

The emerging key concepts of teaching and learning in the 21st Century

Cushla Shepherd

MEdL

2018

The emerging key concepts of teaching and learning in the 21st Century

**Written by
Cushla Shepherd
Student ID: 16928687**

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

2018

**School of Education
Auckland University of Technology**

Abstract

In a world where change is the only constant, the perpetual challenge for educators is to provide an education for our students that will gift them with the skills and knowledge required for both their present and future. Globalisation, technological innovations, and shifting demographics are some of the key influential forces contributing to the scale of change in our society today. The rapid growth of culturally and linguistically varied populations makes it incumbent upon schools to develop their capacity to prepare teachers and students to teach and interact with more diverse groups of students and members of their school communities. It is both an educators' role and duty to equip students for the challenges and opportunities they will face in the 'real world'. The 21st century skills, knowledge, and attitudes we instil in our students play an essential role in helping our learners thrive in this fast changing world. Educators in New Zealand schools and across the world need to continue to reassess current leadership and teaching practice, determining what the 'essentials' are to best meet students' future needs in order to bridge the gap between education today and working in a postmodern society tomorrow.

To develop the skills, knowledge and attitudes that students now need for the 21st century, leaders and teachers must engage with a meaningful enquiry-based process of significant transformation of mindset and practice to employ innovative and research based pedagogies (Saavedra & Opfer, 2012). The purpose of this research is to explore the essential 21st century skills, knowledge and attitudes that school leaders and teachers perceive are needed for students to constructively and positively participate and contribute to this postmodern society. The three questions steering this research study are:

- What do teachers 'perceive to be the essential '21st century' skills, knowledge and attitudes for students 'to acquire?
- What pedagogies do school leaders and teachers perceive best facilitate the learning of these '21st century' skills, knowledge and attitudes?

- In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

For this qualitative study, 32 educators (deputy principals, middle leaders and teachers) participated in focus group discussions regarding skills, knowledge, attitudes, pedagogies and school leadership practices perceived to be responsive to students' learning needs within their schools, for 21st century education.

This research study utilised an interpretive approach. The findings of this research indicated that the essential 21st century skills, knowledge and attitudes students need to acquire are based around interpersonal and intrapersonal skills and critical thinking. This research strengthens the need for schools to develop new pedagogies and school leadership practices that encourage partnerships of learning. Creating conditions, systems and practices that guide lifelong learning of all key stakeholders will help everyone navigate their way in our changing world.

Acknowledgements

Considering a Masters degree seemed insurmountable to me. The prospect of entering into postgraduate study seemed such an immense challenge amongst full-time teaching, parenting, and life. Encouragement from my family and a special visit to my surrogate big brother Howard Youngs, who works in the AUT Educational Leadership programme, helped to consolidate my decision to enrol and pursue my Masters degree.

In completing my Masters degree, I want to passionately acknowledge significant people in my life. My darling husband Mark, beautiful daughters, Ella and Emma, my incredible twin sister Vanessa, my special parents, my courageous brothers, my extremely encouraging friends Victoria, Caroline, Michelle, Christina, Rochelle, Quanita and my study buddies Sarah and Craig have been all pivotal in my ability to succeed in my study process. I am deeply grateful for their enduring support, love and encouragement; especially at times when I thought it was all unachievable. In addition, I would like to make a special mention to Harley Fowler; my Crossfit coach, who died suddenly, late May 2018. Harley often provided a listening ear during my Masters process. I am forever grateful for his support.

I would also like to acknowledge the support of my supervisor Alison Smith, the cooperation of the school leaders and teachers who took part in my focus groups, my Principal Kate Shevland from Orewa College who has always supported me, and the Ministry of Education who granted me a study award during 2017.

Thank you to everyone for your love, faith, and confidence in me.

