedagogies within New Zealand primary schools. Using a qualitative interpretive methodology two high performing urban schools were case studied. Data was collected through semi-structured interviews with school leaders and teachers and a document analysis of relevant school documentation. Thematic analyses within and between the cases revealed three key themes: developing a supportive culture, building teacher and leadership capacity and providing formal opportunities for collaboration.

The findings indicate that school leaders play a crucial role in creating the necessary conditions to foster and sustain innovation and change. This approach involves developing a positive culture, building capacity of individuals, and providing opportunities for collaboration. Teachers indicated that when these conditions were in place they felt empowered to leverage the potential of technology in their teaching and learning practice. The distributed leadership model was valuable for understanding such leadership in action. It highlighted the need for a positive synergy between a supportive school culture, building teacher and leadership capacity and formal opportunities for collaboration.

Implications for school leaders interested in adopting a distributed approach to leadership and practice in order to support innovative ICT

teaching practice include; understanding the conditions required for effective distributed leadership, how to establish these conditions in their school context, intentionally seeking to be life long learners; appreciating the role technology can play, building leadership capacity throughout the school, and establishing learning communities in their school.

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# **CHAPTER ONE: INTRODUCTION AND OVERVIEW**

## ***1.1 Introduction***

This chapter introduces the rationale that guided this research, details the research questions and scope, and provides an overview of the remaining chapters in this thesis.

## ***1.2 Background***

This research sets out to explore the nature of school leadership and culture in primary school settings where technology is adopted to transform teaching and learning practices. As a school principal I look for theoretical frameworks to help me make sense of my personal observations and professional reading about the potential impact of technology on the teaching and learning process. Teaching and learning is the core moral purpose of a school (Fullan, 2006) and I can appreciate that our current school model is evolving in response to rapid technological advancements. The key to this evolution is adapting our teaching and learning to utilise the technology to create 21<sup>st</sup> century learning opportunities for our students.

As a school leader, I am witnessing a change in the students and recognise that “today’s students are no longer the people our educational system was designed to teach” (Prensky, 2001, p. 1). I have overheard students in my school saying “school is so boring”. These students have grown up in a world immersed in information and communication technologies (ICT). Technological devices such as cell phones are seen as being as necessary as their lunchboxes and pencil cases. The majority of the Year 6, 7 and 8 students in my school have Facebook pages and iPods, and are involved in regular social media chat sessions. Pre-schoolers are given iPads to occupy them while their parents meet with me. Prensky (2008) warns schools to adapt their teaching and learning programmes to address the mismatch between traditional teaching methods and the demands of today’s students. This is further reinforced by Gronow (2007) who explains that students are changing in response to the world in which they live, and that they learn differently from students a decade ago. Today’s learners need to be engaged in meaningful authentic

learning and they lack interest in and motivation for, traditional “chalk and talk” approaches.

As a school principal, I want to ensure that my school has the systems and culture to empower teachers to be able to provide current approaches to teaching and learning to make a difference for student learning outcomes. Furthermore I have a dedicated group of parents fundraising thousands of dollars to purchase ICT equipment and I feel responsible for making the best use of these resources. We must avoid “grafting ICT onto out-dated structures and approaches to teaching” (Savidan, 2003, p. 136). I have always seen ICT as tools for teaching and learning and have experienced the increased levels of engagement and motivation when various technologies are integrated into the curriculum. However, without changes to pedagogical practices, ICT has little impact on student outcomes and achievement (Jamieson-Proctor, Burnett, Finger, & Watson, 2006).

My vision for my school is to provide innovative teaching and learning which engages and motivates all learners to achieve to their potential, thus equipping them for a future that is complex, uncertain and yet exciting. This warrants an investigation into the leadership qualities and the school culture required to facilitate innovative ICT use in teaching and learning. My study therefore aims to explore and understand these important aspects of schooling that are often taken for granted in school level ICT advocacy, adoption and implementation projects.

### ***1.3 Rationale for the study***

Throughout the world, countries are striving to provide education systems to equip their children to advantageously cope with and adapt to an ever changing complex technological society. The rapid advancements in ICT are changing the way we live, communicate and learn (Marais, 2011). Communication and information are the driving forces of our society. ICT allows interconnectivity at increasing levels in our daily lives (Siemens, 2008). Educators and learners therefore require an evolving set of skills and competencies in order to optimise the potential use of information and communication technologies in this fast paced society. Schools are therefore at a crossroad as school leaders balance the growing demands

of delivering a 21st century curriculum within the constraints of current inflexible school systems and structures.

In New Zealand we face challenges in preparing our students to be digital citizens within a traditional school structure. New Zealand has recognised the importance of integrating ICT to provide a 21<sup>st</sup> century education system and has produced some outstanding strategy documents (Zwimpfer, 2010). Ensuring all schools had access to the ICT benefits was recognised as important in addressing national equity issues (Mallard, 2010). In 1998, the government launched, *Interactive Education: An ICT Strategy for Schools* (Ministry of Education, 1998). This strategy recognised the need to enhance the use of ICT for a knowledge society and provided support to Boards of Trustees (BOT) to build capability and infrastructure in schools. This document was followed by, *Digital Horizons: Learning through ICT* (Ministry of Education, 2002), and *Enabling the 21<sup>st</sup> Century Learner: eLearning Action Strategy* (Ministry of Education, 2006). The government provided financial assistance to further develop capability through professional development, infrastructure, and research projects. A key underpinning philosophy amongst these documents was the notion of “development in ICT is about learning, community and people” (Moffat, 2010, p. 30).

The New Zealand eLearning action plan for schools defines eLearning as “learning and teaching that is facilitated by or supported through the smart use of information and communication technologies” (Ministry of Education, 2006, p. 2). The crucial term is ‘smart use’. This notion underpins my research. ‘Smart use’ is defined as teachers appreciating the potential use of ICT and leveraging this to enhance their teaching and learning practice to provide authentic learning opportunities that engage and motivate today’s learners. Supporting schools to achieve this ‘smart use’ is highlighted in the eLearning Planning Framework produced by the Ministry of Education (2011) which has been developed as a tool for supporting schools to evaluate and then raise their eLearning capability. This framework assists schools to identify ways to raise their eLearning capability. It focuses on developing partnerships with the learner, the teacher and the wider community to fully benefit from the technology. It is

in line with Moffat's (2010) view of ICT development as being about "learning, community and people" (p.30). It is imperative that we facilitate the 'smart use' of ICT in New Zealand primary schools to fully harness the potential of ICT to create learning opportunities that will truly equip and prepare all students to take an active role in a highly complex and demanding society.

The New Zealand Curriculum (Ministry of Education, 2007), gives schools full license to explore the 'smart use' of ICT by acknowledging the potential of ICT to "open up new and different ways of learning" (p.36). The Ministry of Education has commissioned a number of research projects, which focus on student outcomes through developing teachers' professional capability. These include; eLearning and implications for New Zealand schools (Wright, 2010) and Supporting future-orientated learning and teaching—a New Zealand perspective (Bolstad et al., 2012). These projects have informed Ministry of Education based professional development and learning programmes that focus on supporting pedagogies through various blended eLearning approaches. These projects also highlighted the benefits of equitable and ubiquitous use of technologies throughout New Zealand. As a result, the government has extended the hardware and infrastructure initiatives in schools. A current impetus is to provide Ultra Fast Broadband in schools to deliver reliable high-speed internet connections. The aim is to develop a National Education Network for all schools to access.

However, despite these government initiatives, research tells us that ICT has had little impact on teaching and learning in classrooms. In fact Bolstad et al., (2012) suggest in their report that in order to achieve 21<sup>st</sup> century education, and fully capitalise on teaching and learning benefits available through the use of ICT the whole school system needs to be addressed. Research has explored how technology has changed the way we interact and communicate and, as a result, the way we learn (Marais, 2011). Our traditional school system is challenged to develop new systems and structures to embrace technology. Such systems and structures would facilitate teachers' ability to develop new approaches to teaching and learning to meet the needs of our 21<sup>st</sup> century learners.

Technology can no longer be accepted as an ‘add on’ or ‘something new to try’. It needs to be recognised for its transformational potential to impact on how teaching and learning can change in order to provide education for our 21<sup>st</sup> century learners (Bainbridge & Chawner, 2012; Marais, 2011; Savidan, 2003; Schrum & Levin, 2012).

This research will draw from a contemporary theory of leadership and learning to explore the critical role school leaders play in facilitating a school culture that empowers teachers to provide transformational teaching and learning with and through the innovative use of ICTs (Harlow, Chen, & Brooks, 2012; Savidan, 2003).

### ***1.4 Research aim and questions***

This research aims to investigate school leaders’ and their teachers’ views and ways of implementing innovative ICT teaching and learning within New Zealand primary schools. It adopts a distributed leadership framework to understand and identify the leadership practices necessary to develop a school culture that transforms teaching and learning through technology. The study acknowledges the complex interconnectedness of school leadership systems and processes to bring about innovative ICT teaching and learning practices. It will explore the perspectives of the school principal, leadership team, the teachers, and the Board of Trustees, in regard to the leadership capacity they enact and their perceptions of the impact of this on student learning outcomes in their school.

The main research question following from the research aim is:

What is the nature of distributed leadership and how does it facilitate innovative ICT use in teaching and learning?

Subsidiary research questions include:

- 1 How do school principals, deputy principals, curriculum leaders and Board of Trustees members see their role in providing leadership and support to facilitate innovative ICT use for teaching and learning?
- 2 How do teachers view the school culture and support offered by the school in facilitating their ICT teaching and learning practices?

### 3 What are the links between school leadership practices and teacher implementation of innovative ICT practices?

Case studies will be conducted in two primary schools in New Zealand, selected on the basis of their recognition as leaders in demonstrating sustainable innovative ICT teaching practices and positive learning outcomes. Of interest in this study is the extent to which these schools adopt and apply distributed leadership principles and practices as part of their leadership culture to impact on innovative ICT teaching and learning outcomes. This study will inform and develop my own leadership practice as a primary school principal, through the deeper understanding and linking of leadership theory to practice within an ICT rich context. I anticipate that in addition to contributing to research in this topic, I will be able to share these findings with my staff as well as colleagues in other schools in order to empower them to optimise the innovative potential of technology.

#### ***1.5 Thesis overview***

This thesis is structured into five chapters. This first chapter has provided the study rationale, introduced some key ideas, positioned my background interest as the researcher and outlined the research aim and question.

Chapter Two reviews the literature on the current ideas of school leadership to facilitate innovative ICT use in teaching and learning and details the distributed leadership theoretical perspective that will frame the study. Chapter Three discusses the research methodology and design, methods for collecting data and the data analysis procedure including quality and ethical issues related to the research.

Following on Chapter Four reports on the findings from the analysis of the data collected, and Chapter Five discusses the findings and examines the findings in relation to theory in order to answer the research questions. The chapter concludes by highlighting the key implications of the research for theory and practice in the New Zealand context, addressing limitations of the research and providing recommendations for future research.

## **CHAPTER TWO: LITERATURE REVIEW**

### ***2.1 Introduction***

The previous chapter has provided an overview of the rationale and motivation for this study and described the structure of this thesis. This chapter focuses on a review of key literature and the theoretical framework pertinent to the study. The chapter begins by introducing current ideas of school leadership to argue for the potential of using Spillane, Halverson and Diamond's (2004) distributed leadership framework to understand leadership in action in order to facilitate innovative ICT use in teaching and learning. International and New Zealand perspectives will be explored in order to understand the advantages and challenges of a distributed approach to leadership in innovative schools. The chapter concludes by considering the advantages of a distributed approach to leadership for facilitating innovative ICT teaching and learning practices.

### ***2.2 The evolution of school leadership***

Traditional notions of leadership typically focused on formal positions, for example, a school principal, and the personality characteristics, traits and style of this person (Yukl, 1981 as cited in Spillane et al., 2004). The early researchers believed leaders were born, not made, and focused on the individual qualities of leaders. This image of leadership was in line with a military model. The authoritarian style had a hierarchical structure with communication generating from the top down.

In the mid seventies, Burns (1978) introduced a new understanding of leadership. He saw the more traditional perspective of leadership as transactional, in that it addressed the basic needs of the followers in the organisation but did not satisfy the higher order needs of individuals such as self esteem and self actualisation. Burns (1978) describes transformational leaders as innovative and foresighted. They are passionately committed to their work. These leaders see creativity as crucial to leadership and encourage participation and involvement.



This understanding of leadership has further evolved. The contemporary notion of school leadership sees leadership as a school wide entity, encapsulating the strengths and expertise of all school personnel (Spillane et al. 2004). Spillane et al. (2004) define school leadership as the:

identification, acquisition, allocation, co-ordination, and use of the social, material, and cultural resources necessary to establish the conditions for the possibility of teaching and learning. Leadership involves mobilising school personnel and clients to notice, face, and take on the tasks of changing instruction as well as harnessing and mobilising the resources needed to support the transformation of teaching and learning (p. 11).

This form of leadership is dynamic and responsive to the complexities of schools in the 21<sup>st</sup> century.

There is an additional focus on the critical role school leaders play in improving student outcomes. Robinson, Hohepa and Lloyd (2009) assert that “school leaders make a critical difference to the quality of our schools and the education of our young people” (p. 35). Therefore, student learning and improved student outcomes need to be at the absolute core of leadership.

Let us now consider current complexities of leadership practice cited in international and New Zealand studies.

### **2.2.1 International perspectives on school leadership**

Hess and Meeks (2010) use the term ‘unbundling’ to describe the process in which “innovators deconstruct established structures and routines and reassemble them in newer, smarter ways” (p. 41). Hess and Meeks (2010) explain how ‘unbundling’ in schools occurs in two dimensions: “structural unbundling...which explore[s] how to deliver schooling in new and effective ways, and, content unbundling...which explore[s] new, more varied approaches to curriculum and coursework” (p. 41).

School leadership is seen as a critical factor to enable the ‘unbundling’ process in schools as they respond to the changing education landscape. Several studies support the notion of ‘unbundling schools’ by identifying

the need to address whole school systems and structures alongside the required teaching and learning changes (Goktas, Gedik, & Baydas, 2013; Seong & Ho, 2012). These authors highlight the essential role school leadership plays in facilitating innovative ICT use in teaching and learning. Leadership in this 21<sup>st</sup> century therefore implies the notion of school leaders leading and sustaining change within complex technology rich educational contexts (Davies, 2005).

Researchers acknowledge that the concept of leadership in the 21<sup>st</sup> century has evolved and extended from the traditional notion of a hierarchical structure which associates leadership with formal positions, to that of an organisational entity where practice is carried out through the interactions of people in both formal and informal roles (Gronn, 2003; Harris, 2008; Schrum & Levin, 2012; Spillane et al., 2004; Spillane & Sherer, 2004). Spillane et al. (2004) explain that leadership situated within the organisation needs to draw on the expertise of all individuals to carry out school leadership.

In Lambert's (2007) study involving 15 high leadership capacity schools, she found leadership roles were redesigned as other people within the school performed tasks traditionally performed by the principal. Copland's (2003) study makes the point that schools relying on role-based leadership are unable to sustain change and innovation and need to examine all roles in the school system with a view to distributing and sustaining leadership practice within the school community. This shift in leadership focus is highlighted by researchers when they state that "transforming schools through the actions of individual leaders is quickly fading" (Harris, Leithwood, Day, Sammons, & Hopkins, 2007, p. 345). The move away from the single 'heroic' school leader to multiple leaders in schools provides the necessary ongoing impetus, motivation, resourcing and monitoring required to implement and sustain the practices, systems and structures associated with 21<sup>st</sup> century learning (Savidan, 2003; Seong & Ho, 2012; Strudler & Wetzel, 1999).

Whilst many of the international findings are supported by the New Zealand literature, local research includes additional themes that are not reflected in the international research mentioned.

### **2.2.2 New Zealand perspectives on school leadership**

Consistent with the international research, leadership in New Zealand schools is recognised as critical to managing and sustaining innovation and change. Bolstad et al. (2012) identify the willingness of skilled school leaders in the unbundling of school practices as a prerequisite for schools to “produce substantial and sustainable changes in practice” (p. 62).

Consistent with international trends, a high quality national education system is seen as essential if New Zealand is to be competitive in global economy markets. The Kiwi Leadership for Principals document (Ministry of Education, 2008) states that “schools have to respond to different and greater challenges than ever before. The principals who lead our schools need to have the personal and professional qualities, knowledge and leadership skills required to meet these challenges” (p.8).

An additional theme emerging from the New Zealand literature on the role of school leadership in innovation and change is the need for school leaders to address inclusivity, equity and diversity. The Ministry of Education (2008) points out the responsibility that school leaders have for ensuring that Maori have the educational opportunities to equip them to take their place as Maori in the wider world. Bolstad et al. (2012) include as one of their themes for 21<sup>st</sup> century learning, “new views of equity, diversity and inclusivity” (p.9). This reinforces the need for school leaders to ensure all learners have access to the highest possible quality education to enable them to take their place in the 21<sup>st</sup> century environment.

Reflecting the trend in international findings, numerous New Zealand studies of innovative schools have reported on the evolving role of school leadership. These schools encompass a more fluid understanding of school leadership. In these studies informal leadership roles appear to have been taken on by various people within the school depending on the

purpose of the leadership task and the context in which that task is to be enacted (Bolstad & Gilbert, 2006; Timperley, 2005; Yee, 2000).

In this current educational environment, school leaders are tasked with creating the conditions necessary to fully harness the leadership potential in their schools. Timperley (2005) points out that school transformations occur through a planned strategic approach to leadership which facilitates ongoing collaboration at all levels, builds teacher leadership capacity and has a strong shared vision of improving student outcomes. School leaders' attention to developing a positive school culture, building staff capacity and providing opportunities for collaboration will maximise the collective human potential in the school (Ministry of Education, 2008).

In summary a common theme coming through the literature is the notion of leadership in the 21<sup>st</sup> century as complex, demanding, and flexible. Trends indicate a move from the single heroic view of leadership to that of a team approach, which taps into the strengths of multiple people. School leadership needs to implement and sustain change and innovation while ensuring the best possible educational outcomes are achieved for all learners.

### ***2.3 Effective school leadership***

Schools in the 21<sup>st</sup> century are complex and demanding and require school leaders to lead transformational change. This section will explore issues regarding key leadership functions and actions of effective leaders in managing change and innovation in their schools. In a synthesis of current research studies (see Appendix K) seven key leadership practices are suggested which enable and sustain innovative change. In the following table (Table 2.1) these leadership practices have been grouped under the three essential leadership functions. Each of these leadership functions will now be discussed in terms of how they facilitate innovative ICT use in teaching and learning.

Table 2.1 Effective leadership functions and tasks

Leadership Functions	Leadership Tasks
Setting direction	Plan strategically for innovation and change
	A strong vision for learning and ICT innovation
Human development	Distribute leadership across the school
	Build capacity in their schools
	Allow time to embed innovation
Organisational development	Develop a collaborative positive school culture
	Exercise an entrepreneurial approach to resourcing ICT

The *setting direction* leadership function requires school leaders to thoroughly plan and inspire a staff with a shared understanding of the school vision and priorities. In fact, Leithwood et al. (2004) note that setting direction is the area in which a principal has the most impact.

Effective leaders plan strategically for innovation and change. Planning strategically addresses the complexities of school organisation in order to initiate and sustain change and innovation (Cowie, Jones, & Harlow, 2011; Schrum & Levin, 2012). School leadership, school culture, school systems, school staff, school community and wider contextual factors all impact on the school organisation's ability to deliver inspirational outcomes for all students. Effective leaders need to be system-thinkers to enable the 'unbundling' innovative schools require, as the entire system needs to be redefined and redesigned in order to provide the educational opportunities required of a 21<sup>st</sup> century school.

Schrum and Levin (2012) expound on the interacting, interrelated and interdependent nature of each organisational component in an effective school organisation. In their study of leadership in eight American schools they found that "all parts of the system have to be addressed in concert, and adding one component (like technology) or changing one part is not

enough to make a difference” (p. xvi). Hargreaves and Fink (2008) support this notion when they describe schools as dynamic social networks that are “living systems interconnected by mutual influence” (p. 229).

Both Seong and Ho (2012) in their study of a Singaporean school and Goktas, Gedik, and Baydas (2013) in their study of Turkish primary schools, illustrated the interrelated components of a school organisation by categorising barriers to ICT use as either first order (or internal) changes and second order (or external) changes. The first order changes refer to teaching and learning, teacher beliefs and attitudes and the teacher pedagogies. The second order changes refer to the structures, systems, hardware and software support required at the organisational level. Both these studies made the point that changes at both levels are critical for ICT integration.

Similarly, in the New Zealand context, Cowie et al.’s study (2011) highlights the complex “interplay between teacher, school, technology and the wider context in which teachers find themselves as they seek to make sense of and utilise the affordances of the technology” (p.60). Understanding this interplay or interconnectedness between the organisational components is vital in a school to fully harness the potential for change and innovation. Harlow and Cowie’s (2010) study into teachers’ use of laptops in teaching and learning science found that the laptops provided excellent tools to offer new and different ways to teach science. However, changes at teacher and school wide level are critical to fully optimise ICT integration into science. Understanding the complexity of schools helps to shed some light on effective leadership practice.

Effective school leaders need to have a strong vision for how ICT use can transform learning. This will ensure that supporting ICT use is given priority within the complexities of school organisation. Yee (2000), in her study of ten principals across three countries, found that all principals had an unwavering belief that ICT had the potential to improve student learning in their schools. More recently, a New Zealand study by Brooks and Fletcher (2008) identified a visionary principal who saw that ICT supported learning was a key factor in the successful ICT integration in a primary

school. Visionary leaders have sound pedagogical understanding, keep informed about how current developments can influence teaching and learning and are close to the learning in their schools (Schrum & Levin, 2012). Having student learning central to decision making helps leaders strategically approach actions and decisions at all levels in the school. Research clearly identifies the need for school leaders to actively engage as many teachers as possible in believing that ICT is integral to 21<sup>st</sup> century teaching and learning in order to achieve innovative ICT use in their schools . Bull and Gilbert (2012) highlight the need for school leaders to “provide the context in which all interested parties can together create a vision that they can collectively uphold” (p.20). Effective leaders develop a shared vision of ICT integration and actively engage all members of the school community to make the vision a reality. Using a distributed approach to leadership empowers teachers and facilitates active engagement to work towards achieving the school vision (Yee, 2000).

The *human development* leadership function acknowledges that people are a school’s greatest asset. Building teacher and leadership capacity is at the heart of distributed leadership and a school’s ability to be innovative and sustain change.

The research clearly supports the view that effective leaders distribute leadership across their school. Chen’s (2012) study in Singapore looked at leadership for ICT implementation. In this study Chen (2012) identified multiple leaders within the school in carrying out transformational and instructional leadership. The instructional leadership had a transformational influence on teacher growth and the teachers’ willingness to innovate their teaching and learning through ICT. Seong and Ho (2012) identified the importance of the emotional leadership that all leaders demonstrated in their acknowledgement of the change process teachers were involved in, in their journey to ICT integration. Yee (2000) found that sharing leadership helped principals to manage some of their workload and also allowed for leadership to emerge throughout the school, with one principal commenting, “I have the enviable role of being a leader of leaders” (p.295). Cowie et al. (2011) assert that “leadership for change needs to be thought of as situated within a particular context and

distributed over time and people” (p.62). This recognises the complexity of the leadership required within a school to facilitate innovative ICT use in teaching and learning.

Effective school leaders build the capacity of individuals and the school to be innovative and sustain change and see their schools as dynamic learning organisations. Bolstad et al. (2012) refer to this as “building a learning system around a culture of continuous learning and innovation” (p.62). Professional development is a crucial way of facilitating a shift in teachers’ pedagogical beliefs and assisting them to use ICT innovatively in teaching and learning (Bolstad & Gilbert, 2006; Schrum & Levin, 2012).

Effective leaders recognise the importance of allowing time for innovation uptake to become embedded and sustained in daily practice. Time is crucial for innovation and change in schools. Bolstad et al. (2012) warn that initiatives designed to promote educational innovation require time, focus and ongoing support. Cowie et al. (2011) reinforce the importance of time as a factor for schools adopting and sustaining innovation and change. This acknowledges the high demand for resourcing and infrastructure and personal response to professional practice development required of a complex changing technological context. Schrum and Levin (2012) refer to the ACOT Study to highlight the fact that change takes between three and five years. A number of studies report a lack of time as a barrier to ICT integration. Teachers need time to practice and learn how to use ICT in their teaching (Goktas et al., 2013; Harlow & Cowie, 2010).

The *organisational development* leadership function involves establishing a positive culture, a professional learning community and ensuring school systems and structures support current teaching and learning.