Table of Contents

Abstract	i
Acknowledgements	iii
TABLE OF CONTENTS	iv
List of Tables	vi
Chapter One: Introduction	1
Rationale	1
Research aims and questions	3
Thesis organisation	3
Chapter Two: Literature review	5
Introduction	5
21 st century learning	5
Pedagogies and new pedagogies	16
School change leadership practices	21
Summary	27
Chapter Three: Research methodology and methods	28
Research design	28
Research methods	30
Summary	39
Chapter Four: Findings	40
Introduction	40
Findings	40
Summary	55
Chapter Five: Discussion of findings	56
Introduction	56
Summary of chapter	78
Chapter Six: Conclusions and recommendations	80
An overview of the research study	80
Limitations of the research study	85
Recommendations	86
Final conclusion	87
Appendix A – Participant information sheet	92
Appendix B – Participant consent form	94

Appendix C – Focus group questions	95
Appendix D – Transcriber consent form	96

List of Tables

Table 2.1 A synthesis of 21 st century skills and competencies	15
Table 2.2 A synthesis of effective pedagogies for the 21 st century	20
Table 4.1 Descriptions of 21 st century learning environments.....	40
Table 4.2 Essential 21 st century skills, knowledge and attitudes.....	43
Table 4.3 Teaching approaches that facilitate 21 st century skills	46
Table 4.4 Leadership support for teachers development	49
Table 4.5 Current or future challenges integrating 21 st century learning.....	51

CHAPTER ONE

Introduction

Across the world, change is a key theme rapidly emerging from the 21st century. Economic, social, and technological change, with a growing focus on schools to perform requires students to meet extremely different challenges than those from the past. How does education respond? What might these changes mean for teaching and learning? In the past, education has been more focused on the present rather than the expectations of the future (OECD, 2015). The view of the future, even a decade ahead, cannot be forecast. The ground-breaking developments in technology and science over the last few decades have led to the appearance of ‘knowledge based’ societies. A ‘knowledge based’ society is one that originates from human potential (OECD, 2015). Education is at the core of human development and has an important role in contributing to a sustainable future, particularly in the domains of skills, knowledge, and attitudes. To prepare our students to achieve in school, work and life, it is vital to provide opportunities for students to develop essential 21st century skills. The importance of these skills for 21st century education is widely accepted among policymakers and is evident in the studies undertaken by the Organisation for Economic Cooperation and Development (OECD, 2015). Schools and educators in New Zealand and across the world have been developing frameworks to conceptualise 21st century skills that ensure students flourish in a world of constant change where learning is continuous. Therefore it becomes more crucial that school leaders and teachers identify and understand 21st century skills in order to prepare students for their careers and a future that seems to be rapidly becoming more unknown. Additionally, it is important that school leaders and teachers develop and implement effective pedagogies and school leadership practices that frame and support, the development of these essential skills.

Rationale

Redefining the essential 21st century skills, knowledge and attitudes that are necessary for students, requires shifts that challenge people at every level to become more able to work collaboratively and reflect on their current

practices in order to build 21st century pedagogy (Beetham & Sharpe, 2013). Teachers and school leaders play a vital role in enabling students to develop 21st century skills, knowledge and attitudes and ensure they facilitate and apply pedagogies that will enhance students' abilities. This challenge for teachers and school leaders involves the transformation of ingrained or fixed underlying assumptions and requires teachers to “shift their paradigm to break with and replace their past ways of thinking and knowing with a totally new understanding of their role and its purpose” (Bull & Gilbert, 2012, p. 6). This shift will be difficult and problematic “unless the building blocks of traditional schools – lessons, years, timetables, classes, exams – are broken down to generate the kind of combined innovation needed to make a real impact” (Leadbeater, 2011, p. 8).

School leaders are increasingly examining the learning capacities required to both manage and lead a school and to rebuild systems for the 21st century (Wagner & Kegan, 2006). Numerous approaches will be required by policy makers to identify the considerations that both shape and constrain school leaders in wider political and educational contexts (Cowie, Jones, & Harlow, 2011). If school leaders aspire to develop and implement 21st century pedagogy, they need to reflect on their leadership to create and establish the conditions for school change (Cowie, Jones, et al., 2011; Kaye, 2012). Coherent systems created by school leaders are required to support teachers through change that enable them to explore new knowledge about learning, with the vision for learning, to develop new pedagogy through the 21st century (Bolstad et al., 2012). The *Future-focused learning in connected communities* reference group (Amos et al., 2014) suggests that, for New Zealand to have effective school leadership, there is a need for a clear vision of the future that can “build future-focused learning capabilities, and to support the adoption of digital technologies in their schools” (Amos et al., 2014, p. 14). Different approaches are required for 21st century leadership (Schleicher, 2012). Furthermore, Schleicher (2012) suggests that this change in leadership needs to expand beyond the school walls, with other schools and communities in order to create connections, strengthen networks, share in resources and build a common vision of 21st century schooling together.