Effective leaders develop positive and collaborative school cultures that underpin their schools’ ability to embrace change and develop innovative practices with ICT. Robertson (2007) found that “achieving best practice for ICT integration...seems to be dependent on the quality of interactions between staff, students and the school community” (p.119). Principals need to develop an inclusive collaborative communication style as opposed to a more direct top-down approach in order to foster leadership



development and collaboration in their schools (McBeth, 2008). Seong and Ho (2012) further identified a culture of positive collegiality as a key condition for successful ICT integration. Innovative use of ICT in teaching and learning is dependent on the teachers' uptake of new ways of teaching and learning. Changes in professional practice require teachers to work outside their comfort zones. A positive school culture supports teachers as they trial new ways of teaching, provides opportunities for them to interact with other colleagues and celebrates innovation. Zhu (2013) investigated the role of technology, pedagogy and culture in innovative schools in Beijing and Hong Kong, and found that while technology and pedagogy were critical, a supportive culture was absolutely crucial as an enabler for change and innovation. Zhu's (2013) study identified the need for leaders to pay attention to the "software" in their schools (p.143). That is, the importance of engaging all people in the school through bottom-up initiatives to foster a collaborative culture and enable more people to be actively involved in the change process and to work toward achieving the school vision.

Effective leaders also exercise an entrepreneurial approach to resourcing ICT for their schools. Bainbridge and Chawner (2012) make the point that the New Zealand government "is very enthusiastic about technology and ensuring that New Zealand students are up-to-date and cutting edge" (p.54). However, with a gap in government resourcing of equipment and training, school leaders need to be proactive and entrepreneurial in establishing partnerships and using networks to resource their schools. Brooks and Fletcher (2008) assert that an important factor of successful ICT integration was "obtaining funding in innovative ways for ICT hardware and software" (p. 39). School leaders need to actively take up any Ministry of Education ICT initiatives for their school and develop collaborative links with their community to explore additional funding options required for their school.

This section has explored issues regarding key leadership functions and actions of leaders in managing change and innovation in their schools. Each of the effective leader practices identified above contributes to exemplary leadership in terms of "successfully [using] technology to

leverage school improvement” (Levin & Schrum, 2012, p. 180). These can be synthesised as follows: setting direction, which includes planning strategically for innovation and change, and articulating and developing a strong shared vision for ICT to improve teaching and learning; human development, which includes distributing leadership across the school, building school capacity, and allowing time; and organisational development, which includes developing a positive collaborative culture, and exercising an entrepreneurial approach to resourcing ICT.

However, the literature on effective leadership focuses on the tasks and functions of effective leadership but does not inform us about the ‘who’ and ‘how’ of leadership practice. Levin and Schrum (2012) stress the importance that leaders adopt a systemic approach and emphasise that “all parts of the [school] system must be addressed in concert” (p.xvi) in order to facilitate innovative use of ICT successfully within their schools. Fullan (2013) reinforces the importance of simultaneously implementing change factors to take advantage of pedagogy and technology to transform education.

This is where a distributed approach to leadership extends our understanding beyond leadership functions and tasks to consider who is able to carry out these tasks and how the leadership functions and tasks are best achieved. A distributed approach to leadership helps us consider the influences the school context, systems, structures and culture have on leadership practice. In order to understand the nature of distributed leadership and how it facilitates innovative ICT use in teaching and learning, it is important to explore distributed leadership theory in more detail.

## ***2.4 Distributed leadership theory***

The literature, both nationally and internationally, highlights the critical link between a distributed approach to school leadership and innovative change and sustainability in schools. Harris (2005) sees distributed leadership as a different way of thinking about leadership which supports schools to consider new ways of being in these rapidly changing times. Distributed leadership is increasingly being identified as an approach to

leadership which contributes to innovative change, transformation and sustainability in schools (Fullan, 2006; Harris et al., 2007; Schrum & Levin, 2012). Cowie, Jones and Harlow's (2011) study on the implementation of the New Zealand government Laptops for Teachers scheme reinforces the distribution of leadership across the school as a key condition for managing and sustaining innovative practices. Its purpose is to build organisational capacity to sustain innovation and change by developing the intellectual and professional capabilities of teachers (Timperley, 2005). The work of Spillane et al. (2004) provides a conceptual framework for exploring the 'how' of leadership that is the focus of this study. This framework helps us see leadership practice as distributed over leaders, followers and the context (see Figure 2.1).

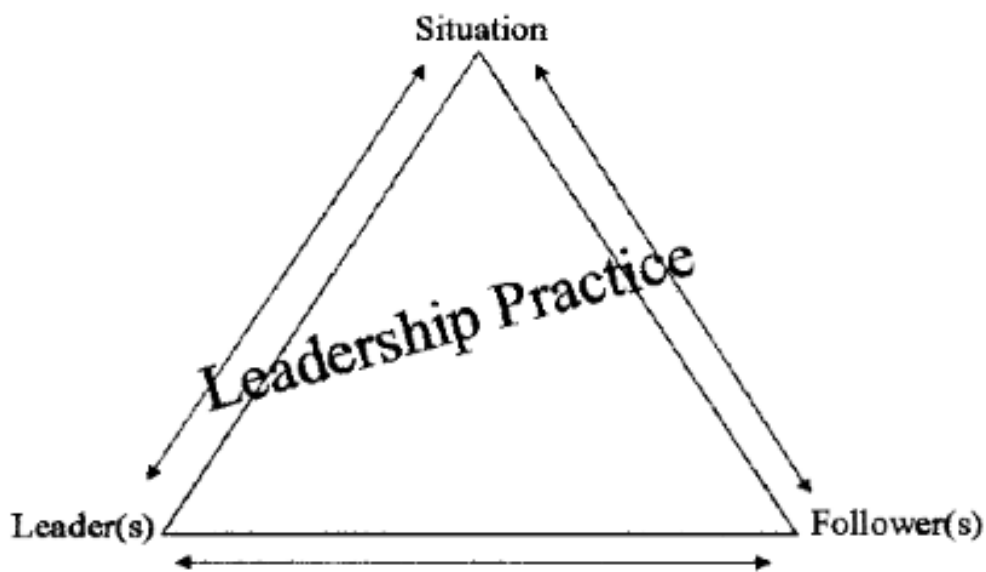


Figure 2.1 Constituting elements of leadership practice

From "Towards a theory of leadership practice: A distributed perspective." by J. Spillane, R. Halverson and J. Diamond (2004). *Journal of Curriculum Studies*, 36(1), p. 11. Copyright 2004 by Taylor & Francis. Reprinted with permission from <http://www.tandfonline.com/toc/tcus20/current#.UuhUHLSBphE>

Each of the elements in Figure 2.1, the leaders, the followers and the situation, interact to shape and influence leadership practice. There are two key aspects to a distributed approach to leadership. Spillane (2006) refers to the first aspect as "leader plus" and the second as "leadership

practice”(p.12). ‘Leader plus’ acknowledges that multiple leaders in both formal and informal positions of leadership take responsibility for leadership activities while ‘leadership practice’ encompasses the interaction that occurs between the leaders, the followers and the situation. It is therefore important to understand that a distributed leadership approach includes both multiple leaders and the vital dynamic synergy that results in leadership practice. This point is made by Spillane and Sherer (2004) as they stress that in a distributed perspective, the leadership practice is “stretched over two or more leaders” and the value is in the interaction “between” the leaders (p.6). This perspective of leadership shifts the focus of leadership from formal leadership positions to a web of leaders, followers and the situation that enable leadership to occur. Spillane et al. (2004) see value in “leadership practice across leaders, followers and the situation that transform teaching and learning rather than basing it on knowledge and skills of single individuals” (p.6). Spillane et al. (2004) further argue for a need “to investigate how the practice of leadership is ‘stretched over’ leaders, followers and artifacts in the situation” (p.27).

Research carried out by Leithwood et al. (2007) explored how the patterns of distributed leadership affected the school’s organisational performance. This study highlighted two key conditions for successful distributed leadership. Firstly, the importance of building leadership capacity within schools and secondly, the need to implement distributed leadership in a planned co-ordinated manner.

Additionally, the implementation of effective distributed leadership needs to establish the necessary conditions for optimal interaction and collaboration between school personnel. Spillane et al. (2004) emphasise this when they define school leadership as “mobilising school personnel to take on the tasks of changing instruction as well as harnessing and mobilising the resources needed to support the transformation of teaching and learning” (p.12). Harris (2009) notes that this approach to leadership “provides a powerful tool to transform leadership practice” (p.11). Attending to school culture and providing opportunities for collaborative

practices will have rich dividends for school leaders adopting this distributed approach to leadership.

Spillane et al. (2004) identified four central ideas crucial to grounding distributed leadership practices: leadership tasks and functions, task enactment, social distribution of task enactment and the situational distribution of task enactment. Each of these central ideas will be discussed separately.

Leadership tasks and functions: Spillane et al. (2004) undertook an extensive literature synthesis to identify tasks and functions important for instructional leadership. These leadership functions provide a framework for analysing leadership tasks and their relation to improved teacher effectiveness. Leadership functions involve: creating a shared school vision; developing a collaborative culture; building teacher capacity; securing adequate resourcing; developing school systems and structures to support learning; and monitoring school effectiveness (Spillane et al., 2004).

Task enactment: This leadership practice aspect looks beyond the tasks performed by leaders and considers the motivation behind the specific tasks. This dimension explores the beliefs, values, skills and experience level of the leaders. Facilitating the task is the use of artifacts which Spillane et al. (2004) recognise as key leadership items to support the practice of leadership. Artifacts refer to memos, student data, reports, and systems of communication to define the acts of leadership and are instrumental in the leadership practice.

Social distribution of task enactment: This aspect acknowledges the social interactions that occur as leaders in both formal and informal positions in the school carry out leadership tasks and functions. Spillane et al. (2004) explain leadership practice as 'stretched over' multiple leaders to illustrate that leadership functions are enacted within the social exchanges between the people involved. There are three ways leadership practice can be 'stretched over' two or more leaders: *Collaborated distribution* which refers to leadership practice where leaders and followers work simultaneously with each other on the leadership activity: *Collective distribution* which

refers to leadership practice where two or more leaders work separately but interdependently on a shared goal: and *Coordinated distribution* which refers to leadership practice where different leadership tasks are performed in a particular sequence (Spillane & Sherer, 2004).

Rather than considering leadership at an individual level, this model recognises the collective cognitive properties of the individual leaders and sees the leadership practice as greater than the sum of the parts. This social aspect acknowledges the interdependent nature of the leader and follower. That is, leadership practice is determined by the interactions and reactions between follower and leader (Spillane et al., 2004).

Situation distribution of task enactment: The situation, or context, refers to the structure of the school, the artifacts and the people, all of which contribute to the context of the leadership practice. Timperley (2005), using Spillane et al.'s (2004) conceptual framework, found that leadership activities were situated in particular contexts enacted by different leaders within the school. Leadership was not solely confined to the principal. The principal saw the big picture for the school with the vision of improved student outcomes. The middle managers provided a key link between the big picture of the principal and the vision in action by the teachers. Timperley (2005) refers to these middle managers as "boundary-spanners" as they provide a key link between the principal's school vision and the vision in action with the teachers (p.410). She describes how team meetings, where whole school data was broken down into individual student data, had significant impact on how teachers interacted with the data. The individual student data was an invaluable artifact that helped shape the instructional leadership practice which had implications for improving student outcomes. It is this type of leadership that is essential to harnessing the innovative potential of ICT use in teaching and learning.

#### **2.4.1 Strengths of a distributed leadership approach**

Current research links a distributive approach to leadership with school improvement and leading sustainable innovative practice within schools (Halverson, 2007; Harris, 2009; Park & Datnow, 2009; Spillane et al., 2004; Timperley, 2005). In particular Harris (2009) stresses a number of benefits

of distributed leadership in schools, including increased teacher collaboration, targeted professional learning and distributed leadership within learning communities. Additionally, Davies (2005) identifies enhanced collegiality, improved teaching and strengthened relationships as benefits of distributed leadership.

A distributed approach to leadership supports interaction between multiple leaders, teachers and aspects of the situation and is focused on improving teaching and learning in the school. Spillane and Sherer (2004) explain that “a distributed view of leadership shifts our concern from the individual leader to a web of leaders, followers and situations” (p.3). This distributed approach to leadership draws on the strengths of multiple leaders to sustain innovation across the school. It underpins the Kiwi Leadership for Principals document (Ministry of Education, 2008) which defines leadership as “building and leading a community of learners, staff and board for whom the key interest is improving a range of student learning outcomes” (p. 7). These interactions form networks of professional practice both in, and potentially across, schools. Hargreaves and Fink (2008) liken these networks to “living systems...which foster creativity, imagination and innovation” (p. 182). These networks support efficient communication and strengthen the school’s ability to respond to change. Additionally, having multiple leaders supports sustaining innovation and change and protects the school from the effects of teacher turnover.

In a distributed perspective of leadership, all people within the school are viewed as potential leaders. A distributed approach to leadership facilitates the development of learning communities in the school (Harris & Muijs, 2005). Within a learning community the distribution of instructional leadership utilises the teachers’ strengths and expertise to discuss professional practice and provides opportunities for teachers to reflect on their own practice to improve individual student outcomes. Learning communities are an excellent example of how leadership can be distributed over a school. A ‘learning communities’ approach acknowledges teachers as leaders in their classrooms (Harris, 2005). School leaders are responsible for the planning and structure of the learning communities and ensuring all resources are available, that is:

release time; space to meet; time to meet; thus ensuring the learning communities will achieve their intended goals.

A distributed approach to leadership has been linked to teacher empowerment (Harris & Muijs, 2005). Collaborative practices designed to improve teaching and learning are at the heart of a distributed approach to leadership and draw on individual teacher expertise and experience to share with their colleagues (Harris & Muijs, 2005; Spillane, 2006). These practices rely on social cohesion and high levels of trust which assist in motivating and inspiring teachers. Harris and Muijs (2005) draw on Woods' (2004) study to describe distributed leadership as "empowering the many eyes, ears, and brains of the organisation" (p.33). This highlights the value placed on each person to contribute to the common good of the school.

A distributed leadership approach has been linked to effective classroom practice. As referred to previously in the 'situation dimension', middle managers performing the role of 'boundary spanners' are vital to the success of distributing leadership for teacher effectiveness (Timperley, 2005). Middle managers are the deputy or assistant principals, team leaders and/or curriculum leaders who are working with teachers and supporting them in their day-to-day classroom practice. These middle managers are the mechanism which links school wide leadership tasks to classroom practice through regular team or syndicate meetings, building trusting relationships with teachers, and helping teachers to relate the schoolwide leadership tasks to effective classroom practice.

#### **2.4.2 Challenges of a distributed leadership approach**

Whilst a distributed leadership approach has many advantages as reported in the literature, there are concerns which need to be carefully considered.

For a distributed approach to leadership to be effective in a school, leaders need to seek to minimise cultural and structural barriers to such an approach. Overcoming cultural barriers involves developing a positive school culture that promotes respectful relationships and high levels of trust (Harris & Muijs, 2005). Harris (2013) argues, for example, that "mutual trust is the glue that makes all highly effective organisations



perform at the highest level” (p.552) to highlight the necessity for trust as part of developing positive school cultures.

Overcoming cultural barriers also involves creating the conditions necessary to facilitate effective collaboration. Hargreaves and Fink (2008) draw on the example of Finland’s education system which has “learning as the focus and the form of systemic distributed leadership” (p.235). This highlights the importance of establishing collaborative practices between school leaders, teachers, support staff and students within schools. A clear vision for teaching and learning that recognises people’s potential, makes explicit ways and rewards such collaborative practices can go some way towards reducing barriers to distributed leadership.

Another cultural barrier to a distributed approach to leadership is that people in “formal positions of leadership are required to relinquish power to others” (Harris & Muijs, 2005, p. 32). These leaders need to attend to the culture of the school, open transparent forms of communication and high levels of trust to overcome feelings of vulnerability. Attention to culture may address another barrier and promote acceptance of teacher leaders with the appropriate skills and expertise for the leadership activity. Timperley (2005) asserts that “teacher leaders with high acceptability among their colleagues are not necessarily those with the expertise” (p. 418). The politics of the school may impact on who is recognised as a teacher leader rather than their ability to have an impact on teacher effectiveness to raise student outcomes. Therefore, school leaders need to promote a shared school vision and build trusting relationships which unite all school personnel to achieve the common good of the school.

A potential structural barrier to a distributed approach to leadership is the additional remuneration received by people holding formal positions of leadership (Harris & Muijs, 2005). This has been addressed to some extent in New Zealand with the allocation of management units and fixed term units. However, the allocation of units does not always reflect the true level of additional leadership responsibilities in schools. Principals may need to explore other ways to acknowledge teachers who take on extra leadership responsibilities.

A recognition of the quality and capability of leadership is critical in ensuring all personnel are working toward a shared school vision (Harris, 2013). It is important to heed Timperley's (2005) warning that "distributing leadership over more people is a risky business and may result in greater distribution of incompetence" (p. 417). A way forward to reduce this risk is to consider a planned implementation of a distributed approach to leadership to avoid "misguided delegation" (Harris & Muijs, 2005, p.34). It is important for school leaders to consider such intentional planning and implementation of strategies to support a distributed leadership approach to derive the benefits from it.

However, as Leithwood, Mascall and Strauss (2008) note "there are competing and sometimes conflicting interpretations of what distributed leadership actually means" (p.1). Distributed leadership is often understood as shared or delegated leadership (Harris, 2009), whereas Spillane et al. (2004) view distributed leadership as a way of understanding the nature of leadership in schools. Spillane et al. (2004) extend distributed leadership beyond the notion of multiple leaders, to include leadership practice which is produced through the interaction of multiple leaders, followers and aspects of their situation (including tools and routines). Duignan (2006) adds that this notion of distributedness also "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" (p. 113).

Distributing leadership is not new, as school leadership is invariably spread across multiple leaders due to the complexity of tasks performed in a knowledge-intense activity like teaching (Elmore, 2000). The issue however "is not whether leadership is distributed but how it is distributed" (Spillane, 2006, p. 15). The distribution of leadership may be influenced by: the principal's personality and experience; the school culture; the systems and structures in place within the school; and external factors such as local, regional and national pressures and policies (MacBeath, 2009). It is 'how' school leaders view and put in practice this notion of distributed leadership that is of interest in this study.

In summary, this section has explored the changing role of school leadership in response to the increased demands and complexities of today's education system. In order for schools to deliver a world class education system school leaders need to utilise all the professional capacity in the school. This study defines distributed leadership as the leadership practice produced through reciprocal dynamic interaction between school leaders and teachers to develop a collective responsibility for raising student achievement throughout the school. This definition sees leadership as extending beyond individual formal roles to raise the capability of all within the school context. The success of a distributed approach to leadership is dependent on the principal and school leaders developing a shared vision to unite all personnel in the school, a positive culture built on trusting relationships, and opportunities for the staff to engage in collaboration. Such 'who' and 'how' of leadership in action will be of interest in this study.

#### **2.4.3 The Principal's role in distributed leadership**

The principal plays a crucial role in facilitating a planned, systematic approach to the distribution of leadership across the school (Harris et al., 2007; Harris, 2009, 2013; Leithwood et al., 2007; Spillane et al., 2004). Principals who ensure that school-wide leadership tasks are planned and co-ordinated through full consultation with staff help to provide leadership alignment which strengthens a distributed approach to leadership (Gronn, 2002; Harris, 2009). This approach supports "teachers to work together sharing leadership...in a trustful, collaborative and confident manner" (p. 98). Leithwood et al. (2007) determine that the distribution of leadership is dependent on the principal's ability to recognise leadership potential and provide planned, coordinated systems to support leadership activities. Harris (2012) points out that "without the support of the principal, distributed leadership is unlikely to flourish or be sustained" (p. 8).

There are a number of conditions principals are required to create within their schools to facilitate effective distribution of leadership. Among them are developing cultural conditions, building leadership capacity and providing opportunities for professional dialogue and collaboration (Harris,

2012). These conditions align with the research that details three essential leadership functions required for school improvement “setting direction, human development, organisational development” (Gronn, 2008; Leithwood et al., 2004).

It is important to note that a distributed leadership approach does not guarantee effective school improvement. Principals may need to develop a new way of looking at their leadership which Murphy, Smylie, Mayrowetz and Louis (2009) explain as a “transformation in their understanding of leadership” before they can “cultivate distributed leadership” (p.183). This idea of a changing role for principals is reinforced by Harris (2012) who explains that a distributed perspective focuses on the interaction of leaders rather than on their formal positions and warns principals that what they “do will be more important than the role they occupy” (p.16).

Leithwood et al. (2007) highlight the need for highly skilled principals who can provide “effective forms of focused leadership – leading the leaders” (p.55) in a distributed leadership approach. Such an approach means redesigning the more traditional notion of school principalship; it requires principals to relinquish power and authority and allow others to take responsibility for leadership within the school. The principals must appreciate the need to develop specific skills which enable them to build capacity in others and foster a collaborative, caring approach to their leadership.

In summary the school principal is crucial to the successful implementation of a distributed approach to leadership. The principal’s understanding of leadership needs to extend beyond formal roles and see potential leadership in all school personnel. Successful distributed leadership requires a planned and systematic approach which builds leadership capacity through providing professional development and opportunities for regular professional dialogue and collaboration. A distributed approach to leadership will be adopted as the lens to understand how school leaders can create the necessary conditions for innovative ICT use in teaching and learning within their schools in this study.

## ***2.5 Innovative ICT use in teaching and learning***

Today's students have been immersed in technology for leisure and communication (Prensky, 2001). Their world is full of easily accessible information which is becoming available at an exponential rate. These students require a 21st century education that is markedly different from the education that the majority of educators received. Therein lies a problem.

MacKey, Davis and Dabner (2012) make the point that beginning teachers who have been immersed in rich eLearning preservice training programmes are entering schools equipped with the capability and confidence to lead eLearning with their students. Furthermore, these graduate teachers are well placed to be an invaluable resource within their schools supporting colleagues to use eLearning in pedagogically effective ways. However, experienced teachers without the benefit of a preservice training programme that has "an embedded and holistic approach to digital technologies and eLearning" (MacKey et al., 2012, p. 594) are reliant on their school leaders' promotion and nurturing of conditions within their schools to enable them to embrace eLearning in pedagogically effective ways.

Teachers are critical to lifting student learning outcomes and achievement. Although this critical role of teachers is recognised in research, teaching and learning operates within a complex education system. As Somekh (2008) notes "teachers are not free agents" (p.450) and if teachers are going to innovatively use ICT pedagogies the whole education and school system needs to be addressed.

This study uses the New Zealand Curriculum definition of innovative ICT use in teaching and learning as "open[ing] up new and different ways of learning" and redesigning traditional methods of teaching and learning to reinvent new approaches to teaching and learning for the 21<sup>st</sup> century. Schrum and Levin (2012) suggest 21<sup>st</sup> century curriculum and instruction needs to "support active, authentic and engaged learning by leveraging technology" (p. 92). They assert that technology needs to be seen as

essential to the teaching and learning process to improve student outcomes and must not be accepted as supplementary tools.

Underpinning the implementation of a 21<sup>st</sup> century curriculum are social constructivist pedagogical beliefs. These beliefs place the student as an active participant at the centre of the learning. A challenge to educators is to move away from a traditional model of learning where information was manageable, students were passive recipients and teachers in full control of all learning to a more current model. This model recognises information as an infinite resource, the concept of knowledge as something to work and interact with, and the idea of an active learner navigating the learning process. Bull and Gilbert (2012) highlight the need for teachers to focus on building their students' learning capacity in order to develop the skills required to become life long learners. Delivering a 21st century curriculum therefore requires a paradigm shift for the majority of today's schools, teachers and parents.

A 21<sup>st</sup> century curriculum shifts the focus from acquiring knowledge and skills to using and creating meaningful knowledge for one's learning. This emphasises developing learner dispositions and key competencies to build their learning capacity to enable them to construct their own learning pathways, connect with each other and the world beyond their classroom, collaborate, reflect, and solve real problems (Lombardi, 2007). This occurs through the teacher utilising the technologies to open up new and different learning opportunities to provide personalised learning that enables the transformation of learning to occur (Wright, 2010).

Schrum and Levin's (2012) exemplary school project studied schools which had implemented curricula based on authentic, relevant, problem-solving contexts which extended beyond their classrooms and incorporated opportunities for collaboration, communication, critical thinking and reflection, within a technology rich environment. This approach to curriculum implementation is mirrored in New Zealand with our curriculum (Ministry of Education, 2007) which provides clear direction for schools to implement a 21<sup>st</sup> century curriculum to prepare students to take their place as "confident, connected, actively involved lifelong

learners” in a globally competitive society (p.7). This curriculum outlines teacher actions deemed to promote student learning:

- 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
- inquire into the teaching–learning relationship (p.34).

This guiding document acknowledges the potential of ICT to support teaching and learning to:

- assist the making of connections by enabling students to enter and explore new learning environments, overcoming barriers of distance and time
- facilitate shared learning by enabling students to join or create communities of learners that extend well beyond the classroom
- assist in the creation of supportive learning environments by offering resources that take account of individual, cultural, or developmental differences
- enhance opportunities to learn by offering students virtual experiences and tools that save them time, allowing them to take their learning further (p. 36).

New Zealand schools are given the directive to “explore not only how ICT can supplement traditional ways of teaching but also how it can open up new and different ways of learning (p. 36). Bolstad and Gilbert (2012) provide further clarification of a 21<sup>st</sup> century curriculum in their synthesis of national and international research on 21<sup>st</sup> century learning and identified six emerging themes for future–orientated learning and teaching for New Zealand. These are; personalised learning; new views of equity, diversity and inclusivity; curriculum that uses knowledge to develop learning capacity; rethinking learners and teachers’ roles; culture of continuous

learning for teachers and educational leaders; and new kinds of partnerships and relationships.