Research aims and questions

The aims of this research study are:

1. To investigate school leaders' and teachers' perceptions of what essential 21st century' skills, knowledge and attitudes students need;
2. To identify pedagogies that school leaders and teachers perceive best to facilitate the learning of essential 21st century skills, knowledge and attitudes; and
3. To explore the ways in which school leadership practice create the conditions to facilitate the teaching and learning of essential 21st century skills, knowledge and attitudes.

The research questions asked were:

1. What do school leaders and teachers perceive to be the essential 21st century skills, knowledge, and attitudes for students to acquire?
2. What pedagogies do school leaders and teachers perceive best facilitate the learning of these 21st century skills, knowledge and attitudes?
3. In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

Thesis organisation

This thesis has six chapters.

Chapter One

Chapter One includes an introduction to this research study. It incorporates a description of the rationale and provides the research aims and questions that steered the purpose for this study.

Chapter Two

Chapter Two is a literature review. This review considers a range of literature that provides different perspectives about the research aims. Definitions and perspectives of 21st century learning, skills, pedagogies and school leadership practices are the foundation of this literature review.

Chapter Three

Chapter Three describes the methodology and methods used for this research study. Descriptions in the selected qualitative methodology, and the data collection of the focus group discussions are included, with the data analysis procedures used and elements of validity, triangulations and ethical considerations.

Chapter Four

Chapter Four presents research findings from the focus group discussions with an identification of the themes that arose from the data collection.

Chapter Five

Chapter Five provides a discussion of findings founded on the emerging themes. The key findings of this research study are critically examined and linked to the literature studied in Chapter Two.

Chapter Six

Chapter Six concludes this thesis and includes a summary of the overall findings with the strengths and limitations of this research study. Finally, there are recommendations and a final conclusion.

CHAPTER TWO: LITERATURE REVIEW

Introduction

Our world is changing. It has become increasingly apparent that current education systems and practices are not responsive to the learning needs for all students in the 21st century (Bolstad et al., 2012). The world is vastly different than it was a short time ago and people, cultures and economies have become intimately connected by technologies and new innovations. It is fundamental to reflect on how these changes are influencing education in order to understand the essential skills, knowledge and attitudes students need for the 21st century and beyond.

This literature review traverses three main themes. The first theme is an examination of 21st century learning. This will incorporate an exploration of our new 'knowledge age', a term given to the 21st century which characterises a shift from traditional industry to an economy based on digital information technology, with definitions of 21st century learning and skills. The second theme discusses emerging new pedagogies that are espoused to respond to and facilitate the learning of these skills. The last theme examines the importance of school leadership in supporting and enabling teachers to develop knowledge and to understand and facilitate pedagogies that are responsive to these essential 21st century skills students require for lifelong learning.

21st century learning

The knowledge economies we live in are steered and stimulated by innovation and creativity (Sahlberg, 2011). Our schools today serve a world that is characterised by rapidly changing technologies, constant global pressures, and uncertain times. Globalisation and digital technologies have provided new opportunities for student engagement in education, new models of learning and the introduction of specific skills and competencies (Claxton, 2013). The development of knowledge economies has reshaped the concept of knowledge. It is now considered that through using knowledge, students will acquire the dispositions needed to contribute constructively and efficiently to

contemporary societies (Fullan, Langworthy, & Barber, 2014). Recognising that knowledge is increasingly evolving is leading to a further belief that the future is mainly unknown. Therefore both education and contemporary society require the ability and means to adapt and change continually (Fullan & Donnelly, 2013).