Both nationally and internationally the 21<sup>st</sup> century curriculum is recognised to provide relevant, authentic learning contexts which allow the learner to take control of their learning through building learning capacity. It is expected that these learners will engage in rich teaching and learning involving collaboration and communication well beyond their classrooms. This research will examine leadership views and practices that empowers teachers to develop their abilities to realise the innovative impact that ICTs can have on teaching and learning for the 21<sup>st</sup> century.

### **2.5.1 The teacher's role**

Research tells us that despite increased technology in schools, transformational effects are not significant in terms of school organisation or teaching and learning (Bolstad et al., 2012; Dumont, Istance, & Benavides, 2010; Jamieson-Proctor et al., 2006; Ming, Hall, Azman, & Joyes, 2010; Seong & Ho, 2012; Yee, 2000). However, research identifies that school leaders need to implement change through, positive school culture, professional learning and providing opportunities for teachers to collaborate (Brooks & Fletcher, 2008; Fullan, 2013; Hattie, 2009).

Teacher empowerment comes from a school culture that nurtures innovation and challenges teachers to experiment with a range of teaching strategies. Brown and Murray (2003) point out teacher adoption of ICT is dependent on the teacher's understanding of the bigger picture of ICT use for our knowledge society and global competitiveness. In fact, Brown and Murray (2003) argue that this understanding is critical to the teacher's transformation of existing practice. Supporting this claim, Bull and Gilbert (2012) found that in two of the three exemplary schools in New Zealand, staff had a big picture understanding of the school vision and learning implications for their students in today's world. The principal in one of the schools commented that without this shared understanding, she would struggle to keep everyone on track and working in the same direction.

Teacher empowerment is enhanced by quality professional learning. Hattie (2009) identifies the importance of teachers understanding their



impact on student learning. This awareness is paramount if teachers are to make paradigm shifts in their teaching and learning to better reflect the contexts and demands of 21<sup>st</sup> century students (Bull & Gilbert, 2012). Facilitating this paradigm shift in teacher practice is the responsibility of the school leadership.

Another key factor in determining innovative ICT use in teaching and learning, is the teachers' ability to combine their curriculum knowledge and current pedagogical practices with the affordances of technology to design new and different ways of teaching and learning (Harlow et al., 2012). Wright (2010) uses Mishra and Koehler's (2006) notion of technological pedagogical content knowledge (TPCK) to illustrate this critical role the teacher has at the "epicentre" combining technological, pedagogical and content knowledge to fully realise the transformational potential of ICT in teaching and learning (p. 25).

Teacher empowerment is also enhanced through a collaborative culture where the focus is on building teacher capacity instead of merely delivering professional learning programmes. The literature suggests that leaders need to foster collaborative learning communities where teachers can work together in order to integrate ICT into their teaching and learning (Harris & Muijs, 2005; Schrum & Levin, 2012). This finding is supported by Harlow and Cowie's (2010) study where the best form of professional development for teachers was accessed through reflecting and working with their colleagues. These colleagues, acting as instructional leaders, were familiar with the school context and drew on the collegial relationships to support and challenge their teaching practices. Developing learning communities is recognised as a method of professional development that supports teachers as they make changes in their teaching practice (Bolstad & Gilbert, 2006; Lin & Bolstad, 2010). Learning communities facilitate professional dialogue between teachers that challenge current teaching practice and supports new thinking and teaching approaches. Learning communities provide the necessary collaboration for teachers to receive feedback and develop the next steps in their teaching as they are undergoing this pedagogical shift.

In summary, the crucial role of teachers is dependent on school leadership creating the necessary conditions to inspire and motivate them to see the benefits of ICT in their teaching and learning. Teachers require targeted professional development to meet their needs and opportunities for them to engage in professional dialogue which challenges them to reflect on their students' learning and supports innovative shifts in their practice with technology.

## **2.6 Conclusion**

This literature review argues for the potential of a distributed approach to leadership to facilitate innovative ICT use in teaching and learning. The research shows that the notion of school leadership in the 21<sup>st</sup> century has evolved to include the whole school entity rather than restricted to leadership roles and responsibilities. Twenty-first century school leadership requires school leaders to adapt and sustain change by utilising the human potential within their schools by distributing leadership across their schools. The literature identifies that school leaders need to attend to specific conditions in order to maximise the benefits of a distributed leadership which include; developing a supportive school culture, building individual and school capacity, and providing opportunities for collaboration. These conditions empower teachers to make the necessary paradigm shifts in their teaching to educate students within a twenty first century educational landscape.

This chapter has highlighted the key areas, issues and studies related to the research including the theoretical model underpinning it. The next chapter will describe the study methodology, methods for collecting data and procedures for conducting the study and data analysis.

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### ***3.1 Introduction***

This chapter describes the research conduct and processes relevant to the study. The first section explains the methodological underpinning of the study and locates the study under the interpretivist qualitative paradigm. The second section covers the case study approach adopted. The third section examines the methods used for data collection and expands on the conduct and procedures involved in the research. The fourth section describes the data analysis process and addresses issues of trustworthiness. The final section concludes the chapter with a discussion on the ethical considerations of this study.

### ***3.2 Research methodology***

The purpose of research is to find answers to a problem as Burns (2000) points out, “research is a systematic investigation” (p. 3). There are many ways to approach a research investigation. Creswell (2009) talks about research design being the “intersection of research philosophy, strategies of inquiry and specific methods” (p. 5). The selected approach will depend on the researcher’s view and understanding of what constitutes knowledge and how knowledge is constructed. This viewpoint reflects the philosophy of a particular research paradigm which Mutch (2005) explains “as a particular view of the world, linking a theory and research style” (p. 222).

Traditionally, research was approached through a scientific lens which saw knowledge as concrete, static, and similarly understood or interpreted by everyone, easily controlled, observable, verifiable and able to be replicated. This is referred to as a positivist or postpositivist paradigm (Creswell, 2009). Research conducted in this paradigm would try to prove or disprove a known theory and use an experimental design where the cause and effect can be controlled and observed. This approach would use quantitative methods, with the researcher observing and recording results and using statistics to support the findings.

However, with the growth of research in sociology, the accepted scientific approach was unable to capture the complexities and intricacies of human phenomena. Burns (2000) argues that this scientific approach fails to

acknowledge human individuality and ability to react to situations in unique ways.

With the emergence of research involving people in complex social situations, an alternative paradigm developed. The interpretive paradigm sees knowledge as personal, evolving, specific to context and to the worldviews and beliefs held by the personnel involved in the research project. The interpretative paradigm uses qualitative methods of data collection, which values words, stories, observations, photos and artifacts to reflect people's perspectives of their world. Maykut and Morehouse (1994) explain that this paradigm sees the world "as complex and interconnected, thus the research must maintain the complexity if the explanation is to be trustworthy" (p.14). This paradigm understands knowledge as co-constructed with the participants, the researcher and the context.

Merriam (1998) explains that a number of characteristics distinguishes qualitative from experimental research. These include the focus on understanding the participant's perspective; the role of the researcher as the primary instrument for data collection; the inclusion of field work and methods of data collection valuing participants' worldviews and perspectives; the use of inductive processes to analyse the data, and, the reporting of research findings in the form of rich descriptive reports.

The first characteristic is the researcher's focus on understanding the phenomena from the participants' perspectives. The researcher is interested in people, how they make sense of their world, and their experiences.

The second characteristic is that the researcher plays a crucial role in gathering and analysing the data. Merriam (1998) recognises that effective qualitative researchers need to have a "tolerance for ambiguity, sensitivity to context and data, and good communication skills" (p. 25). This said, the researcher needs to be able to navigate the research process within a largely unstructured framework. Merriam (1998) uses the analogy of a detective to illustrate the role the researcher plays in a qualitative study. At

first all information is important and the researcher needs to explore a number of different leads before all the pieces in the puzzle are discovered.

The researcher needs to be sensitive to the context, the people and their non-verbal behaviours in the data gathering process. The researcher needs to be intuitive to the information and sense where the information fits and know when to probe for more in-depth information. There is also a need to be sensitive to personal biases when conducting the research and analysing the data. A keen, analytical sensitivity is also required to pick up the different meanings, depth and nuances in analysing the data.

The third characteristic requires the researcher to be a good communicator. A qualitative researcher needs to build rapport with the research participants to set them at ease and be able to ask good questions to gather the best data. Merriam (1998) points out “a researcher is better able to have a conversation with a purpose...in an atmosphere of trust” (p. 23). As the researcher in this study, I take note of the skills promoted by Merriam (1998) for effective qualitative researchers, and acknowledge the significance of the “researcher-as-instrument” (Mutch, 2005, p. 113) and endeavour to plan for, practise and demonstrate these effective researcher skills while conducting this research.

The fourth characteristic is that the research involves field work. This involves the researcher meeting the participants and observing behaviour within their natural environment. Cresswell (2009) recognises that this is a major characteristic of qualitative research because during fieldwork, the researcher becomes a part of the natural setting, observing and collecting data about the phenomena under study. This enables the researcher to gain an understanding about and from people within their naturalistic settings.

A further distinguishing characteristic is the inductive process used to discover key themes from the data. Mutch (2005) explains, “qualitative designs are more evolving and often circular and logic is inductive – from data to theory” (p. 46). These themes, derived from the data, are then related to a theory. A final characteristic of qualitative research is the rich descriptive report. The researcher will typically use words and pictures

rather than numbers to communicate and describe their understanding of the social phenomena. Frequently the participants' own words will be quoted in the final research report.

This study is located within an interpretivist qualitative paradigm, as the researcher sought to understand concepts from the participants' point of view within their context, rather than approaching the research with pre-conceived ideas (Creswell, 2009; Lather, 2006). The study took an in-depth look into the "unique lived experiences of the participants" in order to gain an understanding of distributed educational leadership perspectives and practices (Mutch, 2005, p. 19). The researcher constructed meaning from the field data based on her views of education and experiences of educational leadership. In line with an interpretative approach the researcher acknowledged multiple viewpoints, and sought to understand the concept of leadership as presented within the context it was situated (Lather, 2006). Using an inductive approach key themes emerged from the participants' descriptive accounts of leadership practice in their schools (Mutch, 2005). These themes informed the extent the theoretical frame adopted was useful to explain distributed leadership practices for facilitating innovative ICT supported pedagogies in two New Zealand primary school contexts.

### ***3.3 Case study approach***

The case study is a common research approach in social science disciplines as it focuses on "understanding complex social phenomena...while retain[ing] the holistic and meaningful characteristics of real life events" (Yin, 2009, p. 4). A case study is defined as "an empirical inquiry that investigates a contemporary phenomenon in depth and within its real-world context, especially when the boundaries between phenomenon and context are not clearly evident" (Yin, 2009, p. 18). The importance of the situation or context is a distinguishing characteristic of the case study method. Miles and Huberman (1994) use an illustration of a heart to represent the social phenomena under study, then a circle drawn around the heart to determine the boundary of study. Burns (2000) refers to this boundary as a "bounded complex system" (p. 460) and this determines the context of the case study. Within the context, multiple

perspectives are gathered in order to gain a deeper richer understanding of the specific phenomena being studied (Burns, 2000; Merriam, 1998; Yin, 2009).

Yin (2009) reinforces the importance that the research question guides the selection of the research methods to ensure the best fit. The case study method is suited to answering the 'how' and 'why' research questions. The case study method was selected for this research as the research question sought to answer the 'how' and 'why' a distributed approach to leadership facilitated the innovative use of ICT in teaching and learning. The case study method is ideally suited where the researcher has little or no control over the social phenomena under study (Merriam, 1998; Yin, 2009), in this case the leadership practices as they occurred within two primary school contexts.

### **3.3.1 Strengths and limitations of the case study approach**

With any research approach there are strengths and limitations. It is crucial that the research approach facilitates the answering of the research question. Once this has been established the limitations can be managed. The case study approach has four major strengths that suit studying phenomena in a real life context.

Merriam (1998) establishes that a strength of case studies is their ability to provide a rich, holistic account of a phenomena as it occurs in real life situations. Merriam (1998) points out that case studies offer an insight into human behaviour not offered by other more objective research approaches. Case studies are recognised for answering the 'how' and 'why' which enables rich descriptive data to be collected (Cohen, Manion, & Morrison, 2011).

A second strength of a case study approach is the use of multiple perspectives to explore specific phenomena in real settings. This enables the researcher to; consider different viewpoints, explore the influence of interactions, and gain a deeper understanding of the phenomenon in action (Simons, 2009).

A third strength of a case study approach is the narrative format used for the report. This is acknowledged as appealing to a wider audience as compared to a scientific subject specific study (Cohen et al., 2011). A case study report uses rich descriptive prose, direct quotes of participants, and can include vignettes. This report format enables the reader to fully identify with the case and draw meaning and understanding into their specific context.

A fourth strength of a case study approach is the flexibility it offers a researcher. The researcher is able to select from a range of methods for data collection, select the time line to suit the case study context, and respond to real life contexts.

However, the advantages of a case study approach can pose some limitations that need to be managed. The first is the inability to generalise findings from a single event to a wider population (Bell, 2010). Bell (2010) refers to Denscombe (2007) to stress that researchers can provide significant details of their study to situate their case study for their readers. The value of a case study approach is the researchers ability to provide a “rich thick description” (Merriam, 1998, p. 29) of the case study context, participants and findings. This enables the reader to learn from the case study and make links to their context. This is referred to as “transferability” (Lincoln & Guba, 1985) and illustrates how an in-depth, context specific case study can provide relevant information to inform others in similar contexts.

Burns (2000) points out, that case studies are also time consuming for researchers. In addition to the time involved, there is an overwhelming amount of information to analyse. This limitation can be overcome by careful scheduling of the data collection and ensuring a systematic process for the collection and processing is in place prior to study.

The subjectivity of the researcher is recognised as a potential limitation in a qualitative case study approach. However, stating the researcher’s position in relation to the research at the outset of the study acknowledges potential bias and helps explain the lens through which findings have



developed. Ongoing researcher reflexivity ensures the researcher is aware of their viewpoints and has explored steps to address bias.

The descriptive case study selected, enabled the researcher to interact with the participants to discover their unique perspective of the leadership practice as it occurred in their specific school context. This gave the researcher rich comprehensive data to obtain a deeper understanding of the interactions and influences on distributed leadership practices in the schools.

### **3.4 Data collection methods**

An interpretive approach uses qualitative data collection methods that focus on gathering context-specific data, valuing the individuality of the research participants and their beliefs and worldviews. Common examples of qualitative methods are interviews, observations and document analysis. This study will make use of semi- structured interviews and the collection of relevant documents for document analysis as the main data collection methods.

#### **3.4.1 Interviews**

The research interview is the interchange of views between two or more people on a topic of mutual interest (Kvale, 2007). This data collection method recognises the construction of knowledge that occurs through the interaction of people, in this case the interview. Maykut and Morehouse (1994) stress it is the “depth of conversation which moves beyond surface talk to a rich discussion of thoughts and feelings” (p. 80) that distinguishes a qualitative research interview from a conversation.

Interviews are used in research when the researcher is not able to observe the phenomena (Merriam, 1998). The interview allows the researcher to discover the thoughts and feelings of the participant without actually observing the behaviours. Research interviews can be classified according to their structure: structured, semi- structured and unstructured interviews (Burns, 2000; Cohen et al., 2011; Mutch, 2005). Structured interviews use pre-determined questions and responses. This type of interview would be useful for quantitative research and would take the form of a questionnaire or survey. Unstructured interviews, on the other

hand, often involve a conversation where the participant speaks with minimal direction from the interviewer. This type of interview is used for qualitative research where the researcher seeks to understand the phenomena through the unique lived experiences of the participants. The semi-structured interview sits somewhere between these two types.

Semi structured interviews were selected for this research study. A set of pre-planned questions are used to guide the interview. However there is flexibility in allowing for the researcher to shift the focus of the questions, depending on participants' responses, in order to probe deeper into key issues that arise. This allows the researcher to more deeply explore the participants' views.

#### *3.4.1.1 Strengths and limitations of the semi-structured interview*

There are a number of advantages of using a semi-structured interview to collect data. A strength of the interview is the flexibility a researcher has to follow up on ideas raised, opportunities to probe further to clarify participant thinking and to investigate feelings (Bell, 2010). Another strength Bell (2010) identifies is the opportunity the researcher has to observe non-verbal expressions that are not possible with a questionnaire or survey. A further strength allows the participants' perspective to dominate rather than the researcher's through using language they are comfortable with, and, therefore having equal status to the researcher in the dialogue (Burns, 2000).

Semi-structured interviews, as with any research method, have a number of limitations. Compared to other research methods, semi-structured interviews involve a significant amount of time in planning the questions, conducting the interviews and analysing the responses. Consequently, the number of interviews may be limited due to time and budget constraints (Bell, 2010; Mentor, Elliot, Hulme, Lewin, & Lowdon, 2011).

Cohen et al. (2007) and Bell (2010) highlight the subjective nature of interviews and the "danger of bias" (p. 157). Bell (2010) explains researchers can balance potential bias by triangulation and ongoing reflection of the process. Ortlipp (2008) recommends the use of a research journal to assist researchers to identify their personal assumptions and

views through reflection. Clarifying the researcher's position in relation to the research context helps to identify potential researcher bias in the interpretation of the research findings.

The interviewer is a key component in a semi-structured research interview. In fact, Poggenpoel and Myburgh (2003) warn that as the interviewer is inextricably linked with the interview process, they can be a "threat to trustworthiness in research" (p. 418). The listening skills, ability to build rapport and knowledge of the research content are all key skills required by the interviewer. Kvale (2007) refers to the "craftmanship of the interviewer" as integral to the quality of any research interview (p. 79). The less structured the interview, the more skilled the interviewer needs to be (Mentor et al., 2011). Bell (2010) emphasises the importance of thorough preparation, much patience and considerable practice required to carry out a quality interview. The qualitative researcher is reliant on gaining quality interview data in order to achieve credible findings. Therefore, the researcher's thorough preparation and planning will be rewarded with rich descriptive data to analyse.

#### *3.4.1.2 Interview procedure*

A semi-structured interview is ideally suited for this study as the participants are from different roles within the school and will have different perspectives about leadership. Cohen et al. (2007) use the term "fitness of purpose" (p. 413) to determine the interview selection based on the purpose of the research, the number of participants and any time constraints.

In this study, the semi-structured interviews served three purposes: to gather the leaders' beliefs on their role and the teachers' views on support required for innovative ICT use; to discover the relationships between leaders actions and teacher implementation of innovative ICT use; and to provide an opportunity to gain further in depth clarification on how the leaderships' beliefs impacted on teacher implementation of innovative ICT use. Through the interview process the researcher was able to discover how these beliefs impacted on the planning and execution of leadership tasks and functions across the school.

An important aspect was developing the interview questions. An interview schedule was developed following a process recommended by Maykut and Morehouse (1994). This involved brainstorming words, concepts, questions and topics related to the question, then developing a mind map, grouping and extending similarities, key concepts and ideas to establish what Maykut and Morehouse's (1994) refer to as "categories of inquiry" (p. 84). A number of open-ended questions and probes were developed for each category in this study. This was important to provide the participants with opportunity to share their views and understandings in each category. An interview guide was developed and used to guide the researcher through the interview process (see Appendices E, F, G, H).

Semi-structured interviews were conducted with participants who held specific leadership positions within each school. Developing rapport is seen as critical to conducting a good interview (Mutch, 2005). The researcher visited each school prior to data collection and met with each participant. Prior to the interview there was informal dialogue to set the participant at ease before we started the interview. The interviews were scheduled at the school and at a time convenient to each participant. The interviews were conducted between 5<sup>th</sup> August and the 21<sup>st</sup> August 2013. Permission was gained to digitally record each interview and for the researcher to take field notes.

This researcher used two digital recording devices and ensured each device was fully charged prior to the interviews to avoid any technical problems. The researcher explained the purpose of gaining an accurate recording of the interview and placed the devices in an unobtrusive location in the room. The researcher ensured the interviewees were comfortable with the recording devices and were at ease prior to commencing each interview. This helped to ensure the participants feel relaxed and to fully engage in the interview. In the interview the researcher used a number of probing responses to gain a fuller understanding of the participants' unique perspective. Each participant was free to express themselves and the researcher allowed them to take the lead, using very open ended questions to stimulate discussions. The researcher allowed

time during the interview for the participants to gather their thoughts and did not rush the interview process.

In addition to recording the interviews, the researcher took field notes during and after each interview. Mutch (2005) explains field notes are the informal and formal notes taken by the researchers prior, during and after the research. Immediately following each interview the researcher noted key phrases, initial reactions to the interviewee and summarised the key messages coming through the interview.

Permission was requested from each participant for the researcher to make further contact by email or phone for any further clarification regarding the interview. The researcher explained to each interviewee that the transcript would be emailed to them to read and verify as an accurate record of the interview. This process is referred to as member checking and is used to strengthen the validity of qualitative research data.

### **3.4.2 Document analysis**

In order to strengthen the quality of the data collected in this case study, a second method of data collection, document analysis, was used. Merriam (1998) describes documents as an umbrella term for any form of data not gathered through observations or interviews. Bowen (2009) defines document analysis as a “systematic procedure for reviewing or evaluating documents – both printed and electronic material” (p. 27). This is a common qualitative method and allows triangulation of the interview data.

Merriam (1998) identifies three types of documents used by researchers. They include: public records, personal documents and physical material. Public records refer to documents produced by governmental and official agencies and intended for public viewing. Personal documents reflect the writer’s perspective through letters, diaries and autobiographies. Merriam (1998) warns that these documents are “highly subjective” (p. 116) and may not represent the true version of events as they are written from the writer’s perspective. Physical material refers to any artifacts found in the natural setting being studied (Merriam, 1998). Physical material may also refer to data that highlights the effect a particular phenomenon has on the environment.

#### *3.4.2.1 Strengths and limitations of document analysis*

There are a number of advantages in using public documents in qualitative research. Merriam (1998) explains that data from documents can be used in the same manner as data from interviews and observation. Therefore, document analysis provides a cost effective way of gathering a raft of information for analysis. The availability of documents is seen as a particular strength. Another strength highlighted by Merriam (1998) is the “stability” of the information contained within the documents as the data is not affected by the presence of the researcher (p. 126). Additionally, Merriam (1998) sees the use of document analysis in a qualitative case study as a strength because the “documents exist independent of the research agenda....are a product of the context in which they were produced and are therefore grounded in the real world” (p.126).

However, the researcher needs to be aware of a number of limitations of using document analysis as a research method. Typically, documents collected for analysis have not been developed for research purposes. Where this may in fact be a strength of this objective data, the documents may not be in a form that can be easily used by the researcher. Another limitation of document analysis can be the availability of documents to the researcher. The documents may contain protected information and be unavailable for public use (Creswell, 2009). An additional limitation of document analysis lies in determining the authenticity and accuracy of the document. Yin (2013) points out that although a document analysis is relevant to every case study topic, care needs to be taken by the researcher as documents may not always be accurate and may be biased depending on any editing of the document prior to collection.

#### *3.4.2.2 Document analysis procedure*

This case study used document analysis to inform the findings. The researcher sought participants’ permission prior to collecting each document. The documents consisted of a combination of public and closed documents. These included official school documentation, in-house documentation, individual teacher planning and examples of student work

(see Appendix I for a complete listing of the documents). All participant personal identification was removed from the documents prior to collection.

The documents collected for this study were assessed for authenticity based on the purpose for the document, the template layout of the document, and the consistency of language used throughout the document (see Appendix L for a sample of a document collected).

One example of how document collection and analysis informed this study occurred when during one of the interviews, the interviewee referred to the benefits of particular leadership meetings. The document analysis of the leadership meeting minutes enabled the researcher to identify the specific professional support offered by the senior leaders in the school to team leaders through these meetings. The documents further provided evidence of leadership practice through the meeting minutes and enabled the researcher to map the leadership network operating through the school. The document analysis also provided evidence of strategic planning for innovative practice over a four year period within one school. They therefore extended the researcher's understanding of the school's perspective of leadership in that school and the school's focus on building teacher capability.

### ***3.5 Research participants***

In this study, purposive sampling was used to select the research participants because they suited a particular purpose or fitted a certain profile (Mutch, 2005). The research question guiding the study "what is the nature of distributed leadership and how does it facilitate innovative ICT use in teaching and learning?" required the researcher to gather data from schools that had a distributed leadership model in place and evidence of innovative ICT teaching and learning. Therefore a purposive sampling method was adopted as it enabled the researcher to select high performing schools delivering innovative curricula through innovative use of ICT. The researcher made use of professional contacts available through the local Principal Associations to collate a list of schools recognised by their colleagues as delivering innovative curriculum. Due to

geographic, economic and time constraints, only schools in the Waikato and Auckland areas were considered.

The researcher accessed the Education Review Office Reports on each school and spent some time navigating the schools' websites to gather evidence on their use of technology in each school. Schools were then classified according to specific criteria that included: Education Review Office reports; reputation as innovative schools within Principal Associations; examples of innovative practices on their web page; involvement in school networks including local cluster schools or national networks; teacher involvement in leading professional development in school networks; and involvement in any government ICT initiatives or trials.

Six schools were shortlisted based on the described criteria. The researcher then made informal contact with the first four school principals to briefly outline the study and seek interest in participating. Of the four schools contacted, two principals agreed to participate in the study. A formal letter was sent to each principal (see Appendix A) outlining the study and the specific conditions and guarantees under which the research would be conducted.

Once the formal consent was received, discussions were held with the principals to identify the participants working in specific leadership roles within the schools to take part. The leadership roles included; members of the Board of Trustees, each school principal, senior leadership personnel, and the ICT Lead teacher. As the research question sought to discover the relationship between distributed leadership and innovative ICT supported teacher pedagogy, data also needed to be collected from classroom teachers.

The teachers and board of trustees members were personally invited with a letter and signed informed consent was gained prior to any research activities and data collection (see Appendices B, C, D). All participants had the right to refuse to take part and withdraw at any stage of the research. All participants understood their data could be withdrawn up until the commencement of data analysis in late August.



### **3.6 Data analysis**

An interpretive qualitative research study uses an inductive approach to data analysis. This means that the findings are generated from the data. The researcher makes meanings from the detail in the data through generalised themes (Creswell, 2009). An inductive approach requires a systematic multi-leveled approach to data analysis. There are a number of ways to analyse qualitative data. These include thematic analysis, semiotic analysis, discourse analysis and visual analysis (Braun & Clarke, 2006; Mutch, 2005). The most common approach to analysing qualitative data is thematic analysis. Braun and Clarke (2006) explain that thematic analysis identifies, analyses and reports patterns or themes contained within the data. It is this inductive approach to data analysis that Maykut and Morehouse (1994) state is “one of the defining characteristics of qualitative research” (p. 126).

The researcher used a thematic analysis approach to analyse the data. Drawing on the work of Braun and Clarke (2008), Kvale (2007), Maykut and Morehouse (1994) and Mutch (2005) thematic analysis is understood as a process of analysis requiring a researcher to work through systematic stages, beginning with familiarisation with the data, moving to generating codes linked to the research question, then grouping similar ideas and beginning to see links and emerging themes. This process was cyclical as the researcher endeavoured to refine categories and challenge emerging themes.

The first stage of familiarisation with the data was organizing the raw data into a uniform, easy to access format. This involved transcribing the interview data and typing up all field notes and listing all the documents. Transcribing the interviews is crucial to ensuring against what Cohen et al. (2011) stress as the potential to lose valuable data and distort participant meaning and risk reducing the complexity of the data. To help alleviate some of the potential pitfalls, the researcher transcribed the interviews as soon as possible after the interviews. Each interview was returned to the interviewee for verification that the transcript was an accurate record of the interview. Each interviewee was invited to make any changes or make any additions, which would help to further clarify their message.

Once the transcripts had been returned, the researcher read and reread all transcripts and field notes taken during the interview, and the thorough summary statements prepared immediately following the interview. With the guiding research questions in mind, the researcher began making notes of key ideas, and patterns in the data and links to the specific research questions.

The next stage was to generate initial codes to group the data in a meaningful way (Braun & Clarke, 2006). Large sheets of newsprint paper were used to illustrate the emerging groups of codes. The researcher kept revisiting the data and the codes to refine the groupings (see Appendix M for sample of initial coding).

Following on from the coding and grouping stage, the researcher looked for links within each grouping and between each group (see Appendix N for second level coding). Yin (2013) highlights the need to attend to all the evidence, address all plausible rival interpretations, address the most significant aspect of the study and use the researcher's own prior knowledge on the topic to produce an analysis of the highest quality. The researcher sought to prioritise these four key research principles. The researcher kept a cyclical approach to the data analysis and revisited the whole data set to refine codes, groupings and then the emerging themes. The researcher worked systematically through the stages, ensuring inclusion of all data, taking care to highlight any outliers or interesting data, organised the data and related where possible to current literature. The researcher then listed and compared each schools' emerging themes as part of a within case and cross case analyses (Merriam, 1998) (see Appendix O).

As the themes emerged, the researcher completed a frequency tally from within the interview transcripts on each of the key themes (see Appendix P). The themes were arranged in relation to their frequency with the highest tally placed first. The frequency of each theme determined the order each theme was explained in the findings.

### **3.7 Quality issues**

Quality in traditional positivist research is referred to as rigour and is achieved through addressing internal validity, external validity, reliability and objectivity. Whereas in interpretative qualitative research, Lincoln and Guba (1985) refer to 'trustworthiness' as a measure of rigour. The trustworthiness of a research study is determined by the confidence the intended audience has in how the research was conducted and in the research findings (Carnine, 1995; Maykut & Morehouse, 2003; Merriam, 1998). Mutch (2005) highlights the specific strategies to prove trustworthiness between research designs with "quantitative design research, you need to convince the reader that your study is valid and reliable" while in "qualitative design, you need to convince the reader that your study is trustworthy and credible" (p. 114).

Lincoln and Guba (1985) redefined the four traditional notions of positivist criteria for rigour with corresponding aspects to achieve trustworthiness in interpretivist research (see Table 3.1).

Table 3.1 Differences between positivist and interpretivist research quality criteria

<b>Positivist Terms</b>	<b>Interpretivist Terms</b>
Internal Validity	Credibility
External Validity	Transferability
Reliability	Dependability
Objectivity	Confirmability

This study is an interpretative qualitative project and the trustworthiness is established through implementing the principles of credibility, transferability, dependability and confirmability (Lincoln & Guba, 1985). These are detailed next.

Credibility is established by determining how credible the findings are based on the way the research is carried out and the involvement of the participants (Lincoln & Guba, 1985). Credibility in this study was established through prolonged engagement, triangulation of data and member checking (Lincoln & Guba, 1985). Prolonged engagement was achieved through a series of contacts made with each participating school

prior to, during and after, the data collection process. The researcher made contact and an informal visit in each school prior to carrying out six in-depth one-on-one interviews. Contact after the data collection was made via follow up emails to further clarify ideas and obtain supporting documentation. The researcher was in contact with each school over a period of three months.

Triangulation was achieved through using multiple methods of data collection to enable the researcher to gain different perspectives on the same topic (Bell, 2010). In this study data was collected through interviews and a comprehensive document analysis. Triangulation enabled the researcher to compare the different perspectives and confirm the findings. Additionally this research selected two schools to case study. Each school was analysed as a single case (within case analysis) followed by an analysis between the two cases (cross case analysis) to identify similar and/or different themes to answer the research questions. In this way, cross case synthesis can strengthen the credibility of the findings rather than just relying on a single case.

Member checking was used to further strengthen the study credibility by involving the participants in the data verification process. Buchbinder (2010) maintains member checking is essential. The researcher transcribed each interview and returned the transcripts to each interviewee to verify the accuracy of the transcripts and the interview experience.

Transferability is established by providing readers with the ability to make naturalistic generalisations from the research context and judge the transferability of the findings into the readers context (Lincoln & Guba, 1985; Merriam, 1998; Stake, 1995). The researcher sought to enhance transferability through providing a “rich thick description” (Merriam, 1998, p. 29) of each school context, the participants, the research design, the data gathered, the analysis and the findings.

Dependability as an alternative criteria for the tradition notion of reliability, asks how dependable are the results obtained from the data in this study (Lincoln & Guba, 1985; Merriam, 1998). Dependability is established through clarifying the researcher’s position, triangulation and documenting

an audit trail. The researcher was explicit in explaining her position and purpose for conducting this research (see Chapter One). Triangulation methods explained in the credibility section were adopted in this research. Additionally an audit trail was employed by the researcher to strengthen the consistency and dependability of the research (Merriam, 2002). The researcher provided clear and detailed information on the research design covering research question, ethics application, purposive sampling, data methods and analysis process (see Appendices A, J, E, F, G, I, M, N, O, P). This audit trail provides evidence of the research process and helps to build trust in the research outcomes.

The confirmability refers to how the “findings are grounded in the data” and “whether inferences made from the data are logical” (Lincoln & Guba, 1985, p.323). The researcher used an audit trail to detail the data analysis process including, raw data, coding process, and the generation of themes. This audit trail illustrates the logical flow between raw data and findings. The audit trail included sample documents used throughout the data collection and analysis process. These sample documents have been included in the appendices.

These four criteria for ensuring trustworthiness were undertaken in this research.

### ***3.8 Ethical considerations***

Guillemin and Gillam (2004) state that “research involving human participants starts from a position of ethical tension”. The core principle of ethics is that no harm should befall any participant. Williamson (2001) clearly explains that the treatment of research participants must be the highest priority and all possible steps must be taken to ensure that any issues that may compromise participants’ safety and confidentiality are addressed in order to meet the research outcome.

As part of this research process a comprehensive application for ethics approval was developed and submitted to the University of Waikato Faculty of Education research ethics committee. This research was granted ethical approval (EDU061/13) on 2 July 2013 (see Appendix J). With approval granted, the researcher was able to begin approaching

potential schools to gain an initial level of interest in participating in this study.

Ethical research requires gaining full informed consent and voluntary participation from interviewees. Each interviewee must therefore have access to all relevant information in relation to the process, how the interview material will be used and at what point they can withdraw from the research. The focus needs to be on the data gathered from the interviews, how the data is going to be used and who is going to benefit from the data.

The participant's right to confidentiality needs to be fully discussed with the interviewee, along with details of how the data is going to be used. Kvale (2007) highlights the ethical tensions that may arise, when the researcher needs to balance the interviewee's right to anonymity with the need to provide information on the interviewees to prove a reliable trustworthy project. Using interviewing as a data collection method poses a number of issues to participant confidentiality need to be carefully managed.

As already noted in this research study each participant was sent an individual letter (see Appendix B, C, D) outlining the research study and inviting their participation. The letter outlined the intended purpose of the study and how data was going to be collected and all steps to ensure participants' rights and dignity were upheld. The letter requested informed consent from each participant, and outlined the steps taken to maintain confidentiality and anonymity of the individual participants. The right to withdraw from the research was explained in the letter. In this study the participants were informed that they would receive a pseudonym and could withdraw from the study at any time and could withdraw their data up until the commencement of data analysis in late August 2013.

The researcher ensured all steps were taken to meet ethical requirements of this research and ensured high standards of ethical conduct were maintained throughout the entire research process.

### **3.9 Conclusion**

This chapter has outlined the research design of this study. This research is positioned within the interpretative qualitative paradigm. The researcher

selected a case study approach because it was aligned with the interpretative qualitative position and the ability of the case study to frame the use of data relevant to answering the research question. The case study approach was able to capitalise on the context and the individual's perspective of leadership as it occurred in their school. This chapter also outlined the data collection and analysis process and covered the steps the researcher took to ensure the quality of the research findings and reporting.

The next chapter will present the findings from the research.

## **CHAPTER FOUR: FINDINGS**

### ***4.1 Introduction***

This chapter reports on the findings obtained from the two case study schools. The chapter will begin with outlining the characteristics of each of the two case study schools. The next three sections will describe the common themes emerging from the data. These are organised according to the three research questions guiding the study. Key participant quotes and supporting documentation will be used to exemplify and elaborate on each theme. The chapter concludes with an overall summary of the findings.

### ***4.2 Characteristics of the case study schools***

#### **4.2.1 Description of school one:**

School One is a large urban school situated in a fast growing residential area in one of New Zealand's five main centres. The school is a Decile 10 school and caters for over 700 Year 0-6 students. The student composition in the school has over 60% New Zealand European students with 10% Maori, the difference being made up by students from Indian, Chinese, Pasifika and other cultures. The school is recognised as a high performing school within the area and has an enrolment zone and an enrolment policy in place.

The school has been trialling iPads for the past two years. This year the school is operating seven eRoom classrooms. Each classroom has an AppleTV, six iPads and access to 15 laptops. The eRoom group is made up of class levels across the school. All teachers were given the opportunity to apply for an eRoom. The ICT Lead Teacher leads the eRoom group. The teachers are required to attend fortnightly meetings. The school is an active member in a local ICT Cluster, participating at a governance, facilitator and teacher level.

The school has a traditional hierarchical positional leadership structure. The first tier is the senior leadership team made of the principal, two deputy principals and one assistant principal. The second tier is made up of six team leaders who lead teaching teams. In each team there are 4-5



classrooms. The third tier includes the remaining unit holders. There are approximately 14 unit holders in this tier. The school recognises 70% of the teaching staff with leadership responsibilities through the allocation of management units.

The principal, assistant principal (AP), ICT Lead Teacher, a board of trustee (BOT) member and two teachers were interviewed for this study. The principal has over 40 years teaching experience with 37 of those years as principal in six different schools. He has a warm, personable manner. He is passionate about coaching and mentoring. The AP is acting in the role and had come from a Team Leader position. She initially felt she needed to have all the answers as an AP, but already she is realising her role is more one of empowering others and her confidence is growing in this new role. The ICT Lead Teacher is in her third year teaching and is passionate about using ICT to transform teaching and learning. The BOT member is in her second term on the Board. She is a teacher with over 25 years teaching experience. Teacher one has six years teaching experience and her enthusiasm for teaching is contagious. She sees technology as natural tools for learning and integrates them seamlessly into her teaching. Teacher two has 13 years teaching experience and has recently returned to full-time teaching after taking maternity leave. Although she accepts the innovative benefits of ICT in her teaching, she admits to defaulting to pre-existing methods of teaching when time is short and energy levels are low.

#### **4.2.2 Description of school two:**

School Two is a new urban school built in a newly developing suburb in one of New Zealand's five main centres. The school caters for 308 students in Years 0-8. The school is a Decile 9. The school enjoys a range of ethnicities with 44% NZ European, 6% Maori and the balance made up of Pasifika, Asian and other groups.

The school opened in 2011 with 48 students. It is experiencing exponential growth and will meet its maximum roll of 520 within two years. A board member described the school as a community resource commenting, "the school has cemented the community because it is in the heart". Many local

community groups use the school facilities and the school enjoys amazing community support.

The school has been built to maximise modern learning environments, designing teaching and learning spaces known as learning hubs that cater for up to 80 students and three teachers. Students learn collaboratively, with ubiquitous access to technology. The Board member explained the school “mirrors the real world” with the modern learning environments and the student access to learning and technology.

The school has eighteen teachers and six support staff. The school operates a flat leadership system. The leadership team comprises the principal and two associate principals. The second tier is made up of portfolio holders. These are fixed term unit holders. These teachers apply for these responsibilities and put an action plan in place for the year. The learning hubs operate as collaborative teams and therefore a team leader is not required.

These findings are based on interviews with the principal, two associate principals (AP), a BOT member and two classroom teachers. The principal is a dynamic leader in her first principalship. The BOT member describes her as “a visionary beyond her years”. She uses current research to inform her leadership in this cutting edge new school. The AP has over five years experience in senior leadership and is committed to life-long learning. The AP 2 is new to this role, having come from a Team Leader role in a previous school. Very similar to the AP in School one, she is growing in confidence as she realises that being an experienced learner helps build capacity in others. The BOT member is a very proud parent of children attending the school. Although she does not come from an education background, her knowledge and understanding of 21<sup>st</sup> century education was impressive. Teacher one has six years teaching experience. She has a depth of sound pedagogical knowledge and a wealth of ICT knowledge which she combines to innovate her teaching. She is committed to life-long learning and is applying for a TeachNZ Study Leave to research the use of social media in learning. Teacher two has five years teaching experience. She found it difficult to articulate how ICT innovates her

teaching as she could not imagine teaching without technology and sees ICT as a natural part of life, being a tool like a pen or a pencil.

Findings for each of the research questions are presented next (see Appendix P for a full description of the findings).

### **4.3 School leaders' views of their role**

This section will describe the findings from the first research question which investigated school leaders' views and practice of their role in leading and supporting innovative ICT use in teaching and learning.

*How do school principals, deputy principals, curriculum leaders and Board of Trustees members see their role in providing leadership and support to facilitate innovative ICT use for teaching and learning?*

Responses from the school leaders indicate they felt their role was to develop environments and provide support which enables teachers to take risks and innovate in their daily teaching. Two key themes emerged, the first theme related to the importance of putting supportive school systems and structures in place, and the second theme related to the significance of developing a collaborative school culture. Each of these themes can be further elaborated through their sub-themes as summarised in Table 4.1 below.

Table 4.1 Research question one: Findings

<b>Research Question One</b>	<b>Findings</b>	
<i>How do school principals, deputy principals, curriculum leaders and Board of Trustees members see their role in providing leadership and support to facilitate innovative ICT use for teaching and learning?</i>	Theme One: School systems and structures	Building teacher and leader capacity
		Informed leadership
	Theme Two: Developing a collaborative culture	Strong guiding vision
		Transparent communication
		Collaborative practices
Trusting relationships		

### 4.3.1 Theme one: Supportive school structures and systems

This theme relates to the school systems and structures that leaders consider need to put in place to support the building of individual and school capacity and informing leadership.

#### 4.3.1.1 Building capacity

Both schools were committed to building the capacity of staff in order to grow their respective organisations. This was achieved through comprehensive professional learning and the distribution of leadership throughout the school. Developing people was seen as paramount in both schools. The two principals adopted a coaching and mentoring approach to support teachers to reflect critically on the impact of their teaching on student learning. There appeared a subtle difference between the two principals, with the principal in school one having a “growing the potential in people” approach as opposed to the “tapping into existing potential” approach of the principal in school two.

The principal in school one focussed on the potential of people and used a coaching approach to build capacity. For him the core purpose of the school is student learning and improved student outcomes. The principal articulated this clearly in the interview:

*We do whole school PD about 95-97% of our professional learning happens in this place and we hire consultants and or we use our own expertise from amongst the staff. This year and the last two years our focus has been on maths because that is our least effective area. We see through a whole lot of strategies, working with teachers and improving teacher capacity and capability we have lifted the standard of achievement in our children by about 10 -15% overall and some up to 25%. It is about teachers, knowing what teachers need and providing that (Principal, School 1)*

This quote infers that the school provides a variety of professional learning opportunities for staff structured on the capacities required by the school. In order to determine the needs of the school, the leaders see their role as working alongside teachers as illustrated in the following quote:

*Partly it's being in contact with what is happening from the ground up... that means the four of us in the leadership team are every week at team meetings hearing what teachers are saying*

*about student learning and hearing what needs to be done in the classroom what are the gaps in student learning. We are also mining the data...so we are constantly targeting what teachers need to raise their capacity so students learn. (Principal, School 1)*

This quote implies that this leader sees his role as being closely connected to the teachers and their teaching in order to facilitate professional learning, whereas the principal in school two works from a strength based position where she intentionally seeks to identify what motivates and inspires teachers, as exemplified in the following quote:

*For a while there I felt like it was almost like a flywheel trying really hard to get some momentum and then to get out once the momentum started for it to get richer with more people doing it. Now I feel I'm at the back of a snowball if you like as it grows and builds momentum because it's a team. I could give you so many examples of how individuals are really adding value in this place because you have to see that potential and light fires in people (Principal, School 2)*

This quote implies the organisation is richer with more people adding their value. This creates a sense of belonging and fulfillment, which fully utilises the people's potential within the organisation. This approach is shared by the other leaders in the school, where they also see their role as actively engaging teachers and creating opportunities for them to develop their own capacity. In the following quote the leader's use of the metaphor, 'on the stage' epitomises her belief that teachers need to have opportunities to follow their passions and talents.

*I know I stand true to building and growing capacity in others. I stand really true to being guided by people knowing who they are but having an opportunity to 'be on the stage' and to be empowered to do what they want to do and have a greater influence (AP 2, School 2)*

This next quote implies the leader's approval of teachers defining their own learning journeys.

*What motivates me is seeing the teachers growing their own capacity, to learn, to teach, to challenge their own practice and to be evidenced and to see that growth in teachers has been really exciting and how that impacts on kids (AP 1, School 2)*

These leaders are aware of the changes in education in response to increased technology and appreciate the need for teachers to be constantly upskilling and challenging their existing pedagogical practices. The leaders are witnessing changes to teaching and learning and this are exemplified in the following quotes.

*It is the first time in my career that I am seeing children activating and causing and advancing their own learning without teacher input. I am also seeing more peer-to-peer collaboration and the pursuit of 'growing knowledge'. (Principal, School 2)*

This quote suggests increased self-management in the learner as a result of increased access to technology to assist their learning. This next quote highlights the need for teachers to upskill in their personal use of technology.

*Our teachers have to be up to speed with the use of technology themselves as an individual to then be able to use it effectively with the learners. (Principal, School 2)*

The following quote appears to portray a sense of urgency that teachers need to be current and innovative in their classroom programmes.

*We need to looking broader than our curriculum and seeing the innovations happening around the world and trying to incorporate that into our classrooms because that is their now and we don't know what their future is but if we don't give them their now or help them to understand what is happening now we are not providing them for their future. (ICT Lead Teacher, School 1)*

Building capacity is achieved through a variety of professional learning programmes. Robust self-review processes in both schools provide evidence to inform the direction of professional development. Both schools provide comprehensive professional development for all their staff. Huge value is seen in using current research and leading educational consultants to work with the board of trustees, the leadership team and the staff where appropriate. In school two, the associate principal sees value in working with educational consultants to sharpen their leadership focus in the school.

The board of trustees support for professional learning is exemplified in the following comments:

*The leadership team did some research and principal brought it back to the board and then as a board it was our role to be responsive to those things that had been identified by principal and then to support the school in the professional development journey by funding that for a process of two or three years and supporting them that way (BOT member, School 1)*

*We are here to get the best deal for our kids. So if that means the staff having to do whatever it is they do, to get on and get that end goal we are not going to hinder that. We support with the money and we support with whatever is the best our leadership team say (BOT member, School 2)*

External consultants are used to deliver whole school development which is tailored to meet the professional learning needs of the staff. There is huge value seen in whole staff development and the board members fully support the financial commitment required.

In addition to whole school professional learning, teachers with specific responsibilities may have targeted programmes. These groups include: the leadership team, all teachers in leadership positions and the eRooms group. On an individual level, both schools provide an individualised, inquiry approach for teachers to explore their teaching. This process supports teachers to make the pedagogical shifts required to optimise the innovative benefits of ICT in their teaching.

Both schools have promoted a culture where teachers are learners and are fully supported in their learning journey. The leaders illustrate how teachers are encouraged to identify areas for change and innovation in their own teaching practice in the following comments:

*A teacher may say I am having difficulties with this group ... you turn that around so it is not about blaming the teacher, it is saying to the teacher you have the ability to solve the problem ... let's together find the resources to solve the problem (Principal, School 1)*

*Actually rather than thinking the teachers are fonts of knowledge that we're a bit afraid of saying we don't know. So allowing people to say I don't know and that actually gives me a great opportunity to engage in very authentic teacher inquiry (AP, School 2).*

These quotes suggest the leaders have intentionally created a culture that promotes everyone as a learner. The teachers are encouraged to experiment, take risks and innovate.

Another strategy to building capacity is creating leadership opportunities for teachers. The following comments exemplify the leaders' commitment to creating leadership opportunities. The first quote implies opportunities need to be created to fully build capacity in a school.

*A distributed approach to leadership creates capacity to fully utilise the potential of the school (Principal, School 1)*

This next quote connects building capacity with distributing leadership.

*You've got to be constantly building capacity in others to step ourselves out of that role. I've done it all my life. I would nurture someone to be a better leader than myself then step away and give people autonomy (Principal, School 2)*

The school vision and school systems provide clear direction for the leaders to build capacity and develop innovative ICT pedagogy within the school. Furthermore, the findings report that the leaders also felt obligated to be informed and up-to-date. This will be elaborated in the next section.

#### *4.3.1.2 Informed leaders*

The following comments illustrate the principals' understanding of the complex nature of school culture and the importance of a positive culture to a successful school. The first quote implies the principal is informed by current research in school culture.

*Fullan says professional learning, systems and all those things you do in a school, and all the work you do with teachers create the culture. The culture is what comes out of being in touch with teachers and in touch with the community. School culture is everything. Schon says "it's what we do around here" and it is really important. But there are a lot of aspects to culture. (Principal, School 1)*

The principal in school two uses the term 'intentional' in the next quote to highlight the focus and emphasis placed on getting the culture right in this school.



*The school culture is absolutely fundamental. It's been intentional. There needs to be certain ways in which we do things around here that govern our behaviour and what we do to realise our vision and aspirations. So being a start-up organisation we have been really deliberate to not let practices or events or things we do acculturate that are not aligned to our vision and purpose. (Principal, School 2)*

The leaders in both schools recognise the importance of being up to date with current thinking around teaching, learning and technology. Both schools are recognised for cutting edge use of ICT and staff are active in local ICT professional development clusters and regularly present at conferences. During our interviews, leaders referred to a number of educational consultants and leading educational researchers they had worked with.

Leaders see their role to be informed. This quote implies the need for leaders to work from a research or literature base and to consider how current trends can be adapted and used in their school.

*I think the big challenge for principals and senior leaders is to have currency and not recycle old fashioned ideas or ideas that are not going to appeal to the students or the teachers (Principal, School 1)*

This next quote indicates the importance of keeping up to date in order to meet the needs of the students.

*We need to be seeing the innovations that are happening around the world and trying to incorporate that into our classrooms (ICT Lead Teacher, School 1)*

The following quote implies current educational researchers are impacting on the school's thinking about learning.