The 'knowledge age'

The birth of the 'knowledge age' with transformations and developments of new and emerging technologies and information connectivity, is shaping and changing how learning is conceptualised. The term the 'knowledge age' refers to the post-industrial age which presents novel and progressive advances in information technology, telecommunications and forms of capitalism, where knowledge age knowledge is valued and defined not by what it is, but for what it can do. The OECD (2015) states that the knowledge age is about the emergence of different designs of work, business models, and practices that have produced new types of workers who require new and diverse skills. Gilbert (2005) posits that because of this new knowledge age, the meaning of 'knowledge' is changing from being characterised as stored 'stuff' or a 'product' of learning, to being a system of networks that flow in which knowledge can 'do' things or make things 'happen'. Gilbert (2005) further explains that the Knowledge Age recognises that knowledge, rather than being valued for its own benefit or advantage, is valued for its functionality and ability to be utilised in innovative ways.

In contrast, the industrial age which spanned from a period before and during the 20th century, was an era where education was defined by curriculum uniformity with a 'one size fits all' model of learning. This suited society and the economy as students were equipped for occupations based in factory industries in which they could utilise 'stored' information they had gathered throughout their years of schooling (Roberts & Bolstad, 2010). (Benade, 2017a) posits that it was during the late 20th century that there was a period of tremendous change in knowledge, also underpinned by major social, economic and political change, and consequently it was at this time that schools started to examine and question if and what educational change

needed to occur. Some suggest that schools established during the industrial age have developed little from the traditional model which is described as having “teacher centered pedagogy, framing a hierarchical relationship between teacher and students” (Dovey & Fisher, 2014, p. 43) but it is more accepted and acknowledged that in this Knowledge Age, change is a given.

Knowledge Age economies are characterised by an individual’s potential and capability to create and innovate their own content, services and experiences (Benade, 2017b). Bolstad et al. (2012) note that education and private sectors are increasingly and radically inspired by communication and information technologies and globalisation. This means boundaries, time, place and space are being broken down and replaced with entirely new possibilities. Knowledge age citizens need to be able to identify, locate, interpret, evaluate and apply new information quickly, and communicate this with and to others productively and collectively. Schools need to be creative, innovative and adaptable to be able to comprehend information and concepts at a big picture level (Bentley, 2012). Unsurprisingly, transformative responses and notions of knowledge are developing, and knowledge is conceived differently in the 21st century (Benade, 2017a). A paradigm shift has been made internationally towards a knowledge age in which the cultivation of a different set of skills is being refined for the 21st century global economy (L Darling-Hammond & Barron, 2008). Bentley (2012) emphasises that because the speed, power and precision in which information can be gathered, synthesised and communicated, the knowledge age is about opportunities, not threats, and where knowledge can be used to move into a learning society.

Education in the knowledge age is designed to nurture students’ ability to develop and use knowledge in a range of contexts and arrangements. This century, the knowledge age, is bold - it breaks the mold and, although complex, is flexible, challenging and creative (Kereluik, Mishra, Fahnoe, & Terry, 2013). Bolstad et al. (2012) states that this provides students with the competencies, capabilities and dispositions to become active lifelong learners who contribute as citizens in a democratic society. By developing knowledge around significant ideas, knowledge no longer divides learning into disciplines

where students learn in isolation (Beane, 2013), but deepens their understanding of their own learning and context and their ability to transfer knowledge when facing new challenges in the real world (Fullan, 2001).

21st century learning perspectives

Clarifying what our students need to learn and know for the 21st century is receiving mounting attention. To effectively acknowledge the teaching and learning capacities and opportunities in the 21st century, educators are being confronted to reconsider the skills and knowledge in the context of a networked world that is technology rich. Transforming teaching and learning for the 21st century in the interests of student engagement and relevance is crucial as education increasingly becomes more integrated and connected. Our students need to be not just be citizens of their society, but of the world (Barkatsas & Bertram, 2016; Beetham & Sharpe, 2013; Bolstad et al., 2012; Sahlberg, 2011; Schleicher, 2012).

Over recent years, the terminology surrounding the term ‘21st century learning’ has been related to educational and pedagogical change. Beetham and Sharpe (2013) states that describing this term is a complex task with many considerations, especially defining the skills, comprehending the prevalent nature of technologies, and understanding the part ‘content’ plays, underpinned by the purpose of education. Characterising associated terms and phrases related to 21st century learning such as ‘future learning’, ‘personalised learning’ or ‘future focused learning’ have been difficult to define with ease and are complex to articulate. These are some of the ‘umbrella’ terms used to describe the skills and knowledge that students need to acquire for 21st century contemporary living and work (Bolstad et al., 2012). There is a variety of related terms to label these 21st century skills and knowledge such as competencies, dispositions, cognitive skills, transdisciplinary skills, self-management skills, higher-order thinking, and soft skills. While these terms may not all be strictly identical, and may have different meanings in certain contexts, they seem to fit a somewhat movable consensus. Kereluik et al. (2013) suggest that “it is unclear what precisely phrases such as 21st century knowledge, 21st century skills, and 21st century learning mean” (p. 127).

Similarly, Bolstad, et al. (2012) argue that '21st century learning' or 'future learning' as they refer to it, is not a known formula or fixed prescription. Instead, 21st century learning is perceived as an "cluster of new ideas, beliefs, knowledge, theories and practices" (Bolstad et al., 2012, p. 11). Bentley (2012) state that embracing a 21st century learning model requires knowing 'how to learn'. 21st century learning means building relationships between content, skill and students themselves to produce, synthesis and assess information across integrated curriculum (Bentley, 2012).

These arguments imply that learning for the 21st century has become more dimensional and 'deeper' in nature. Reinforcing this perspective, Hattie (2009) suggests:

There needs to be a major shift, therefore, from an over reliance on surface information (the first world) and a misplaced assumption that the goal of education is deep understanding or development of thinking skills (the second world) towards a balance of surface and deep learning leading to students more successfully constructing defensible theories of knowing and reality (the third world) (p. 28)

Several authors (Linda Darling-Hammond & Bransford, 2007; McLoughlin & Lee, 2008; Saavedra & Opfer, 2012) offer definitions that articulate 21st century learning concepts in a more distinct manner. During 1996, the United Nations Educational, Scientific and Cultural Organisation (UNESCO) received a report from Jacques Delors (former European Commission Project President) called *Learning: The Treasure Within* (Delors, 1998). This was one of the first frameworks to identify competencies needed for the 21st century. Four visions of learning discussed in this report were understanding, knowledge, competencies for life and competencies for learning. These remain relevant reference points and organising concepts for identifying competencies for twenty-first century learning (Luna Scott, 2015a). The Delors Report (1998) also presented four principles identified as the Four Pillars of Education: (1) Learning to know – gaining knowledge (literacy, numeracy, critical thinking); (2) Learning to do – gaining skills; (3) Learning to be - personal and holistic development of the 'whole person': physical, social, emotional and spiritual,

creativity; and (4) Learning to live together - social skills (communication, interaction, attitudes, values and an understanding of culture, diversity, shared values, respect, consideration, empathy) (Delors, 1996). Likewise, Dumont and Istance (2010) argue that an environment focussed on learning should “recognise the learners as its core participants, which encourages their active engagement and develops in them an understanding of their own activity ... developing the ‘meta-cognitive skills’ for learners to monitor, evaluate and optimise their acquisition and use of knowledge” (Dumont & Istance, 2010, p. 14).

A 21st century framework that presents some clarity is presented by Kereluik et al. (2011) who introduce three principles of learning for the 21st century: (1) Foundational knowledge – what students need to know (core content knowledge, information literacy, cross disciplinary / synthesis knowledge); (2) Meta knowledge – how to work with the foundation knowledge (critical thinking, collaboration, innovation); and (3) Humanistic knowledge – student self-reflection, social and global context (life, ethnic and emotional awareness and interaction). These three principles again support the concept of ‘deep learning’ where a constructivist approach reinforces the importance of students being involved with social and peer contexts in which they are actively engaged, and design their own learning processes and outcomes (Beetham & Sharpe, 2013). Commenting on these positions, Leadbeater (2011) posits that much of these principles are not new to education, but are new ‘forms and functions’ of learning that focus on processes of construction of knowledge and interpretation of understanding. The challenge for 21st century education is how to achieve a more logical educational system that can support what is known about quality learning, and that can assist new knowledge about learning and new purposes and aims for learning in a changing world (Bentley, 2012).