*Julia Aitkin [Educational Consultant] would challenge us, we know how kids can learn powerfully, but what is now powerful to learn?...We know a lot more about brain science Mark Treadwell [Educational Consultant] is very good at that ... in terms of how kids learn and it is conceptually (AP, School 2)*

These next two quotes illustrate the importance the leaders' place on being actively engaged in professional networks to enhance professional development.

*I surround myself with pretty amazing people and I like to grow my capacity by having conversations in lots of different networks (Principal, School 2)*

*We try to expose teachers to little snippets you know like YouTube is great for the five-minute snippets of wonderings...I think encouraging teachers to be networking and to be engaging with other groups. It may be virtual for some people that might be on Twitter. Twitter is a most extraordinary avenue for professional learning and you suddenly hook up with people who share interests and share enthusiasms (AP, School 2)*

This first theme has identified the importance the leaders place on building the capacity of their schools and being informed with current research to facilitate innovative ICT use in teaching and learning. The second theme, developing a collaborative school culture, has four sub-themes. These are reported in the next sections.

#### **4.3.2 Theme two: Developing a collaborative school culture**

This theme relates to the significance the school leaders place on a collaborative, supportive school culture which they consider is crucial to supporting innovative teaching and learning with ICTs. A collaborative school culture permeated both schools and the principals viewed culture as “everything and really important” and “fundamental” to a successfully performing school.

Four sub-themes have emerged from the data as key components to developing a collaborative school culture. These are; a *strong guiding vision, transparent communication, collaborative practices* and *trusting relationships*. Beginning with the first sub-theme, a strong guiding vision for teaching and learning, each of these sub-themes will be elaborated on in the following sections.

##### *4.3.2.1 Strong guiding vision*

School leaders see a shared vision for teaching and learning as the foundation for a collaborative school culture. A shared vision for teaching and learning is at the core of both school cultures and is exemplified in the quotes below through excerpts from an ERO report and the AP’s interview for the first school and the principal’s reflection for the second school:

*The school's vision of developing students as confident, connected and actively involved life-long learners is well communicated to the school community. Effective partnerships between the school, parents and the community are based on trust, respect and a shared understanding of the vision (ERO Report – School 1)*

*I think knowing where we are headed is very important and having everyone on board. (AP, School 1)*

*Our core business is learning. It always has been. The vision is a living vision guiding the leadership and teaching and learning in the school. (Principal, School 2)*

A shared vision for teaching and learning provides coherence in the school. The coherence in the teaching approach and behaviour is exemplified in the following principal quote:

*Our vision is our aspiration that is what we are aiming for and to get there, there needs to be certain ways in which we do things around here that govern our behavior and what we do to realise our vision and aspirations (Principal, School 2)*

This quote conveys the importance the principal places on coherence amongst the staff in order to achieve the school vision in the second school. This next quote from the ICT lead teacher of the first school extends the notion of coherence to aligning new practices with existing school practices.

*I really try to reflect as well with the eRooms inquiry the vision from management with the classroom inquiries. I wanted it all to link. (ICT Lead Teacher, School 1)*

The following quote connects school wide frameworks for learning with ensuring all children will be prepared for their future.

*I think our school, with the conceptualised curriculum and the Learner Framework, really does help us deliver education that is going to help these children in the 21st century those things we focus on being a risk taker, a communicator, a self manager, a researcher those sorts of things help us. (BOT member, School 1)*

In the second school the leaders believed in the importance of learners spending time doing what they loved and had a natural interest in. This belief was applied to both teachers and students. The concept of learners

following their interests and passions to ignite their potential is exemplified in these quotes:

*It is about providing opportunities and room for people to have their 'value-add' in our place. So I am quite strength based in our thinking. It is not about deficit thinking and hey you're not good at this go set a goal in that. It is more aligned to our vision too. To get really fulfilled staff is about them engaging and spending time doing what they are great at and sharpening strength (Principal, School 2).*

This quote links teachers spending time following their interests and talents with innovative practice. This next quote highlights that working within a comprehensive learning framework allows for teacher experimentation and innovation.

*I think the idea of allowing teachers flexibility under the umbrella of the school vision, allows flexibility and innovation. Having leadership that allows that, creates room for innovation and allows that necessary experimentation and encourages honest reflection amongst the teachers to say that worked well or actually that didn't work so well (AP, School 2)*

Although this may appear contradictory, the structure of the school vision and expectations appears to provide flexibility for teachers to take risks and innovate. Teacher risk taking and innovative practice is also supported by effective communication. This will be elaborated on in the following section.

#### *4.3.2.2 Transparent communication*

Communication is seen by both principals to build trust and foster innovation. Permeating both school cultures is the notion of open transparent communication. This communication is exemplified in the following quote:

*I talked to them [classroom teachers] about expectations over the holidays because it started at the beginning of this year. So at the end of last year I sent them a letter letting them know that we were going to have a reflective inquisitive year together, so really setting those expectations and letting them know they needed to take an iPad home over the holidays and get used to it because they weren't using the iPads and didn't know how.... then I let them know they were going to choose the area to investigate and reflect on in relation to iPads and appleTV best practices in the classroom.*

*So they knew from the beginning what they were in for (ICT Lead Teacher, School 1).*

This quote suggests the priority the ICT lead teacher made to communicate all expectations to her team prior to the beginning of the year. Her intention to develop an open culture where each teacher felt able to freely express their successes and failures with ICT and share their professional learning with the group was achieved through her open, transparent communication.

Leaders foster communication through open forums and staff discussions. The value of open communication is exemplified in the following comments:

*It is important that everyone has a voice and that voices are heard (AP, School 1)*

This quote indicates the value placed on the contribution of each person in the school while the next quote infers that understanding is built, through listening and discussing which fosters trusting relationships.

*We have talked heaps about culture and that openness builds trust (Principal, School 2)*

The following quote below implies the way in which leaders may gain valuable insight into the teacher's views on a particular issue:

*So yesterday in our TED [Teacher Effectiveness Dialogues] session we opened the floor for a dialogue and a conversation just saying we've got this feedback. We give four weeks of our professional learning time [to these TED sessions] so we need to get it right for people to get something out of it. So we had a bit of an open conversation so what is working for you really well and what is not, what don't you like what would make it even better and any wonderings. So we had a really good dialogue to understand where people are at and what they are feeling (AP 2, School 2)*

Ongoing informal communication helps to build relationships with staff. These relationships make it easier for school leaders to have the more difficult conversations needed at times in schools. The principal in school two illustrates the importance of informal conversations in the following quotes:

*You have to be giving good feedback all the time (Principal, School 2)*

This quote implies that informal ongoing communication helps to keep teachers focussed and engaged. This next quote illustrates that at times conversations to realign people are necessary.

*This is where I add the biggest value I am OK in a good way about having those hard to have conversations to keep people true to our moral purpose and where we are going (Principal, School 2)*

The principal in school one declares that being a listener is his most crucial leadership role. Being a listener is vital to be connected to teachers and students in the school. This belief is in keeping with his emphasis on the importance of people and getting to know the people. Interestingly, he believes that listening enables innovation. He states,

*You can't be innovative if you are not a listener because if you don't know what people think you can't innovate. You can come up with lots of great ideas but if you haven't listened to all and studied what is happening you can't be innovative because you've got to have the evidence to give you the possibility that you can have the impact on student learning and achievement. I think listening is key (Principal, School 1)*

This quote reinforces the importance of a principal knowing their staff and keeping in regular contact with what is happening in the school.

Effective communication is supported by the use of a shared language of learning across the school. Each school has a framework for learning that details the key competencies they are developing in their students. The following comment illustrates a shared language:

*Where are you on the independence ladder? Every classroom has got a ladder or a roadway. You move backwards and forwards, you don't always move towards independence because there is new learning so you move back here or up there or down there or whatever the symbol is the teacher is using as the tool for children to be reflective. That is another thing we have to develop is reflective learners because reflective learners will then identify what they need to do next themselves in time (Principal, School 1)*

This quote illustrates how a shared language can scaffold a student's ability to articulate their learning and develop as a reflective learner. Using a shared language for learning supports quality learning conversations throughout the school.

School two extends this idea of a shared language to make their expectations around their vision explicit. The staff co-constructed catchy phrases that explicitly communicated their organisational values and norms.

*Another thing we started to do was to say every hub has their own norms. So when you look at “actively collaborate”, “we go not ego”, “we’re all in this together”, or “listen sincerely value the voices”, it’s actually in a team sense unpacking the success criteria for that norm to live (Principal, School 2)*

This quote illustrates how using a shared language for organisational values and norms can support collaboration between teaching staff. Communication that flows seamlessly through the school is seen as vital to build trusting relationships. Effective communication and a strong guiding vision all contribute to the successful collaboration in a school. Collaborative practices will be elaborated on in the following section.

#### *4.3.2.3 Collaborative practices*

Collaborative practices strengthen the relationship between leaders and teachers where they are working together to achieve the school vision. These following quotes illustrate how leaders see their role as a learner alongside the teachers as learners. The first quote suggests the role between the leader and teacher is blurred. The leaders see themselves as facilitating the teacher's role as a learner as opposed to operating from a knowledge based top-down role.

*Each one of us on this site is a learner and I’m a learner and the DPs are learners and we all need to know where to go to get some of that knowledge. Acknowledging that we as leaders or as individuals, we don’t know everything we can make mistakes and we can learn sometimes together (Principal, School 1)*

This next quote implies leadership is a journey of learning.

*That has been my other biggest learning. It's OK not to know. We say that to our kids and we say that to our teachers. Sometimes as leaders being able to not get things right and actually that's OK because you are learning too (AP 2, School 2)*

The leaders use reflective questioning, active listening and open to learning conversation strategies to engage the teachers in problem solving and reflection on their practice to gain deeper professional learning and pedagogical shifts.

*We ask the questions that encourage the teachers to reflect ...by doing that reflection, by questioning, doing good active listening and allowing that space the teachers reach their own solutions. (Principal, School 1).*

This quote shows how collaboration is used to support teacher reflection on their practice and to promote innovative teaching and learning practices. The next quote infers that collaboration is enhanced when leaders are seen as learners also.

*I hope they see me as someone along the same journey as them as opposed to someone who has all the knowledge and tells them what to do...I sit alongside them and talk about the things I am developing in my room (ICT Lead Teacher, School 1)*

This collaborative approach utilises the expertise within the group of leaders and teachers alike. Collaborative practices are supported by strong trusting relationships. These will be elaborated on in the following section.

#### *4.3.2.4 Trusting relationships*

Trusting relationships are the foundation of a collaborative school culture. These leaders feel building trusting relationships is important to promoting innovative practice. The value the leaders place on building trust with the people in their schools is exemplified in the following quotes. The first two quotes recognise that the leaders' integrity engenders trusting relationships with their teachers.

*Relationships are really important and people have to realise that you are somebody that lives by their word (Principal, School 1)*



*I think to lead you have to walk the talk and I can't not be open and transparent because people around me won't be open and transparent (AP, School 2)*

This next quote implies the importance of people and working together as a team.

*We all stand strong and help to build the capacity in one another round the centre of our vision and our core purpose. It's all about people. I am such a believer that momentum is about collective ownership and thinking through and doing it together (Principal, School 2)*

Trust is also built through having a presence throughout the school and knowing what is going on. Both principals make the following comments:

*It's about being in contact with what is happening from the ground up (Principal, School 1)*

*Being present. Not making assumptions. Being present as to where the organisation is and being strategic and prioritising what is next. (Principal, School 2)*

These comments imply the principals build trust with their teachers by relating to their everyday experiences of what is happening in the school. Using the analogy of a gardener, the principal from school two illustrates how she keeps in touch with people in her school.

*Who needs fertilizer, who needs to be put in the sun for a while, who needs what feedback and why (Principal, School 2)*

This quote implies the value the principal places on people and how she wants to provide a conducive environment for their growth. Another way trust is built is by showing vulnerability as a leader.

*The other thing that is really important around building trusting relationships with individuals, we don't know everything we can make mistakes and we can learn sometimes together (Principal, School 1)*

This quote suggests that trust is built through honesty and respect between leaders and teachers.

This second theme has highlighted how the culture provides support for the innovative use of ICT in teaching and learning through building trusting

relationships where both leaders and teachers feel safe to take risks and admit they have made a mistake. Through adopting an equal footing with the teachers, the leaders are optimising learning through genuine collaboration and reflection. They are all learners together, maximising the strengths and expertise of everyone in the organisation to achieve the core purpose of the school: improved learning outcomes for all. The vision embeds the core purpose in everything that is done in the school, consequently providing coherence and flexibility for innovation.

The findings from question one reported that the leaders recognised that their role in facilitating innovative ICT use for teaching and learning was to develop a collaborative school culture and open, transparent school systems and structures that develop teachers' capacity. Having student learning at the core of the school vision guided the leadership as they worked alongside the teachers to equip the students with the key competencies and learning dispositions believed to best prepare them for their future.

#### ***4.4 Teachers views on school culture and support***

This section will describe the findings from the second research question which investigated the teachers' perceptions about the kinds of support they receive in encouraging innovative ICT teaching-learning practices.

*How do teachers view the school culture and support offered by the school in facilitating their ICT teaching and learning practices?*

Responses from the teachers indicate the importance of empowering teachers within a positive school culture that focuses on optimising learning opportunities for all. Three themes emerged with regards to teachers feeling empowered through; professional learning, a collaborative culture and ICT resourcing. These are summarised in Table 4.2 below and will be elaborated on in the following section.

Table 4.2 Research question two: Findings

Research Question Two	Findings
<p><i>How do teachers view the school culture and support offered by the school in facilitating their ICT teaching and learning practices?</i></p>	<p>Theme One: Empowerment through professional learning</p>
	<p>Theme Two: Empowerment through a collaborative culture</p>
	<p>Theme Three: Empowerment through ICT resourcing</p>

#### 4.4.1 Theme one: Empowerment through professional learning

The teachers across both schools valued the professional learning opportunities provided by the schools to support their innovative use of ICT in their teaching and learning. This quote illustrates how teachers are empowered to identify and access their own personal professional learning

*We are given a budget of \$1000.00 a year starting this year that we can use to work out our own professional development. So this year I am going to uLearn for the first time. I will be presenting and attending (Teacher 1, School 2)*

These next two quotes refer to the professional learning group set up to support iPad use in the classrooms. The first quote illustrates how professional learning is tailored to the teachers' needs and focusses on how to best use the technology to enhance the teaching and learning.

*You know when you go to the meetings you know you are going to learn. Someone is going to share something amazing they are doing in their classroom. You know you are going to be able to take it back and relate it to something in your classroom as well (Teacher 1, School 1)*

*We all drive it in the direction we want it to take (Teacher 2, School 1)*

The depth of professional learning is enhanced by specific feedback received from the leaders. This was particularly evident in school two with

both teachers commenting on the value of the feedback. The first quote implies the teacher values the specific goal related feedback.

*Although our principal says go for it, she is also really good at saying how are you going with that and she will bounce with you and give lots of feedback lots and lots of feedback when you ask for it. We don't get random feedback that doesn't relate to things. We get feedback that relates to what we are working on (Teacher 1, School 2)*

This next quote infers the teacher feels supported by the leaders knowing what should be happening and offering support.

*They [leaders] are supporting when you need it. Hey guys how are you going with this? With things you should have finished...do you need help with this? (Teacher 2, School 2)*

To maximise professional learning opportunities, both schools use a collaborative approach to learning. How the teachers valued this collaboration is reported in the next section.

#### **4.4.2 Theme two: Empowerment through a collaborative culture**

The teachers in both schools reported the value of the collaborative opportunities to develop their teaching and learning. The first quote highlights how the interactive nature of a collaborative approach, was seen as more valuable to their professional learning than just sitting listening.

*It is the rest of the group as well...it is very much collaboration amongst us in terms of how we can best use the iPads and what works well in the classroom and what doesn't work so well. Maybe someone may have adapted something as well for example an APP, you may be able to use it a different way to suit the learning so it is definitely the collaboration (Teacher 1, school 1)*

However, in school two the leaders were more intentional to support effective collaboration because of the highly collaborative nature of their learning spaces. This next comment indicates the teacher's perspective of the collaborative nature of the culture.

*This is what our leadership team has enabled; we should be having those discussions in a team. We should be using the data as evidence and we should be finding those next steps for those learners because we want them all to succeed. All the messages*

*they give us are that we should be doing those things. So we do. They are inspiring so we are inspired. No one told us to sit down as a three and chat about it but we do because that is the culture here (Teacher 1, School 2)*

This next comment implies that a strong vision that guides a team approach helps to facilitate a collaborative environment.

*In our space because we work so collaboratively you need to be on board ideally and support what each other is doing. If you have someone with vastly different ideas and you need to compromise frequently or you have to do one thing or another then it can become a challenge (Teacher 1, school 2)*

The following comments illustrate the level of leadership support available if required with challenges in collaborative groupings. This quote illustrates the empowering approach the leadership team takes to supporting teachers with challenging colleagues.

*They [leaders] were available sometimes to have a conversation: this is what is going on for me; this is how I am feeling. How should I best approach it? A confidential conversation. But really good because it wasn't an opportunity to sit down and let off steam or moan, it was an opportunity to say well actually this is what I think I would like to do. Do you support this, do you think that this is the best way to deal with this situation or do you have a different point of view on this. Also really good at sitting in on team meetings and sitting in on potential difficult discussions and helping to facilitate if we needed them (Teacher 1, school 2).*

In addition to supporting individuals with challenges, this quote illustrates the school wide support the leadership have put in place to support the collaborative nature of the school.

*We have organisational values that sit up on the wall in the staffroom which reflect what we represent as a staff they... are the foundation of what we believe in so, no matter what is happening, we can direct people back to them...we all own those so if we had a tricky conversation with a hub mate you can bring it back to those. It is a good base for everything (Teacher 2, school 2)*

A collaborative culture empowers teachers to develop innovative use of ICT in their teaching and learning through facilitating, sharing and professional discussions with their colleagues. This fosters a reflective approach to their teaching.

The teachers value the leaders having a presence in their classrooms. This facilitates the collaboration between teachers and leaders. The following quotes from teachers highlight the value they place on the collaboration with the leaders.

*[The leaders] coming into the classroom and noticing things happening and talking to us about it. When you are being observed they [leaders] will ask you what you think went really well in that lesson what worked really well. Those type of questions make you think about your learning. Through the team leader, through management coming into your classroom and sharing with you what you are doing well at and asking what I could work on (Teacher 1, School 1)*

This quote highlights the value the teacher places on the leaders being connected to the learning in the classroom and facilitating her reflection. The teacher one in school two also reinforces the value of leaders having a regular presence in the learning hubs in this following quote:

*They [leaders] are in a lot. They come in to touch base, talk to the kids, make themselves aware. They like to know what is going on in the spaces. It's hard to make judgment and talk about what is going well or what could be improved if you are not in there I suppose...you don't go through the day without seeing them, plenty (laugh). It is nice (Teacher 1, School 2)*

Supporting the teachers' innovative use of ICT in their teaching and learning is having the resources available for ubiquitous use in the classroom. This will be reported in the next section.

#### **4.4.3 Theme three: Empowerment through ICT resourcing**

The teachers feel supported by the school to use ICT in their teaching and learning programmes. These two quotes illustrate the value the teachers have of the ubiquitous access to the technologies to aid their teaching and learning programmes.

*Just having the resources at your fingertips (Teacher 2, School 1)*

*We are always hopping onto the iPads and using them to the best of our ability any chance we get (Teacher 1, School 1)*

This next quote acknowledges the leaders are keen to listen and respond to the teachers' feedback with regards to how they wish to use technology in their teaching and learning programmes.

*They do listen. We started off with every hub having netbooks but the feedback was given that the juniors were really struggling with the netbooks. That these were probably not the best tools for them so they were redistributed around the school and they purchased iPads for the juniors. A more portable device. So from that point we are supported (Teacher 1, School 2)*

This quote connects the need to match the students' use of technology in their daily lives with their technology use at school.

*These kids have grown up in an age where ICT is just normal for them. So we try quite hard to make sure that technology or an aspect of it is blended into what we are doing. (Teacher 2, School 2)*

Ready access to ICT in the classroom is crucial for teachers to leverage the technology to transform the teaching and learning. Both schools have well-resourced classrooms with hardware and infrastructure for easy, seamless wireless access to the internet.

To sum up this section the teachers have reported that they feel supported to deliver innovative teaching and learning through the use of ICT. The teachers report on the value of the comprehensive professional learning tailored to their individual needs, a collaborative culture and access to ICT resources. Both schools have a shared vision that provides a comprehensive teaching and learning framework to guide innovative teaching and learning. The collaborative school culture supports and challenges teachers to experiment with different teaching approaches and ICT possibilities to meet the needs of all their learners. School leaders are present in the classrooms, hubs and teaching teams to provide relevant, focussed feedback to teachers. Each school is well resourced to enable ubiquitous access to ICT within teaching and learning programmes.

#### ***4.5 Leadership actions and teachers implementation of innovative ICT practices***

This section will report on the linkages between the school leadership and the teachers' implementation of innovative ICT practices in their classrooms in order to explore the third research question.

*What are the links between school leadership practices and teacher implementation of innovative ICT practices?*

There are three emerging themes from the data: setting direction, developing people, and making the organisation work. These themes together with their sub-themes are summarised in Table 4.3 and are discussed in the following sections.

Table 4.3 Research question three: Findings

Research Question Three	Findings	
<i>What are the links between school leadership practices and teacher implementation of innovative ICT practices?</i>	Theme One: Setting direction	Dynamic school vision for transforming teaching and learning
		Strategic planning and resourcing for innovative ICT teaching and learning
		<i>Consistency in views of student learning with ICT and teacher planning</i>
	Theme Two: Developing people	<i>Tailored professional learning and development programme</i>
		Professional dialogue to support innovative teaching
	Theme Three: Making the organisation work	<i>Collaborative practices in facilitating innovative teaching and learning</i>
Distributed approach to leadership		

#### **4.5.1 Theme one: Setting direction**

This theme consists of three sub-themes which includes; dynamic school vision for transforming teaching and learning; strategic planning and resourcing for innovative ICT teaching and learning; and consistency in views of student learning with ICT and teacher planning.

##### *4.5.1.1 Dynamic school vision for transforming teaching and learning*

A living school vision with students and their learning at the core is a crucial link between the leaders and the teachers' implementation of innovative teaching. To achieve this vision the leadership team has



worked with teachers to develop a comprehensive framework for teaching and learning in the school. Both schools have comprehensive learning frameworks and implement concept curriculums. This strong framework scaffolds learning in these schools. A shared language of learning is used throughout the schools, which is directly linked to the learning framework. School wide learning progressions have been developed in reading, writing and mathematics for each student. The teachers are fully supported by the leadership team and as one teacher explains, “we have quite a lot of freedom in terms of how we do things so that does lead to lots of change and interesting things”.

#### *4.5.1.2. Strategic planning and resourcing for innovative ICT teaching and learning*

Strategic planning for ICT demonstrates a clear leadership link with innovative teaching and learning in this school. The following excerpts from the school’s strategic plans illustrate the planned implementation and level of resourcing provided.

*Continue to grow students’ purposeful use of eLearning tools: Grow student learning by providing eLearning tools that have applications to support the classroom teaching and learning programmes. Technology Leadership: Detailed technology equipment plan, professional learning plan, communication plan (Strategic Plan 2013 -2017, School 1).*

*Systems and Infrastructure: Maintain an effective eLearning infrastructure to enable innovation, learning and end user satisfaction. (Strategic Plan 2013 -2016, School 2)*

These quotes imply the value both schools place on the successful integration of ICT into their teaching and learning programmes.

#### *4.5.1.3 Consistency in views of student learning with ICT and teacher planning*

In these schools, technology is an everyday part of the school environment and seen by both staff and students as an essential tool in their work and their learning. The schools use technology effectively for all their administration and as a major vehicle for communication. The teachers are active users of googledocs, storing and sharing school

documentation. Both schools have comprehensive web pages and use email for regular school newsletters. Innovative school cultures support the use of technology across the school.

Technology is seen as an innovative agent in the teaching and learning process by both school leaders and teachers. The importance of integrating technology into the teaching and learning programmes is exemplified in the following quote:

*They live in a digital world with 24/7 access. They need to be connected to the world. They need to grow a big understanding of every aspect of ICT and use it within their learning (AP, School 1)*

This quote acknowledges the reality our children live in and suggests the need for the school to mirror the real world. This next quote identifies the importance that the learning drives the technology use.

*I always make sure I look at the learning first and then at how the technology can help us with that learning (Teacher 1, School 1)*

The following quote implies the response required by schools to fully utilise the potential of technology in their teaching and learning programmes.

*I think learning is moving away from the notion of it being a noun to a verb. It is very much around us building our learners' capacity to know how to ... I think the access, the pace and the changes of learning is very much influenced by blended learning or eLearning or ICT (Principal, School 2)*

The value the school leadership places on the successful integration of ICT into their teaching and learning programmes is evident by the planned implementation, level of resourcing and the professional development provided.

#### **4.5.2 Theme two: Developing people**

This theme is elaborated through two sub-themes: tailored professional learning and development programmes and professional dialogue to support innovative teaching.