Encompassing these social constructivist ideas of 21st century learning with new forms and functions, are the learning ‘environments’ that enable principles such as personalised learning, collaboration, student-led inquiry

and more opportunities to be facilitated and developed (Osborne, 2016). Developing technologies and building designs for learning along with the omnipresence of 'anytime/anywhere learning' has influenced the development of innovative learning environments (ILEs) (Charteris, Smardon, & Nelson, 2016). In ILEs, learning can be "social, situational, experiential, connected and continuous" (Frith, 2015, p. 15). This means that ILEs indicate a shift to reconsider spatial relationships and restructure schooling in line with 21st century pedagogies and learning (Charteris et al., 2016). They enable pedagogies to guide student learning needs through student-centred and personalised learning connected to their own experiences and those of the real world (OECD, 2013). ILEs are viewed as holistic learning environments, acting as an ecosystem encompassing educators, learners, communities, technology and pedagogy (Ministry of Education, 2017). Osborne (2016) postulates that ILEs effectively provide opportunities for a variety of pedagogies including facilitating, communicating, collaborating, creating, applying and decision-making. Underpinning these perspectives, the *New Zealand Curriculum* (Ministry of Education, 2007) states that ILEs express the curriculum in the way it is intended - to adapt and evolve as pedagogies change and reflect future focused practices (Ministry of Education, 2017). However, research findings also recommend caution that ILEs are not about the buildings or 'flash-looking' physical spaces themselves, but the relationships that these spaces have with pedagogies and culture to effectively impact learning outcomes for learners (OECD, 2013; Osborne, 2016). ILEs are one of several important tools for 21st century learning (Woolner, McCarter, Wall, & Higgins, 2012).

Supporting the research on learning environments, learning sciences (LS) a interdisciplinary field that works to further scientific understanding, posits that in order to achieve more effective learning in a given context, each student needs a personalised experience (Hanna, David, & Francisco, 2010). Students enter into the learning environment with various cognitive structures which means that each student learns more effectively when learning is more sensitive to their pre-existing structures (OECD, 2015). In a learning

environment, students are the central players and therefore the learning activities must centre on each individual's cognition and growth to meet their specific needs (OECD, 2012). Considering this neuroscience theory, it stands to reason that 21st century learning is supported and enabled by an innovative learning environment that aims to develop skills, knowledge and attitudes that are essential for students. Specifically, the OECD (2012) notes that when students are in learning environments where personalised learning activities allow them to construct their own learning through engagement with guidance and inquiry processes, they can become more self-regulated in their learning and acquisition of skills and knowledge.

The Ministry of Education (2007) promotes the 21st century vision for students to be lifelong learners. Reinforcing this, Bolstad et al. (2012) also suggest that 'lifelong learning' strengthens the idea that moving towards more uncertainty and unpredictability will require growing individual responsibility for managing unknown social, scientific and environmental pressures of change. For students to be equipped and prepared, 21st century learning needs to focus on how knowledge is created and applied, about changes in business and management, and the way in which producers and consumers connect in the real world (Schleicher, 2012).

21st century skills and competencies

It is perceived that personal, social and learning skills such as resilience, risk taking, teamwork, compassion, managing, meta-cognitive skills and response to failure will be fundamental to performing effectively in the 21st century workplace (Luna 2015a).