#### *4.5.2.1 Tailored professional learning and development programme*

An important element evident across both schools is the tailored professional learning opportunities provided to all teachers. Professional learning is a priority and is encouraged by the school leaders. Professional learning is provided by a combination of external educational consultants and drawing on the expertise and strengths of teachers in the school.

The leaders implement a number of school wide systems to provide professional learning. Teaching as Inquiry is used intensively in both schools for individual teacher professional learning. Each teacher selects a group of students not achieving at expected levels and focusses on their professional practice to move these students. These individual inquiries are linked with teacher effectiveness and appraisal systems.

School one has extended the teaching as inquiry process to include an eRooms Inquiry as well. Each teacher in an eRoom is required to have a specific eRoom Inquiry which can be linked to the school wide appraisal inquiry. The ICT Lead Teacher leads this system and wants the teachers to “have a shift in their pedagogy; I want that shift of how they view ICT in their classroom”. With the focussed inquiry based professional learning, the ICT Lead teacher believes the teachers will make that shift through developing an understanding of why they use ICT and, as a result, experiencing the impact on their teaching. The ICT Lead teacher facilitates the professional learning, setting clear expectations at the beginning of the year, organising fortnightly professional learning sessions preparing the meeting agendas, feeding in information as required and facilitating a collaborative culture within the group.

There is whole school professional development. One leader felt that whole school professional learning was a huge benefit to the school, explaining “everyone is on the same page, everyone has similar thinking” and felt this was something really important for transforming teaching and learning. One of the teachers agreed that “being on the same page” and “using a common language” helped teachers support each other as they learnt new teaching strategies and approaches and trialled them in their

classrooms. Both leaders and teachers commented on the many benefits from having a whole school approach to professional development.

#### *4.5.2.2 Professional dialogue to support innovative teaching*

An important link between the leaders and the teachers' innovative teaching is the leaders challenging existing teaching practice. The leaders challenge the teachers to reflect on their impact on their students. The first quote demonstrates that the leaders actively engage the teachers in challenging discussions to promote reflection on the quality of their learning activities.

*We have been talking a lot recently about the rigour in what the kids are doing when the kids are not with the teacher ... This question has been given to us by the leadership team. When the kids are not with you how much stretch are they getting from the activities? So I have been looking at iPad apps that will support specifically what we are doing in our programme (Teacher 1, School 2)*

The next two quotes illustrate how the leaders challenge the teachers to cater for all their children. This requires teachers to take risks and innovate in their teaching.

*Our principal talks at the moment about we are catering for this much and we need to make sure we are catering for this much of our learners, because it's not just the learners that get through on their own that counts, every learner needs to get through. So in that case we need to innovate around the ones who might not find the traditional way to do things, the successful way for them (Teacher 2, School 2)*

*One of the things we have to say to teachers is if someone is not achieving doing the same thing is not going to make any difference you have to do something different. You have to be innovative (Principal 1, School 1)*

This last quote illustrates how teachers have been intentionally engaged in a personal teaching inquiry to facilitate innovative use of ICT in their teaching. This example connects the importance of teacher reflection with pedagogical shifts in teaching.

*I want them [teachers] to have a shift in their pedagogy. I want that shift of how they view ICT in their classroom...I think when you make mistakes and reflect on them you can have that shift in pedagogy because you know why you are doing it. But if someone*

*gives it to you and tells you to do it you don't have that pedagogy, you don't have the knowledge, you don't have that understanding for yourself of why you are doing it (ICT Lead Teacher, School 1)*

There are clear links between the leaders and the teachers' innovative use of ICT in teaching and learning. The leaders actively engage the teachers in dialogue which facilitates reflection. A dynamic school vision provides direction and coherence through both schools.

#### **4.5.3 Theme three: Making the organisation work**

This theme is further expanded through two sub-themes which are collaborative practices in facilitating teacher ICT pedagogy and confidence and a distributed approach to leadership.

##### *4.5.3.1 Collaborative practices in facilitating innovative teaching and learning*

There is a direct link between the school leaders and the teacher implementation of innovative ICT practices through developing a collaborative school culture. In addition to developing collaboration through open communication and building of trust relationships, the school leaders have intentionally sought to create and support collaborative practices. The leaders' intentional development and support for collaboration are exemplified in the following comments:

*It is real learning from each other. That is the environment I am trying to support and develop (ICT Lead Teacher, School 1)*

This quote acknowledges the leader's intention to develop a collaborative approach to draw on the strengths and expertise of everyone in the group. This next quote unpacks the steps the leaders have taken to support the collaborative processes in the school.

*I think the other thing that has helped build the culture is we have invested quite a bit of money in strength finders which is that strength based personality typing and Myers Briggs. I think to build self-awareness of individuals needs to come before you can build self-awareness in teams and get to that collective efficacy. We have done that at two crucial ... because collaboration is so important. (Principal, School 2)*

School two's commitment to a collaborative learning environment is demonstrated with the learning hub structure with three guardians [teachers] and up to ninety students as opposed to the traditional single cell class structure of one teacher to thirty students. The leaders have worked with teachers to construct explicit norms to support collaboration.

*Another thing we started to do was to say every hub has their own norms. So when you look at “actively collaborate”, “we go not ego”, “we’re all in this together”, or “listen sincerely value the voices”, it’s actually in a team sense unpacking the success criteria for that norm to live... This year we have introduced a collaboration audit. ... Looking at the norms and saying perhaps this is the next step for development and working on. (Principal, School 2)*

This quote highlights the leaders' commitment to scaffolding successful collaboration within each hub. In addition to establishing clear organisational values and norms to support collaboration in the school, another link between the leaders and the teachers' implementation of innovative teaching is the responsibility the leaders feel to select the right people for the job. In the principal's words, “we have a very rigorous process” which ensures teachers are aware of the school's expectations and commitment to providing cutting edge learning opportunities to all students. The principal believes the leadership team's responsibility is “to pick good people in the selection process who support our school vision and beliefs”.

#### *4.5.3.2 Distributed approach to leadership*

The principals have intentionally sought to develop distributed leadership to grow capacity across the school. Both the school leaders and the teachers see benefits from the distributed leadership approach in their school.

*One AP is leading teacher effectiveness dialogues – the other AP is leading the builds. I am passionate about that too but he has very much shown an interest and a passion so I will provide that room for him to feel real ownership and mana around that. Same with the other AP. So my job now is with them is for them to see what I am doing with them and for them to do that with other staff. Which is distributed I guess (Principal, School 2).*

The teachers appreciate the benefit of having multiple leaders with ICT responsibilities able to share their knowledge. Once this information is accessed, the teachers feel able to share learnt knowledge with their colleagues and this knowledge helps their classroom practice. As one teacher explains,

*Yes not just one, lots of people who have little bits of knowledge tucked away who are willing to share with us. We can go to any of them and find out little bits and pieces and things we can use in our classroom. And then that filters down to us so once I've been to one and I have worked out something and I am talking to a teacher ... I can help them. So it filters down and sharing that knowledge with each other ... we are all working as a really big team and we are there to learn off each other and help each other as well. From them we are definitely we learn a lot and have opportunity to put the learning in to place in our classroom" (Teacher 2, School 1)*

The concept of multiple leaders builds capacity at both an individual and a school-wide level. These schools utilise the expertise and passions of teachers in ICT roles. The principals are skilled at selecting leaders in the school. The ICT lead teacher recognises the benefits of utilising the expertise and passions of teachers in ICT roles.

*Distributed leadership takes on all the talents you have in a school. The principal may not be as passionate about iPads as I am and using them and developing that pedagogy so he finds people to do those things and the distribution is great and we all get together and we've got a good leadership team (ICT Lead Teacher, School 1)*

*We have lots of people looking after different jobs within ICT, we have someone who goes to the ICT Cluster and brings back all the ideas. In that respect to get ideas from each other, to share ideas, to ask questions of each other, to challenge each other on different things. I think that the distributed leadership how it is working in our school at the moment helps with the planning for that good practice of ICT in the classroom (Teacher 2, School 1)*

To sum up, this section reported the linkages between the school leadership and the teachers' implementation of innovative ICT practices in their classrooms. The first theme, setting direction included an important link between the school leadership and teacher practice which was a dynamic school vision providing direction and coherence through both schools. The second theme, developing people was evidenced through the considerable commitment from both leadership and teachers to build

the professional capacity of all staff. The third theme, making the organisation work, illustrated the clear linkage between school leadership and teacher implementation of innovative ICT practices where systems and structures were put in place to ensure the school vision for learning was achieved.

#### **4.6 Conclusion**

This chapter has reported on the findings identifying how the leaders view their role in facilitating innovative ICT use for teaching and learning, how the teachers view the school culture and support for their ICT teaching and learning practices, and the linkages between the school leadership and the teachers' implementation of innovative ICT practices. Findings across the three research questions highlight the importance the school leaders' role in empowering teachers to facilitate the pedagogical shifts required to leverage technologies to transform their teaching and learning. The findings across the three research questions indicate the importance of: a positive school culture, building the capacity of people and the organisation, and collaboration to enhance teacher reflection and inquiry into practice.

The next chapter will discuss the findings in relation to theory, relevant literature and implications of the study.



## **CHAPTER FIVE: DISCUSSION AND CONCLUSION**

### ***5.1 Introduction***

The previous chapter reported on the findings of the research which investigated leadership views and practices in order to explore the extent to which distributed leadership was in place and considered to facilitate innovative ICT teaching and learning practices in two New Zealand primary schools. Three guiding questions were used to explore the views of leaders and teachers and to understand the linkages between leadership and innovative ICT teaching and learning practice.

This chapter begins with a discussion of each of the research questions and their key findings. Implications of the findings for practice, limitations of the study, and recommendations for further research follow next.

### ***5.2 Research question one***

*How do school principals, curriculum leaders and Board of Trustee members see their role in providing leadership and support to facilitate innovative ICT use in teaching and learning?*

This question explored the views held by principals, school curriculum leaders and board of trustee members with regard to the role they play in leading and facilitating innovative ICT use in teaching and learning. The findings indicated that a strong guiding vision for teaching and learning is essential to provide clear direction and cohesion within a school (see Section 4.3.2.1). Both school principals identified that student learning was at the core of their school priorities and believed their role was to monitor the quality of learning in their schools. All school leaders also recognise the value of ICT to enhance student learning in their schools and explicitly established ways to build teacher capacity to use ICT and provide the ICT resources. The importance of this finding is reinforced by Leithwood et al. (2004) who note that 'setting direction' is the area in which school leaders have the most impact.

The school leaders in this study believed that they had a key role in building teacher capacity to implement innovative ICT use in teaching and learning. A range of strategies were undertaken across both schools to do

this including; individual teacher development, professional learning communities and whole staff development (see section 4.3.1.1). Of these strategies, the school leaders viewed professional learning communities as most important to build teacher capacity in their schools. The literature supports professional learning as a crucial way of facilitating a shift in teachers' pedagogical beliefs and assisting them to use ICT innovatively in teaching and learning (Bolstad & Gilbert, 2006; Schrum & Levin, 2012). An important aspect of teacher development raised in the literature is school leaders developing collaborative learning communities to provide opportunities for teachers to engage in professional dialogue. This challenges their current thinking and enables them to explore innovative ways to use ICT to transform their teaching and learning programmes (Harris & Muijs, 2005; Schrum & Levin, 2012). Comments by the school leaders in this study reflect these ideas (see section 4.3.1.1).

It is noteworthy in this study that both principals were committed to a distributed approach to leadership to build professional capacity within their school. They described the necessity for an intentional, planned, and transparent approach to distributed leadership (see section 4.3.1.1). Document analysis of the schools' strategic planning and leadership framework (see Appendix I) revealed comprehensive strategic planning for leadership development in both schools. The two principals reported that they distributed leadership over multiple leaders and provided leadership development and ongoing leadership support for the leaders in formal positions within their school (see section 4.3.1.1). Importantly, the teachers who were interviewed endorsed the principals' views, as they felt included in their school strategic leadership planning and development as part of the principals and leaders' vision for leadership practice (see section 4.5.3.2). The principals' focus on their role in the successful implementation of distributed leadership is congruent with the work of Harris (2012) and others. Deliberate intentional distribution of leadership within a strategic coherent plan is recognised as the most effective form of implementation within a school (Gronn, 2003; Harris, 2012; Leithwood et al., 2007; Spillane, 2006).

Both principals also identified school culture as crucial to facilitating innovative ICT use in teaching and learning. Aspects of an innovative ICT school culture identified by the leaders in the study were; a shared living vision for learning, transparent communication, collaborative practices, and trusting relationships (see sections 4.3.1.2 and 4.3.2.4). This finding is consistent with others that emphasise that schools with innovative cultures are more likely to make the changes required to integrate ICT successfully into their teaching and learning programmes (Mohammadisadr, Siadat, Azizollah, & Ebrahim, 2012; Schrum & Levin, 2012; Tondeur, Devos, Van Houtte, van Braak, & Valcke, 2009). Additionally, the importance of organisational development in developing a positive school culture and ensuring school systems and structures are in place to support innovative ICT teaching and learning has been identified by others (MacNeil, Prater, & Busch, 2009; Robertson, 2007; Schrum & Levin, 2012; Seong & Ho, 2012; Zhu, 2013; see Chapter Two section 2.4.3).

In summary, the school leaders clearly articulated the importance of a vision focused on improving teaching and learning, building teacher capacity, their implementation of a distributed approach to leadership, and developing a positive school culture. They were committed to creating the necessary conditions to fully utilise the leadership potential in their schools. The findings indicate that the principals believed their role is to; set the direction for their school, build the capacity of both individuals and the organisation, and create a culture that supports development. These three key findings are central to both school improvement and change, (Leithwood et al., 2004; Levin & Schrum, 2012) and a distributed approach to leadership (Harris, 2012; Spillane, 2006).

### **5.3 Research question two**

*How do teachers view the school culture and support offered by the school in facilitating their ICT teaching and learning practices?*

This study also explored the views held by teachers in regard to the support they receive to facilitate their use of ICT in teaching and learning. The findings indicate that the teachers feel empowered when they have opportunities for professional learning and collaboration, and there is adequate resourcing of ICT. Teachers in this study considered

professional learning was a priority across both schools. Teacher inquiry as a central component of the professional learning offered in both schools contributed to teachers' sense of empowerment (see section 4.4.1). Individual teacher inquiries were tailored to the teacher's individual needs and enabled teachers to be actively involved and in charge of their own learning. In addition, school one took a whole school development approach. Teachers valued this approach and appreciated everyone being involved and able to support each other, offer feedback and celebrate successes together. All school one teachers commented on the relevance of the professional learning to their class programmes and their increased level of confidence in using ICT in their classrooms (see section 4.4.1). This focus on classroom change is supported in the literature by Murphy (2005), who highlights that a main effect of teacher professional development is improvement in teacher self ability and confidence. The findings in this study are also consistent with literature that identifies the importance of professional learning for teachers to enable them to undergo paradigm shifts in their teaching in order to fully optimise the benefits of technology (Bull & Gilbert, 2012; Schrum & Levin, 2012).

Teacher commentary indicated that both schools had developed learning communities where the teachers worked collaborative to find solutions in their teaching and learning. These learning communities were thought to utilise each teacher's experiences and expertise to help build capacity in all (see section 4.4.2). Document analysis revealed support for the establishment of learning communities in both schools (see Appendix I for eRoom documentation and Teacher Effectiveness Framework). In school one, the teachers in each of the seven eRooms participated in regular fortnightly meetings as part of their learning community activities. In school two, the Teacher Effectiveness Dialogue (TED) groups exemplified how leaders organised learning communities to develop individual teacher inquiries. Others have also highlighted the merits of professional learning communities to support teachers in making changes in their teaching practice (Bolstad & Gilbert, 2006; Lin & Bolstad, 2010). The use of learning communities as a supportive environment for teachers to explore various ICT initiatives has been identified by Bates, Manuel and

Oppenheim (2007) as an effective mechanism for teachers to accept innovation. This supports the finding from this study.

The teachers further reported appreciation for the ubiquitous access to technology in their class programmes (see section 4.4.3). In addition to ready access to the various technologies, the teachers in both schools were involved in identifying the technological needs in their classroom and future technology planning for the school (see section 4.4.3). Schrum and Levin (2012) stress the importance of including the teachers in all technology planning and support programmes for innovative ICT teaching and learning practices to flourish. By being involved in this process, teachers felt empowered in their practice to take the initiative and risks in adopting more innovative practices to support their students' learning and achievement.

In summary, the reported feelings of teacher empowerment in this study indicate an effective level of interaction between the school leaders and teachers in establishing professional learning. Teachers felt empowered, as they were fully involved in informing the direction and the content of the professional learning and were active participants in the learning process. This feedback loop between teachers and leaders resulted in leadership practice which was dynamic, collaborative and responsive and developed individual and organisational capacity. Others have affirmed the crucial value of dynamic leadership processes involving input from, and between, leaders and teachers in a distributed leadership implementation of innovative ICT practice (Bennett, Harvey, Wise and Woods, 2003; Spillane, 2006).

#### **5.4 Research question three**

*What are the links between school leadership practices and teacher implementation of innovative ICT practices?*

The third research question explored the links between leaders' and teachers' views on the kinds of leadership approaches and strategies that support innovative teaching and learning practices using ICT. This question is answered in two parts. The first part considers leader and teacher views as they relate to the qualities of effective school leadership

as discussed in Chapter Two (see section 2.3). The second part explores the extent to which a distributed perspective of effective leadership was evidenced. The findings are presented in these two parts because, as noted in Chapter 2 (section 2.3), the literature on effective leadership focuses on the tasks and functions of effective leadership but does not inform us about the 'who' and 'how' of leadership practice. Adopting a distributed leadership perspective extends our understanding of effective leadership to include the influence the teachers and the context has on the leadership practice produced in a school as discussed in Chapter Two (see section 2.4).

#### **5.4.1 Effective school leadership for ICT use in teaching and learning**

Three linkages between school leaders' and teachers' views and practices were highlighted as aspects of effective leadership that supported innovative ICT use within the study. These were setting direction, developing people and making the organisation work. These aspects were described in Chapter Two (see section 2.3) and are explained next.

Setting the school direction with a focus on enhancing learning was described as a priority by both leaders and teachers. The leaders saw raising student achievement as an important part of their role and considered that ICT could facilitate this process (see section 4.5.1.2). The teachers in the study also prioritised student achievement and described ICT as an effective tool for supporting student learning (see section 4.5.1.3). The importance of setting the school direction as seen in this study, is supported by Yee (2000) in her study where all the principals had an unwavering vision that ICT had the potential to improve student learning.

The value of developing people, where both leaders and teachers share a commitment to building teacher capacity for enhancing student achievement, was identified as a priority that was shared by teachers and leaders. The school leaders saw professional learning as a priority and aimed to develop teacher capacity by developing individual strengths, as evident in school one, or by tapping into the potential of individual teachers, as evident in school two. In school one, the leaders worked with student

data and teacher feedback to identify gaps in student achievement and used this as a focus for targeted professional learning. On the other hand, the principal in school two tapped into teachers' personal interests and passions, and co-constructed opportunities for their potential to be developed for the greater good of the school. In each case the leaders acknowledged that knowing their students and staff is essential. This acknowledgement is important as noted by Robinson, Hohepa and Lloyd (2009) on the importance of teacher development in raising student outcomes. The teachers in this study valued the professional learning opportunities and expressed increased confidence in their ability to use ICT as a result of the professional learning and collaboration in place within their school.

A vital link between leadership and innovative ICT use is the recognition these leaders have of the teachers' need for on-going opportunities to experiment, trial, reflect and review the use of ICT in their teaching and learning programmes. This was evidenced by the commitment of the leaders in school one to ensuring the systems and structures were put in place to support the eRooms development. In school two the teachers were given regular scheduled time for their TED group dialogues, which reflected the importance the leaders placed on them. The school leaders identified collaborative endeavours as a crucial mechanism to achieve optimal professional learning in their schools. The findings in this study emphasised the importance of professional dialogue, where rich discussions resulted through the interactions between the group members as they bounced ideas off each other and shared their experiences and knowledge. This finding is supported in the literature, which links the value of informal and formal professional dialogue with innovative schools (Dabner & Chowfin, 2011; Harris & Muijs, 2005). The teachers in this study acknowledged collaboration to be an effective way to learn because they were not just passively listening, but engaged and active in their learning. These findings align with the proposal by Levin and Schrum's (2012) that providing "ongoing, high quality, formal and informal professional development that is not one-size-fits-all" is a key task school leaders need to attend to in order to successfully use technology to

leverage school improvement (p. 181). The school leaders' use of collaborative action is supported in the literature by researchers such as Halverson (2007), who highlight the importance of collaborative action to create systemic change in schools. The school leaders supported the collaboration in their schools by developing an effective school culture that guided and motivated all school personnel.

Finally, both school leaders and teachers highlighted the commitment school leaders had to making the organisation work through establishing appropriate systems and structures. The findings indicated that the leaders were committed to providing formal opportunities for professional dialogue through collaborative practices. Collaborative practices, where individuals had opportunities to work together to discuss their inquiries, share experiences and identify next steps in their learning journeys, were reported as valuable by study participants (see section 4.5.3.1). For example, a major feature of school two was their modern learning environment and their 'pod' structure, which replaced the conventional single class organisation. The availability of the physical space and how teachers chose to organise their teaching spaces relied heavily on collaboration that was prioritised through the school systems and structures by the school leaders (see section 4.5.3).

The school leaders in this study also recognised that open transparent systems of communication and building trusting relationships with staff was essential for the efficient running of their schools. Both schools demonstrated effective systems of communication. This finding affirms Melitski, Gavin and Gavin's (2010) findings on the positive link between effective communication strategies and the successful adoption of technologies in organisations. The two principals saw the important role building trusting relationships played on effective collaboration. The principal in school one, for example, spoke about the importance of being a good listener, while the principal in school two spoke about the regular ongoing conversations she had with staff.

To this point, findings have been presented that demonstrate that leaders and teachers could identify, and considered that, the characteristics of



effective leadership were in place in their schools. Now let us consider the distinction between effective leadership and distributed leadership.

#### **5.4.2 Distributed leadership for innovative ICT use in teaching and learning**

A distributed approach to leadership extends our view of leadership beyond the characteristics of effective school leadership, as discussed in the previous section, to encompass the 'who' and 'how' of leadership in action. A distributed leadership perspective sees leadership as the interdependent and dynamic interaction between multiple leaders across the school. Gronn (2002) referred to this interaction as a synergy that potentially produces a greater collective outcome than could be achieved from the sum of the contributions from individual members. In this case leadership practice extends beyond formal roles and tasks, to all members of a school staff who share a sense of responsibility for enhancing student learning. Findings in this section relate to themes that ran across leader and teacher views of how to create conditions of such synergy in support of ICT innovation. The themes identified were:

- empowering people within a school culture of trust and strong collegial collaboration,
- building capacity through responding to teacher and student needs with targeted professional learning, and
- creating opportunities for collaboration through professional learning communities.

##### *5.4.2.1 Empowering people within a school culture of trust and strong collegial collaboration*

The study's findings indicate that school leaders and teachers recognised the importance of trusting relationships when teachers are seeking to make shifts in their pedagogical beliefs and use ICT innovatively in teaching and learning (see section 4.3.2.4 and 4.4.2). The findings in this study highlighted that school leaders have intentionally created a culture that views everyone as a learner. A trusting culture encourages teachers to take risks in their teaching to operate outside of their comfort zone. The

literature supports this finding and highlights the importance of social cohesion and a high degree of trust to maximise the interaction potential of a distributed approach to leadership (Harris & Muijs, 2005; Hopkins & Jackson, 2003). Attention to the culture, as emphasised in these findings, is supported in the literature where Harris (2009) identifies the importance of eliminating structural and cultural barriers in order to gain the positive benefits of a distributed approach to leadership and to enable collaboration.

A central idea in distributed leadership is recognising how leaders' motivation influence leadership tasks which Spillane et al. (2004) refers to as "task enactment". This was evidenced particularly in school two, where the leaders demonstrated they were committed to establishing a collaborative culture and sought input from each staff member to put in place a school system that would continue to facilitate collaboration. A distributed leadership perspective views leadership practice as arising through the interactions of leaders, followers and the situation (Spillane, 2006). Establishing a collaborative culture in school two, for example, was dependent on the interactions of all staff members, leaders and teachers, and the school systems to support the culture. Additionally in school two, the purpose of developing a new school culture (see section 4.3.2) shaped the distributed practice of leaders and teachers. These leaders held a "holistic view of distributed leadership" (Gronn, 2002), which reflects their understanding of the need to not only distribute leadership over multiple leaders, but also promote the conditions that allow for optimal collaboration. The resulting "synergies...generate[ing] further leadership capacity within the individual and the organisation" (Dinham, 2009, p. 141).

#### *5.4.2.2 Building capacity through responding to teacher and student needs with targeted professional learning*

The school leaders and teachers in this study recognised the importance of targeted professional learning and creating leadership opportunities to build teacher capacity to raise student achievement (see section 4.3.1.1). In school one, for example, the ICT lead teacher is passionate about innovative ICT use in teaching and learning. Her appointment to this role

was a strategic move by the principal who intended on selecting a passionate teacher ideally suited to motivating and inspiring other teachers in their use of ICT in their teaching and learning. This finding is supported in the literature that links distributed leadership with building capacity in schools (Harris & Muijs, 2005; Spillane, 2006) through implementing the “leader plus aspect” of distributed leadership (Spillane, 2006). Furthermore, the distribution of leadership has been found to be dependent on leaders’ ability to harness the human potential within their school (Harris & Muijs, 2005).

This study also highlighted the value of targeted professional learning implemented within both schools. Both leaders and teachers affirmed the mutual and reciprocal influence between the school leaders and teachers in using student data to develop targeted professional learning for teachers and students (see section 4.3.1.1). Such reciprocal influence is a core aspect of distributed leadership (Harris, 2012; Spillane et al., 2004) as it “puts leadership practice centre stage rather than the principal; it allows for others to be key players in leadership” (Spillane, 2006, p.25).

#### *5.4.2.3 Creating opportunities for collaboration through professional learning communities*

A key finding in this study was the use of collaboration to extend professional learning and provide teachers with on-going development to use technology in pedagogically appropriate ways. This study found that establishing learning communities (see section 4.5.3.2) provided the context and purpose for development. Teachers were able to move between the role of a learner, and that of a teacher, depending on the situation and level of expertise and experience. This finding typifies a distributed leadership perspective where the roles of leader and follower are blurred and not fixed (Gronn, 2003; Timperley, 2005), and they move between professional and learner roles as and when the need arise. This finding is supported by Morrissey (2000), who asserts that the extent to which leadership is distributed impacts on the effectiveness of these learning communities. Furthermore, collaboration within these learning communities help to “pool the collected knowledge, expertise, and

capacities of the teachers” thus creating “collaborated distribution” of leadership (Spillane, 2006, p.60) which promotes teacher development.

In summary, this study highlights three key conditions school leaders need to attend to in order to implement a distributed approach to leadership in their schools. These conditions include; creating a school culture to promote quality professional interactions between staff, building teacher and leadership capacity to optimise professional dialogue, and providing formalised opportunities and support for collaboration. School leaders’ commitment to implementing these key conditions will nurture and enhance the dynamic synergy required to produce quality leadership practice that will facilitate innovative ICT use in teaching and learning. This synergy is the core of distributed leadership as illustrated in Figure 5.1 below.

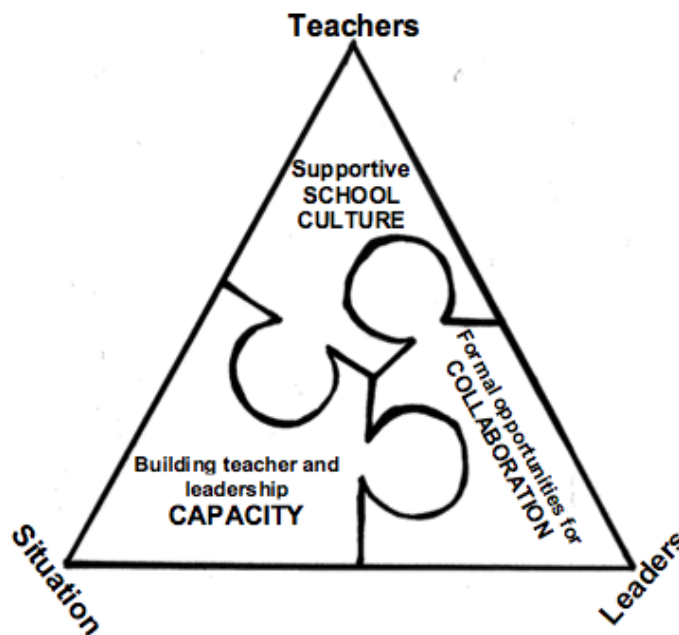


Figure 5.1 Key conditions for distributed leadership to empower teachers to innovatively use ICT in teaching and learning

Figure 5.1 illustrates the conditions required to foster teacher empowerment for innovative ICT use in teaching and learning. Each of these key conditions are aspects of effective leadership, however to facilitate innovative ICT use in teaching and learning all three conditions not only need to be in place, they also need to be working in harmony towards the same goal (Schrum & Levin, 2012). This requires a distributed approach to leadership.

This small study has shown that utilising all the capacities and potential within the school can enable multiple members of the school community to exercise leadership to achieve all three key conditions of culture, capacity building and collaboration simultaneously. Distributed leadership can develop a school culture that fosters innovation, builds teacher and leadership capacity, and provides formal opportunities for collaboration.

### ***5.5 The value of the distributed leadership framework***

This study started out with the intention to explore the nature of distributed leadership and how this notion of leadership facilitates innovative ICT use in teaching and learning within a New Zealand primary school context. It adopted Spillane's distributed leadership framework to explore leadership practice in action in the study schools, and to understand how the conditions to facilitate innovative ICT use in teaching and learning might be created. Spillane et al.'s (2004) distributed leadership framework enabled the three interdependent elements that shape and influence leadership practice - the leaders, followers and the situation (including the systems and structures and artifacts used in leadership practices within the school) - to be examined to identify conditions for optimal leadership practice. With this framework, leadership practice was explored as a living, dynamic process, responsive to the interdependent nature of each of the elements - the school leaders, the teachers and the context in which they were working. The school leaders in this study were themselves committed to a distributed leadership approach. This study defines distributed leadership as the leadership practice produced through reciprocal dynamic interaction between school leaders and teachers to develop a collective responsibility for raising student achievement throughout the school.

The study revealed three conditions the school leaders had created for quality interactions to occur within their schools; establishing a positive school culture, building teacher and leadership capacity, and providing formalised opportunities for collaboration to occur.

The first condition is a positive school culture built on strong collegial relationships with high levels of trust. In order to gain full benefit of a

distributed leadership approach in a primary school, school personnel, leaders, teachers and support staff need to feel able to move freely between the roles of leader and follower depending on the context of the professional task. This fluid movement enables the quality interactions that are vital to a distributed leadership approach.

The second condition is a strong focus on professional development. The school leaders sought to build staff and organisational capacity through the delivery of school wide and individual professional learning programmes that were clearly linked to school vision and strategic planning. All staff within this study were active life long learners who embraced on going learning and fully utilised the benefits of technology.

The third condition is to provide formalised opportunities for school personnel to collaborate. The school leaders saw the advantages of collaborative practices and actively planned for collaboration within the school systems and structures. The school leaders actively addressed each of the three conditions and as a result the teachers felt empowered to experiment with various ICT, seek feedback on their teaching practices, reflect on their teaching, challenge their existing teaching and learning approaches, and consequently innovatively use ICT in their teaching and learning.

Overall, this study illustrates the value of adopting Spillane's et al. (2004)'s distributed leadership framework to understand and frame the ways a distributed approach to leadership can be adopted to facilitate innovative ICT use in teaching and learning within a New Zealand primary school context.

### ***5.6 Implications for practice***

The findings have five implications for school leaders', principals' and teachers' practice.

1. Principals will need to develop an understanding of the distributed leadership approach, as the success of the approach to leadership is dependent on careful planning of leadership activities and aligning these with the school's vision and purpose. Principals need to develop an understanding of the three key conditions, as

mentioned in section 5.4.2, required for effective distributed leadership. These include; empowering people within a school culture of trust and strong collegial collaboration, building capacity through responding to teacher and student needs with targeted professional learning, and creating opportunities for collaboration through professional learning communities. Principals need to investigate ways to establish these conditions in their school context. Principals need to explicitly share the process and goals of a distributed approach to leadership with all staff in order to enhance staff acceptance and commitment to the model.

2. School leaders and teachers will need to intentionally seek to be life long learners and model the dispositions of a 21<sup>st</sup> century learner. This openness to new learning will enable the leaders to support teachers to reach their learning goals, and this will model for the teachers how they can support the students to achieve their learning goals. Leaders adopting a positive attitude to learning and seeing themselves as a learner, help to facilitate an empowering culture that draws on the strengths and talents of each member for the good of the whole school.
3. Principals will need to develop awareness of the big picture for education and the role technology can play. Technology needs to be viewed as a natural part of the students' world and school experiences need to reflect the students' experiences of technology outside of school.
4. Principals will need to build leadership capacity throughout the school through providing leadership professional learning, offering opportunities for leadership, having open transparent communication, developing a decision making model which clarifies school expectations, and developing a culture of collective responsibility for student learning.
5. Principals are encouraged to establish learning communities in their school as part of professional learning programme. Collaborative learning communities build capacity through providing opportunities

for teachers to review and reflect on their professional practice. Learning communities have the potential to foster rich interaction between teachers, which allows for leaders to emerge depending on the skill or experience required during the discussion. However, a positive collaborative environment needs to be nurtured in schools. This means leaders need to plan to provide opportunities for teachers to work collaboratively in learning communities to maximise the benefits of a distributed approach to leadership to building school capacity.

### ***5.7 Limitations of the study***

This section identifies two limitations of this study and the steps taken to address them.

Firstly, the findings from this qualitative case study is limited in terms of its generalisability to other educational contexts. This case study context is limited to the investigation of leadership practices facilitating innovative ICT use within two high decile urban primary schools in New Zealand. However, a detailed description of the school context, the participants, the research design and the findings have been included to provide readers with the ability to make naturalistic generalisations from the study context and judge the transferability of the findings into the readers context (Lincoln & Guba, 1985; Merriam, 1998; Stake, 1995).

Secondly, the research findings are limited to the participants self reported answers during the interviews. To help mitigate response bias, the researcher provided each participant with a comprehensive background on the study, interviewed multiple participants in each school, and included different forms of questions in the interview schedule. Data triangulation, as well as cross case and within case analysis of the different forms of data collected, is hoped to go some way towards reducing participant response bias.

### ***5.8 Recommendations for future research***

This study explored the nature of distributed leadership and how it can facilitate innovative ICT use in teaching and learning practice in two



primary schools. A number of potential research areas have been identified that could be further explored.

Firstly, due to time limitations, the study focused on the views of the school leaders and teachers. Future research could include student voice and explore how students can play a role in contributing to distributed leadership practice within the school. This would be important to explore, given that the goal of distributed leadership practice is to raise student achievement within an innovative ICT use in teaching and learning context.

Secondly, future research could explore the effect of different school contexts on distributed leadership to facilitate ICT use in teaching and learning. Both schools in this study were large high decile urban schools. A finding in this study was the importance school leaders placed on regular classroom observations and professional dialogues with teachers to maximise professional learning. This could require additional staffing which smaller schools may find a barrier. Future research could explore whether the nature of the school context enabled or constrained the ability to adopt a distributive approach to leadership in a school. As part of examining the school context, it would be interesting to explore whether the more open modern learning environments are more conducive to supporting collaborative practices than the traditional single cell classroom school environment.

Finally, a distributed approach to leadership has been valued in helping schools sustain change and innovation in ICT teaching and learning practice. Future research could adopt a longitudinal study of the implementation and impact of a distributed leadership approach in a school over time. Such a longitudinal study can address issues such as how systems in schools can be sustained, the impact of staff turnover, and the level of teacher adoption of innovative ICT use over time.

These recommendations for future research can enhance deeper understandings of the theory and practice of adopting a distributed leadership model where the aim is to facilitate innovative ICT use in teaching and learning to raise students' learning and achievement.

## **5.9 Conclusion**

This study set out to investigate the nature of distributed leadership and how it facilitates innovative ICT use in teaching and learning within two New Zealand primary schools. The study affirms the value of adopting a distributed leadership approach to facilitate innovative ICT use in teaching and learning. This study reveals the need for school leaders to intentionally plan for their implementation of a distributed approach to leadership. This study also identifies the necessary conditions within their schools to empower teachers. These conditions include establishing; an effective school culture, capacity building activities, and formalised opportunities to collaborate. The combination of these conditions will empower teachers to deliver innovative ICT use in their teaching and learning programmes.

As I return to my school, this study will inform my personal leadership practice through a deeper understanding of the distributed leadership approach and the importance of establishing the necessary conditions; culture, capacity-building and collaboration, in order to lead innovative ICT use in teaching and learning. This leadership approach will develop the capacity of individuals and the school as a whole to be responsive and sustain the changes required to deliver a 21<sup>st</sup> century curriculum.

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## Appendices

### ***Appendix A: Letters of Informed Consent to School***

Principal

School Address

11<sup>th</sup> July 2013

Dear XXXX

#### **Re: Research on Leadership and Learning for the 21<sup>st</sup> Century**

Thank you for taking the time to consider my proposed research project. This letter provides a formal offer to participate in a small exploratory research to understand the link between leadership and delivery of an innovative 21<sup>st</sup> century curriculum. I am seeking to undertake this research study in order to complete my Masters in Educational Leadership through the University of Waikato.

The central research question I am asking is, to what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts? The research will explore this question from the perspective of the school leadership team, BOT and teachers. Research is telling us that despite national and local commitment to resourcing infrastructure and professional capability, technology is having little impact on 21<sup>st</sup> century teaching and learning. The findings from this study will contribute towards a better understanding of the type of leadership and subsequent school culture that will facilitate implementation of 21<sup>st</sup> century pedagogies. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. The data will also be used in conference presentations or publications in educational journals. This research has received approval from the Faculty of Education Research Ethics Committee at the University of Waikato. (Date received: 02.07.2013, Approval number: EDU061/13)

Involvement in this study is voluntary and all participants will receive detailed information about the study and individual consent will be sought. I have attached copies of these documents for your information.

The study is expected to take place in August 2013. During this period, I would like to:

conduct an interview with yourself (no more than 60 minutes). This interview will be audio taped and I will take notes. I would like to collect any documentation that supports your leadership of ICT in teaching and learning.

conduct a 30 minute interview with a board of trustees' member. This interview will be audio taped and I will take notes. I would like to collect any documentation that supports their leadership of ICT in teaching and learning.

conduct an interview with deputy principal or assistant principal and lead teacher in ICT (no more than 60 minutes). These interviews will be audio taped and I will take notes. I would like to collect any documentation that supports their leadership of ICT in teaching and learning.

conduct an interview with two teachers (no more than 120 minutes each). These interviews will be audio taped and I will take notes. I would like to collect any documentation that supports their use of ICT in teaching and learning. I would like to collect any student work that demonstrates effective use of ICT in their learning.

Data will only be collected from the participants who have given permission to participate in the research. All participants can decline to participate in any part or all of data collection, and withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013. You may similarly decline your school participation in part or all of the research, or withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.

Pseudonyms will be given to the participants from whom data are collected, otherwise, the school, teachers, and board member can nominate a pseudonym to protect their identity. In any reporting of the data, all efforts will be made to maintain the confidentiality of all participants. Where teacher (and perhaps student) work are used in reporting the study any identifying information will be removed.

A systematic process of gathering and storing data will be adhered to throughout the entire research process. This will ensure the confidentiality of data is maintained. At the conclusion of the interviews, the data will be backed onto a laptop, which has a secure password. All non-identifying data used for publication will be surely kept for at least five years, consistent with agreements made under section 9(4)(a) of the University's Ethical Conduct in Human Research and Related Activities Regulations 2008.

Any data collected from the teachers and board member will take place at school or at a time and place convenient to them.

All participants will receive a copy of their interview transcript for confirmation that it fairly reflects their views. The school will be provided with the internet link to the University of Waikato's Research Commons Database, where the thesis will be lodged. The school will receive a copy of any publication or conference presentations pertaining to the reporting of the study.

I am excited about the potential of the study on Leadership and Learning for the 21<sup>st</sup> Century in the New Zealand context and hope that you will agree for your school to be involved in this research.

If you are willing to have your school involved, please sign the attached consent form and return it via the self-addressed and stamped envelope supplied. If you need any additional details, please contact Debra White the researcher of the study. [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz), Tel: 07 824 3750. For further information you may contact my supervisor Dr Elaine Khoo at the Wilf Malcolm Institute of Educational Research (WMIER), University of Waikato. (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz), Tel: 07 8384466 extn 6260).

Thank you.

Yours in Education

Debra A White  
RESEARCHER

**Research Consent Form**

**XXXX SCHOOL: XXXX (PRINCIPAL)**

Research on Leadership and Learning for the 21<sup>st</sup> Century

I have read the attached letter of information.

I understand that:

1. XXXX School's participation in the project is voluntary.
2. I have the right to withdraw XXXX School from the research at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.
3. Informed consent will be gained from all participants before any data are collected from them.
4. Data may be collected from you in the ways specified in the accompanying letter. This data will be kept confidential and be securely stored.
5. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. Some of the work may also be presented at education conferences, and in education journals.
6. All data will be reported anonymously so that confidentiality of the participants and school is maintained.
7. I can direct any questions to Debra White (E-mail: [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750).
8. For any unresolved issues, I can contact Dr. Elaine Khoo, at the University of Waikato (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz) Tel: 07 8384466 extn 6260).

I am willing for XXXX School to be involved in the project under the conditions set out above.

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please return to Debra White via the self-addressed and stamped envelope supplied, or scan and email to [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz)

## ***Appendix B: Letters of Informed Consent to Member of the Board of Trustees***

12 July 2013

Dear [Board member's name]

Re: Research on Leadership and Learning for the 21<sup>st</sup> Century

My name is Debra White and I am a primary school principal in the Waikato. I am seeking to undertake a research study in order to complete my Masters in Educational Leadership through the University of Waikato. The school's principal, has consented to be part of the research project.

I am writing to invite you to participate in a small exploratory research to understand the link between leadership and delivery of an innovative 21<sup>st</sup> century curriculum. The central research question I am asking is, to what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts? This research will explore this question from the perspectives of the school leadership team, BOT, and teachers. Research is telling us that despite national and local commitment to resourcing infrastructure and professional capability, technology is having little impact on 21<sup>st</sup> century teaching and learning. The findings from this study will contribute towards a better understanding of the type of leadership and subsequent school culture that will facilitate implementation of 21<sup>st</sup> century pedagogies. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. The data will also be used in conference presentations or publications in educational journals.

This research has received approval from the Faculty of Education Research Ethics Committee at the University of Waikato. (Date received: 02.07.2013, Approval number: EDU061/13). The study is expected to take place in August 2013. During this period, I would like to conduct a 30 minute semi-structured interview with you at school. I will audio record the sessions and take notes. I would like to collect any documentation that supports your leadership of ICT in teaching and learning.

Data will only be collected from you if you consent to participate in the research. You can decline to participate in any part or all of data collection, and withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.

Pseudonyms will be given to all participants from whom data are collected. Otherwise, you can nominate a pseudonym to protect your identity. In any reporting of the data, all efforts will be made to maintain the confidentiality of all participants.

A systematic process of gathering and storing data will be adhered to throughout the entire research process. This will ensure the confidentiality of data is maintained. At the conclusion of the interviews the data will be backed onto a laptop, which has a secured password. All non-identifying data used for publication will be surely kept for at least five years, consistent with agreements made under section 9(4)(a) of the University's Ethical Conduct in Human Research and Related Activities Regulations 2008.

Any data collected from you will take place at school at a time convenient to you. You will receive a copy of your transcript of your interview for confirmation that it fairly reflects your views. The school will be provided with the internet link to the University of Waikato's Research Commons Database, where the thesis will be lodged. The school will receive a copy of any publication or conference presentations pertaining to the reporting of the study.

I am excited about the potential of the study on Leadership and Learning for the 21<sup>st</sup> Century in the New Zealand context and hope that you will agree to be involved in this research.

If you are willing to be involved, please sign the attached consent form and return it via the self-addressed and stamped envelope supplied. If you need any additional details, please contact Debra White the researcher of the study. [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750. For further information you may contact my supervisor Dr Elaine Khoo at the Wilf Malcolm Institute of Educational Research (WMIER), University of Waikato. (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz), Tel: 07 8384466 extn 6260).

Thank you.

Yours in Education

Debra A White

RESEARCHER



**SAMPLE: Research Consent Form [Board of Trustees Member]**

Research on Leadership and Learning for the 21<sup>st</sup> Century

I have read the attached letter of information.

I understand that:

1. My participation in the project is voluntary.
2. I have the right to withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.
3. Data may be collected from myself in the ways specified in the accompanying letter. This data will be kept confidential and be securely stored.
4. The data collected will be used in a thesis to complete a Masters in Educational Leadership degree. Some of the work may also be presented at education conferences, and in education journals.
5. All data will be reported anonymously so that confidentiality of the participants and school is maintained.
6. I can direct any questions to Debra White (E-mail: [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750).
7. For any unresolved issues, I can contact Dr. Elaine Khoo, at the University of Waikato (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz) Tel: 07 8384466 extn 6260).

I am willing to be involved in the project under the conditions set out above.

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please return to Debra White via the self-addressed and stamped envelope supplied, or email to [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz)

## ***Appendix C: Letters of Informed Consent to Principal / Deputy Principal / Assistant Principal and Lead Teacher ICT***

12 July 2013

Dear [Staff member's name]

Re: Research on Leadership and Learning for the 21<sup>st</sup> Century

I am writing to invite you to participate in a small exploratory research to understand the link between leadership and delivery of an innovative 21<sup>st</sup> century curriculum. I am seeking to undertake this research study in order to complete my Masters in Educational Leadership through the University of Waikato.

The central research question I am asking is, to what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts?

This research will explore this question from the perspectives of the school leadership team, BOT and teachers. Research is telling us that despite national and local commitment to resourcing infrastructure and professional capability, technology is having little impact on 21<sup>st</sup> century teaching and learning. The findings from this study will contribute towards a better understanding of the type of leadership and subsequent school culture that will facilitate implementation of 21<sup>st</sup> century pedagogies. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. The data will also be used in conference presentations or publications in educational journals.

This research has received approval from the Faculty of Education Research Ethics Committee at the University of Waikato. (Date received: 02.07.2013, Approval number: EDU061/13). The study is expected to take place in August 2013. During this period, I would like to conduct a 45-60 minute semi-structured interview with you at school. I will audio record the sessions and take notes. I would like to collect any documentation that supports your leadership of ICT in teaching and learning.

Data will only be collected from you if you consent to participate in the research. You can decline to participate in any part or all of data collection, and withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.

Pseudonyms will be given to all participants from whom data are collected. Otherwise, you can nominate a pseudonym to protect your identity. In any reporting of the data, all efforts will be made to maintain the confidentiality of all participants.

A systematic process of gathering and storing data will be adhered to throughout the entire research process. This will ensure the confidentiality of data is maintained. At the conclusion of the interview the data will be

backed onto a laptop, which has a secured password. All non-identifying data used for publication will be surely kept for at least five years, consistent with agreements made under section 9(4)(a) of the University's Ethical Conduct in Human Research and Related Activities Regulations 2008.

Any data collected from you will take place at school at a time convenient to you. You will receive a copy of your transcript of your interview for confirmation that it fairly reflects your views. The school will be provided with the internet link to the University of Waikato's Research Commons Database, where the thesis will be lodged. The school will receive a copy of any publication or conference presentations pertaining to the reporting of the study.

I am excited about the potential of the study on Leadership and Learning for the 21<sup>st</sup> Century in the New Zealand context and hope that you will agree to be involved in this research.

If you are willing to be involved, please sign the attached consent form and return it via the self-addressed and stamped envelope supplied. If you need any additional details, please contact Debra White the researcher of the study at [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750. For further information you may contact my supervisor Dr Elaine Khoo at the Wilf Malcolm Institute of Educational Research (WMIER) (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz), Tel: 07 8384466 extn 6260).

Yours in Education

Debra A White  
RESEARCHER

**SAMPLE: Research Consent Form [PRINCIPAL/ DEPUTY PRINCIPAL/ASSISTANT PRINCIPAL/CURRICULUM LEADER]**

Research on Leadership and Learning for the 21<sup>st</sup> Century

I have read the attached letter of information.

I understand that:

1. My participation in the project is voluntary.
2. I have the right to withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.
3. Data may be collected from myself in the ways specified in the accompanying letter. This data will be kept confidential and be securely stored.
4. The data collected will be used in a thesis to complete a Masters in Educational Leadership degree. Some of the work may also be presented at education conferences, and in education journals.
5. All data will be reported anonymously so that confidentiality of the participants and school is maintained.
6. I can direct any questions to Debra White (E-mail: [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750).
7. For any unresolved issues, I can contact Dr. Elaine Khoo, at the University of Waikato (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz) Tel: 07 8384466 extn 6260).

I am willing to be involved in the project under the conditions set out above.

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please return to Debra White via the self-addressed and stamped envelope supplied, or email to [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz).

## ***Appendix D: Letters of Informed Consent to Teachers***

12 July 2013

Dear [Staff member's name]

**Re: Research on Leadership and Learning for the 21<sup>st</sup> Century**

I am writing to invite you to participate in a small exploratory research to understand the link between leadership and delivery of an innovative 21<sup>st</sup> century curriculum. I am seeking to undertake this research study in order to complete my Masters in Educational Leadership through the University of Waikato.

The central research question I am asking is, to what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts? This research will explore this question from the perspectives of the school leadership team, BOT and teachers. Research is telling us that despite national and local commitment to resourcing infrastructure and professional capability, technology is having little impact on 21<sup>st</sup> century teaching and learning. The findings from this study will contribute towards a better understanding of the type of leadership and subsequent school culture that will facilitate implementation of 21<sup>st</sup> century pedagogies. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. The data will also be used in conference presentations or publications in educational journals. This research has received approval from the Faculty of Education Research Ethics Committee at the University of Waikato. (Date received: 02.07.2013, Approval number: EDU061/13). The study is expected to take place during August.

During this period, I would like to conduct a 90-120 minute semi-structured interview with you at school. I will audio record the sessions and take notes. I would also like to collect documentation that supports your use of ICT in your teaching and learning. For example: copies of your planning, student work, team meeting minutes, school documentation.

Data will only be collected from participants who have granted permission to participate in the research. You can decline to participate in any part or all of data collection, and withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.

Pseudonyms will be given to all participants from whom data are collected. Otherwise, you can nominate a pseudonym to protect your and their identity. In any reporting of the data, all efforts will be made to maintain the confidentiality of all participants. Where your work (and student's work) are used in reporting the study, any identifying information will be removed.

A systematic process of gathering and storing data will be adhered to throughout the entire research process. This will ensure the confidentiality of data is maintained. At the conclusion of the interviews, the data will be backed onto a laptop, which has a secured password. All non-identifying data used for publication will be surely kept for at least five years, consistent with agreements made under section 9(4)(a) of the University's Ethical Conduct in Human Research and Related Activities Regulations 2008.

Any data collected from you will take place at school at a time convenient to you.

You will receive a copy of your transcript of your interview for confirmation that it fairly reflects your views. The school will be provided with the internet link to the University of Waikato's Research Commons Database, where the thesis will be lodged. The school will receive a copy of any publication or conference presentations pertaining to the reporting of the study.

I am excited about the potential of the study on Leadership and Learning for the 21<sup>st</sup> Century in the New Zealand context and hope that you will agree to be involved in this research.

If you are willing to be involved, please sign the attached consent form and return it via the self-addressed and stamped envelope supplied. If you need any additional details, please contact Debra White the researcher of the study. [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750. For further information you may contact my supervisor Dr Elaine Khoo at the Wilf Malcolm Institute of Educational Research (WMIER), University of Waikato. (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz), Tel: 07 8384466 extn 6260).

Thank you.

Yours in Education

Debra A White  
RESEARCHER

## **SAMPLE: Research Consent Form [TEACHER]**

### **Research on Leadership and Learning for the 21<sup>st</sup> Century**

I have read the attached letter of information.

I understand that:

1. My participation in the project is voluntary.
2. I have the right to withdraw from the study at any time. Data may be withdrawn up until the commencement of data analysis in late August 2013.
3. Data may be collected in the ways specified in the accompanying letter. This data will be kept confidential and be securely stored.
4. The data obtained will be used in a thesis to complete a Masters in Educational Leadership degree. Some of the work may also be presented at education conferences, and in education journals.
5. All data will be reported anonymously so that confidentiality of the participants and school is maintained.
6. I can direct any questions to Debra White (E-mail: [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz) Tel: 07 824 3750).
7. For any unresolved issues, I can contact Dr. Elaine Khoo, at the University of Waikato (E-mail: [ekhoo@waikato.ac.nz](mailto:ekhoo@waikato.ac.nz) Tel: 07 8384466 extn 6260).

I am willing to be involved in the project under the conditions set out above.

Name: \_\_\_\_\_

Signed: \_\_\_\_\_

Date: \_\_\_\_\_

Please return to Debra White via the self-addressed and stamped envelope supplied, or email to [debra.white@xtra.co.nz](mailto:debra.white@xtra.co.nz).

## **Appendix E: Interview Schedule: Principal**

Title: Leadership and Learning for the 21<sup>st</sup> Century

*Research Question*

*To what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts?*

Interview Questions:

Please share with me your understanding of school leadership in the 21<sup>st</sup> century?

What do you see as your most crucial role in leadership?

What determines leadership potential in your school? [How do you select your leaders?]

What guides leadership in this school? [Shared vision – ask how has this been developed and how is this articulated?]

What school systems are in place to support leadership in your school? [School vision, charter, scheduled staff meetings, leadership meetings, team meetings, release time for leaders, networks –school clusters, environment meeting places,]

What supports/ guides your leadership? [Artefacts? Student data, observations, innovative ideas, sustaining good practice, school charter]

How would you describe 21<sup>st</sup> century teaching and learning? What do you think are the main changes related to teaching and learning in your school in recent years? Can you tell me your views about the value of technology in teaching and learning. [Probe: how is technology used in your school to improve student outcomes? Ask for examples].

a). How is your school focused on teaching and learning?

b). How does your school culture support 21<sup>st</sup> century teaching and learning? [Please provide specific examples]

c). What factors do you believe are important to transform teaching and learning in your school?



The literature tells us that school leaders play a significant role in the implementation of ICT in their schools. How do you develop and sustain ICT integration within your school? How do you foster collaboration between your teachers?

How skilled are you with the use of various ICT?

How do you plan for ICT integration in your school? [Probe: strategic planning, considerations/ consultation process if any, Ministry initiatives etc.]

## ***Appendix F: Interview Schedule: Assistant Principal / ICT Lead Teacher***

Title: Leadership and Learning for the 21<sup>st</sup> Century

### *Research Question*

*To what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts?*

### Interview Questions:

Please share with me your understanding of school leadership in the 21<sup>st</sup> century?

What do you see as your most crucial role in leadership?

What school systems are in place to support your leadership in your school? [School vision, charter, scheduled staff meetings, leadership meetings, team meetings, release time for leaders, networks –school clusters, environment meeting places,]

What guides your leadership? [Artefacts? Student data, observations, innovative ideas, sustaining good practice, school charter]

How would you describe 21<sup>st</sup> century teaching and learning? What do you think are the main changes related to teaching and learning in your school in recent years?

Can you tell me your views about the value of technology in teaching and learning. [Probe: how is technology used in your school to improve student outcomes? Ask for examples].

- a). How is your school focused on teaching and learning?
- b). How does your school culture support 21<sup>st</sup> century teaching and learning? [Please provide specific examples]
- c). What factors do you believe are important to transform teaching and learning in your school?

The literature tells us that school leaders play a significant role in the implementation of ICT in their schools. How do you develop and sustain ICT integration within your school? [How do you foster collaboration between your teachers?

How skilled are you with the use of various ICT?

## ***Appendix G: Interview Schedule: Board of Trustees member***

Title: Leadership and Learning for the 21<sup>st</sup> Century

### *Research Question:*

To what extent does distributed leadership facilitate transformational ICT teaching and learning practices in New Zealand primary school contexts?

### *Interview Questions:*

What is your understanding of 21<sup>st</sup> century education?

How do you see schools changing to meet the demands of 21<sup>st</sup> century education?

How does the Board of Trustees support 21<sup>st</sup> century education?

What is the vision for this school? What future developments are planned to cater to the needs of the students in this school?

What influences Board of Trustees strategic planning and resourcing decisions in terms of ICT supported teaching and learning practices in the school?

How is the Board of Trustees kept informed /up to date with current thinking on teaching and learning? Changes in education?

How well is your school resourced to deliver 21<sup>st</sup> century education?

What future priorities does your board have for the school?

## ***Appendix H: Interview Schedule: Teachers***

Title: Leadership and Learning for the 21<sup>st</sup> Century

Research Question:

To what extent does distributed leadership facilitate innovative ICT teaching and learning practices in New Zealand primary school contexts?

Interview Questions:

Please share with me your beliefs about teaching and learning?

What do you think are the main changes related to teaching and learning in recent years? [Probe: What are your preferred teaching and learning methods?]

How do you see the dynamics of learning changing through the use of technology in terms of a) your role as teacher and b) students role as learners? Ask for examples.

How did you become interested in using ICTs in your teaching and learning

programmes?

How would you describe the leadership in this school in facilitating your ICT use? [Probe: How supportive is the school leadership in encouraging your access, adoption and experimentation of ICTs in your practice? What kinds of support are available in the school /Professional sharing of ideas/innovative practices, if yes, how often or through what forums/channels]

What influences your use of ICT in your teaching and learning programmes?

How do you know how to use ICT in your teaching and learning programmes?

How are your successes in ICT use recognised in this school?

What is the school's expectation of ICT use in your teaching programmes? How is this communicated? What support is given to meet school expectations?

How have you developed your use of ICT in your teaching and learning programmes?

How are professional development opportunities organized in this school?

What would enhance your use of ICT in teaching and learning?

How are your needs as a teacher communicated in the school?

How open is the school culture towards receiving feedback from staff and students?

What does ICT bring to the learning opportunities you can deliver now, that would have been difficult before? (Probe: Ask for examples of student learning.)

How do you know when you have used ICT effectively?

What are some other ways you would like to explore/ extend your technology

use in teaching and learning?

Is there anything else you would like to add to what we have discussed so far?

## ***Appendix I: List of Documents***

### List of Documents collected for analysis

#### *Case Study One:*

The Education Review Office (ERO) Evaluation

School Strategic Plan 2013 -2017

School 2013 Annual Plan

School Mission Statement

Leadership Framework document

Team leader meeting agendas and minutes: 06/08/13 and 13/08/13

iPad e-room introductory letter: 13.12.12

e-Rooms Inquiry template

Teaching as Inquiry form for teacher two: 28/05/13

e-Room Inquiry form for teacher one : 14/05/13

e-Room Inquiry form for teacher two: 20/05/13

e-Room meeting agendas 28/05/13 and 25/06/13

Weekly writing plan – teacher one: Week 7 Term 1 2013, and Week 3 Term 3 2013

Technology weekly plan from teacher one:

Writing samples of student work related to planning

#### *Case Study Two:*

Education Review Report 27/06/2012

Strategic Goals 2011 – 2015

2013 Annual Strategic Plan – Action and Review Overview

School Curriculum Document

Vision and Learning Framework

Professional learning Overview 2013

Professional Inquiry Documentation

Teacher Effectiveness Framework

Board of Trustees Minutes: 29/01/13

Principals Report to BOT: 19/02/13

Hub Planning – Timetables, eLearning, Breakthrough, Literacy, Numeracy, PE, Term Overviews, Leadership Opportunities.

## Appendix J: Ethical Approval (EDU061/13)

**Dean's Office**  
Faculty of Education  
*Te Kura Toi Tangata*  
The University of Waikato  
Private Bag 3105  
Hamilton, New Zealand

Phone +64 7 838 4500  
[www.waikato.ac.nz](http://www.waikato.ac.nz)



THE UNIVERSITY OF  
**WAIKATO**  
*Te Whare Wānanga o Waikato*

### MEMORANDUM

**To:** Debra White

**cc:** Dr Elaine Khoo  
Associate Professor Garry Falloon

**From:** Associate Professor Linda Mitchell  
Chairperson, Research Ethics Committee

**Date:** 2 July 2013

**Subject:** Supervised Postgraduate Research – Application for Ethical Approval (EDU061/13)

---

Thank you for submitting the amendments to your application for ethical approval for the research project:

#### **Leadership and learning for the 21<sup>st</sup> Century**

I am pleased to advise that your application has received ethical approval.

Please note that researchers are asked to consult with the Faculty's Research Ethics Committee in the first instance if any changes to the approved research design are proposed.

The Committee wishes you all the best with your research.

**Associate Professor Linda Mitchell**  
Chairperson  
Research Ethics Committee

## Appendix K: A synthesis to identify key characteristics for leadership in the 21<sup>st</sup> century - Studies on innovative use of ICT

Project Title	Key Characteristics								Methodology (ies)	References
	Setting direction/Human development/Organisational development									
	Plan strategically for innovation and change	Strong vision for learning	Distribute leadership across the school	Build capacity in their schools	Allow time to embed innovation	Entrepreneurial approach to resourcing ICT	Develop a collaborative positive school culture	Provide professional learning community opportunities		
<b>International Empirical Studies</b>										
School leadership in ICT implementation: perspectives from Singapore			x	x					Online survey with 2043 teachers from 76 primary schools and 69 secondary schools	Chen (2012)
Enablers and barriers to the use of ICT in primary schools in Turkey: a comparative study 2005-2011	x			x	x	x		x	Longitudinal study A survey of 1373 teachers from 52 schools in 39 provinces	Goktas, Gedik & Baydas (2013)
Leading technology rich schools	x	x	x	x	x	x	x		Case studies of eight schools	Levin & Schrum (2012)
How leadership for an ICT reform is distributed within a school		x	x	x	x				Case study one elementary school	Seong & Ho (2012)
Turkish primary school teachers' perceptions of school culture regarding ICT integration		x		x			x		Three questionnaires used to survey 1540 primary school teachers	Tezci (2011)
How innovative are schools in teaching and learning? A case study in Beijing and Hong Kong							x	x	Case study of two schools	Zhu (2013)
<b>New Zealand Empirical Studies</b>										
The use of e-books in New Zealand primary schools				x		x			300 Postal questionnaire sent to Year 5/6 teachers 25% return	Bainbridge & Chawner (2012)
Tech Angels project	x			x	x		x	x	Case study of one high school	Bolstad & Gilbert (2006)
Swimming out of our depth? Leading learning in 21 <sup>st</sup> century schools		x	x	x	x		x	x	Case study of three schools	Bull & Gilbert (2012)
Integrated use of ICT in primary schools: a case study of a high- decile school	x	x	x	x		x	x	x	Case study of one decile 10 school	Brooks & Fletcher (2008)
The distribution of leadership as an influence on the implementation of a national initiative : the example of the laptops for teachers scheme	x	x	x	x	x		x	x	Mixed methods using national surveys, focus groups and school based longitudinal case studies	Cowie, Jones & Harlow (2011)
ICT in primary science Insights from the TELA evaluation	x	x					x	x	Case study	Harlow & Cowie (2010)
Virtual classrooms Lessons for teaching and learning in the 21 <sup>st</sup> century				x	x			x	Videoconferencing Online survey	Lin & Bolstad (2010)
Does digital immersion improve students' digital literacy skills?				x	x				Two research tasks given to two groups of Year 9 students one with limited access to ICT	Land (2012)
School leaders, ICT competence and championing innovations	x	x	x					x	Survey of 64 school leaders in New Zealand	Stuart, Mills & Remus (2009)
Distributed leadership: developing theory from practice		x	x	x					Case study of seven schools over a four year period	Timperley (2005)
Images of school principals' information and communications technology leadership		x	x	x		x	x	x	Case study of ten carefully chosen schools in Canada, United States and New Zealand	Yee (2000)



## Appendix L: Sample of Document collected

eRooms Inquiry	
<b>Date:</b> 14 <sup>th</sup> May 2013	<b>Class level/s:</b> Year 4 Room 13
<b>Teacher:</b>	<b>Learning partner:</b> eRoom
<b>Inquiry Focus: Group / Curriculum Area:</b> Reading	
<b>My wondering:</b> How can I use ipads to extend my readers in room 13?	
<p>Timperley, Wilson, Barrar &amp; Fung (2007)</p> <p>From 'Teacher Professional Learning &amp; Development: Best Evidence Synthesis</p>	
<p><b>What can the students do? What do they know?</b></p> <p>Children can open apps.</p> <p>Use notability.</p> <p>Record themselves.</p>	
<p><b>What sources of evidence have I used?</b> Observations and children's learning/work.</p>	
<p><b>How can iPads/apple t.v support the student learning? How will I build on what they know?</b></p> <p>Introduce them to other apps</p> <p>Use sock puppets.</p> <p>Book creator/ ibooks</p> <p>Use notability for:</p>	

Follow up tasks.

**Where is this group on the independence pathway in terms of their current learning?**

Will need me to show them when introducing new apps.

In terms of notability they can do mostly by themselves.

**What do I need to know to facilitate this learning?**

How the apps work – through trial and error.

**How have I designed the learning? How will I facilitate the learning?**

Asking questions that lead the children to independence.

- How will....

- Can you....

- Does that....

- What if.....

### **Appendix M: Sample of Initial Coding– Teachers views**

Research Question Two: How do teachers view the school culture and support offered by the school in facilitating their ICT innovative teaching and learning practices?

<b>First Codes under How teachers view school culture and support?</b>	
<b>Teacher (1)</b>	<b>Teacher (2)</b>
Release time to complete leadership task	eRoom opportunity
Distributed leadership Multiple leaders with knowledge to share	Distributed leadership Multiple leaders with knowledge to share
Builds confidence through eRoom meetings	We drive the eRoom meetings
Leadership talking to us and questioning Promotes reflection	Collaborative nature of eRoom meetings
Professional dialogue	eRoom meetings always well organized
Informal professional dialogue	Seeing relevance in eRoom meetings
Team leader released one day a week to support	Ongoing support through team meetings / leadership members attend team meetings
Personal ICT development then took into classroom	eRoom meetings very collaborative lots of sharing and learning from each other
Collaborative problem solving with team/ colleague next door	Whole school PD Common language and goals
Lots of sharing with one another in team meetings	Individual PD opportunities
Learn a lot at meetings	Resources at my fingertips
Open communication	Open communication
Feel noticed	Feel acknowledged as a professional
	Clarified expectations
	autonomy

## **Appendix N: Sample of Second Level Coding**

Initial codes were grouped into six categories. Interview Transcripts were cut and pasted into a spreadsheet.

<b>Categories</b>	<b>Frequency of quotes occurring across all participatns</b>
Collaboration	20
School Systems	15
Professional Development	14
Culture	6
Resources	3
Support	1

**Collaboration: This category is about how collaboration is facilitated within the school both formal structures and informal teacher to teacher - and leadership intent**

R/t 8 Link to Principal belief teachers are the solution It is nice because you don't feel you're doing a really awful job because something is not working or you have a problem its actually I am doing a really good job but this isn't working for that child or my maths programme is not working and I need to change it a little bit and I get ideas to go about that. You can ask anyone in your team or someone in management and it might be just one little idea they give you and it works a treat. It solves that problem. Its not intimidating or scary having to go and share that you are having a problem it is a nice environment to ask for help and get them to help as well.

R/T 9 Teacher collaboration Link to Principal belief teachers are the solution But then after you talk to the people next to you actually realise that it's not so much of how I am interacting or how I am teaching it is more about the activities that we are doing or the little ways you can change something.

R/T 8 Informal teacher collaboration Usually at morning tea or lunchtime or after school.

R/T 15 School systems It comes back to the curriculum and comes back to the professional learning we do as a staff and that professional support we have from each other that collaboration with each other and that ongoing collaboration with each other to help us to use the technology to use the technology the best way we can.

## Appendix O: Sample of Cross Case Analysis

What is the nature of distributed leadership and how does it facilitate innovative ICT teaching and learning in NZ primary schools?

Case study one	Case study two
<p>Research question one: How do leaders see their role in providing leadership and support to facilitate innovative ICT teaching?</p>	
<p><b>Build capacity (of inherited staff)</b></p> <ol style="list-style-type: none"> <li>1. Positive school culture               <ol style="list-style-type: none"> <li>a. Building trusting relationships                   <ol style="list-style-type: none"> <li>i. Really knowing your people:                       <ol style="list-style-type: none"> <li>1. What are they doing?</li> <li>2. What is happening?</li> </ol> </li> <li>ii. Need to provide training skill development and create opportunities</li> </ol> </li> <li>b. Co-learners on a journey: encouraging risk an trying new practices</li> <li>c. Build a climate where technology is seen to enhance teaching and learning</li> </ol> </li> <li>2. Supportive school systems and structures               <ol style="list-style-type: none"> <li>a. School vision</li> <li>b. Building capacity</li> <li>c. Informed leadership</li> </ol> </li> </ol>	<p><b>Tap potential (of selected staff)</b></p> <p>Allowing people to find their niche and value add to the organisation</p> <ol style="list-style-type: none"> <li>1. Developing a collaborative school culture               <ol style="list-style-type: none"> <li>a. Strong guiding vision for teaching and learning</li> <li>b. Intentional development of collaborative interactions</li> <li>c. Transformational use of ICT in learning</li> </ol> </li> <li>2. Supportive school systems and structures               <ol style="list-style-type: none"> <li>a. Building capacity</li> <li>b. Informed leadership</li> <li>c. Modeling and feedback</li> </ol> </li> </ol>
<p>Research question two: How do teachers view the school culture and support offered by the school in facilitating their ICT?</p>	
<p>Three themes:</p> <ol style="list-style-type: none"> <li>1. Empowerment through respectful relationships</li> <li>2. Empowerment through resourcing ICT</li> <li>3. Empowerment through professional learning</li> </ol>	<p>Three themes:</p> <ol style="list-style-type: none"> <li>1. Teachers enabled to implement school vision</li> <li>2. Collaborative practice support teachers transformational teaching</li> <li>3. Teachers value leadership feedback</li> </ol>
<p>Research question three: What are the links between school and teacher implementation of ICT practices?</p>	
<ol style="list-style-type: none"> <li>1. Collaborative practices in facilitating teacher ICT pedagogy and confidence</li> <li>2. Consistency in views of student learning with ICT</li> <li>3. Shared responsibilities for co-construction of learning and understanding</li> <li>4. Strategic planning and resourcing for innovative ICT</li> <li>5. Tailored professional learning and development programme.</li> </ol>	<ol style="list-style-type: none"> <li>1. Dynamic school vision transforming teaching and leadership</li> <li>2. Collaborative practices in facilitation innovative teaching and learning</li> <li>3. Tailored professional learning and development programme</li> <li>4. Professional dialogue to support transformational teaching</li> </ol>

## Appendix P: Summary of research questions, key themes from the findings, representative quotes and frequencies

Research Question	Findings		Representative Quote	Frequency of word/related comments		
				School One	School Two	Total
<i>How do school principals, deputy principals, curriculum leaders and board of trustee members see their role in providing leadership and support to facilitate innovative ICT use for teaching and learning?</i>	Theme One: School systems and structures	Building capacity	<i>So we are constantly targeting what teachers need to raise their capacity so students learn. (Principal, School 1)</i>	32	44	76
		Informed leadership	<i>I surround myself with pretty amazing people and I like to grow my capacity by having conversations in lots of different networks. Twitter is really important to me as far as my own professional learning and growth (Principal, School 2)</i>	23	11	34
	Theme Two: Develop a collaborative culture	Strong guiding vision for teaching and learning	<i>The vision is a living vision guiding the leadership and teaching and learning in the school. (Principal, School 2)</i>	7	15	22
		Communication	<i>It is important that everyone has a voice and that voices are heard (AP, School 1)</i>	5	14	19
		Collaboration	<i>Each one of us on this site is a learner and I'm a learner and the DPs are learners and we all need to know where to go to get some of that knowledge. Acknowledging that we as leaders or as individuals, we don't know everything we can make mistakes and we can learn sometimes together (Principal, School 1)</i>	6	8	14
Relationships	<i>There are a lot of aspects to culture. One is about building trusting relationships. Relationships are really important and people have to realize that you are somebody that lives by their word (Principal, School 1)</i>	3	2	5		
<i>How do teachers view the school culture and support offered by the school in facilitating their ICT teaching and learning practices?</i>	Theme One: Empowerment through professional learning		<i>The ICT Lead Teacher does a great job of facilitating the meetings and organizing them and giving us things to think about that she brings back from different meetings and visits she is involved in (Teacher 2, School 1)</i>	19	2	21
	Theme Two: Empowerment through a collaborative culture		<i>That is what our leadership team has enabled we should be having those discussion in a team we should be using the data as evidence and we should be finding those next steps for those learners because we want them all to succeed (Teacher 1, School 2)</i>	9	2	11
	Theme Three: Empowerment through resourcing ICT		<i>We are always hopping onto the iPads and using them to the best of our ability any chance we get (Teacher 1, School 1)</i>	3	1	4
<i>What are the links between school leadership and teacher implementation of innovative ICT practices?</i>	Theme One: Setting direction	Dynamic school vision transforming teaching and learning	<i>I think our school with the conceptualised curriculum and the Learner Framework really does help us deliver education that is going to help these children in the 21st century (BOT member, School 1)</i>			22
		Strategic planning and resourcing for innovative ICT teaching and learning	<i>Systems and Infrastructure: Maintain an effective E-Learning infrastructure to enable innovation, learning and end user satisfaction. (Strategic Plan 2013 -2016, School 2)</i>			
		Consistency in views of student learning with ICT and teacher planning	<i>I always make sure I look at the learning first and then at how the technology can help us with that learning (Teacher 1, School 1)</i>			
	Theme Two: Developing people	Tailored professional learning and development programmes	<i>I want the teachers to have a shift in their pedagogy I want that shift of how they view ICT in their classroom ( ICT Lead Teacher, School 1)</i>			21
		Professional dialogue to support transformational teaching	<i>One of the things we have to say to teachers is if someone is not achieving doing the same thing is not going to make any difference you have to do something different. You have to be innovative (Principal 1, School 1)</i>			
	Theme Three: making the organisation work	Collaborative practices in facilitating teacher ICT pedagogy and confidence	<i>It is real learning from each other. That is the environment I am trying to support and develop (ICT Lead Teacher, School 1)</i>			8
Distributing leadership across the school		<i>So AP is leading teacher effectiveness dialogues – the other AP is leading the builds. I am passionate about that too but he has very much shown an interest and a passion so I will provide that room for him to feel real ownership and mana around that same with the other AP. So my job now is with them is for them to see what I am doing with them and for them to do that with other staff. Which is distributed I guess (Principal, School 2).</i>				

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I wish to include the diagram on page 11 in my Chapter Two: Literature Review. I am using this concept model as a lens for my research on distributed leadership.



Figure 1. Constituting elements of leadership practice.

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