A wide range of reports and research studies over the past few decades have sought to examine, identify and define the learning skills that students require to be successful in life and career in the 21st century world (Ananiadou & Claro, 2009; Kereluik et al., 2013; Pellegrino & Hilton, 2013). Ananiadou and Claro (2009) offer a synthesis of frameworks and concepts of 21st century

skills that identifies a conceptual platform for competencies that are presented in three dimensions. These dimensions are: (a) information dimension – skills for gathering, processing, applying information in digital environments; (b) the communication dimension – skills for face to face and digital interaction, collaboration, critical feedback, verbal presentation, contribution for lifelong learning and being a citizen, and (c) the ethics and social impact dimension – technologies have presented mounting ethical challenges which require skills such as critical thinking, decision-making and responsibility for social responsibility and digital citizenship (Ananiadou & Claro, 2009). Kereluik et al (2013) identify the first dimension as a new and “uniquely pressing skill to the 21st century” (p. 12). Pellegrino and Hilton (2013) also segment 21st century skills into three domains: (1) the cognitive domain – metacognition processes, strategies, with knowledge and creativity; (2) the interpersonal domain – collaboration, teamwork and leadership; and (3) the intrapersonal domain – ethics, awareness, communication and self-reflection. Moreover, Pellegrino and Hilton (2013) suggest the nature of the 21st century means that while students may have performed in these domains individually in the past, postmodern society views the potential of these skills mastered across multiple disciplines - referred to as ‘transdisciplinary’ learning.

Tony Wagner et al. (2006) have conducted extensive research regarding education in the United States which reinforces the view that the education paradigms from the past need to move to be aligned with the 21st century world. Wagner et al. (2006) and the Harvard University Change Leadership Group presents 7 Survival Skills for the 21st century which are: (1) Critical thinking and problem solving; (2) Collaboration and leadership; (3) Agility and adaptability; (4) Initiative and entrepreneurialism; (5) Effective oral and written communication; (6) Accessing and analysing information; and (7) Curiosity and imagination (Wagner et al., 2006). These survival skills emphasise the need for education to equip students for real world scenarios where life will potentially be more complex. Students need to have the skills and competencies to build new capacities, to be autonomous and responsible. However, Pellegrino and Hilton (2013) argue that many of these skills are not

new. They state that “the various sets of terms associated with the 21st century learning skills label reflect important dimensions of human competence that have been valuable for many centuries, rather than skills that are suddenly new, unique and valuable today” (p. 2).

Literature based around discussion on competencies or, as some refer to them, ‘capabilities’, describe these as more multi-layered than skills, that include knowledge, attitudes, and values (Bolstad et al., 2012; Claxton, 2013; Gilbert, 2005; Luna Scott, 2015a). The specific behaviours or dispositions associated with competencies are identified as being repetitive over a period of time, influenced by the nature of individual interactions within their own or others’ contexts (Hipkins, Bolstad, Boyd, & McDowall, 2014). In comparison, the term ‘skill’ is less holistic and more simplistic.

The inclusion of competencies (Hipkins et al., 2014) in national curricula is widespread due to the effects of globalisation. An example of the inclusion of ‘competencies’ is the New Zealand context. The national curriculum, *The New Zealand Curriculum* identifies five key competencies (MoE, 2007, p. 7) which are: (1) thinking; (2) language symbol and texts; (3) managing self; (4) relating to others; and (5) participating and contributing and collectively they are referred to as “capabilities for living and lifelong learning”. The term ‘key competency’ (KC) refers to capabilities which are “more complex than skills” and include “knowledge, attitudes and values” (MoE, 2007, p. 12). The national *New Zealand Curriculum* document states:

People use these competencies to live, learn, work and contribute as active members of their communities. More complex than skills, the competencies draw also on knowledge, attitudes and values in ways that lead to action. They are not separate or stand-alone. They are the key to learning in every learning area. The development of the competencies is both an end in itself (a goal) and the means by which other ends are achieved. (p. 12)

Hipkins et al. (2014) whom authors of *Key Competencies for the Future* highlight, through their examinations, how students will utilise key competencies in transformative and future focused methods in education settings. Supporting this view the MoE (2005) states that key competencies are positioned in education *and* related with the market, for New Zealand's 'knowledge-based economy', as future-focused ideals of performance (Ministry of Education, 2005). Ultimately, every nation will have its own vision of a 21st century education and will examine what their young people will need to be prepared to flourish in a competitive world that requires more than content knowledge and thinking skills (Luna Scott, 2015a).

As the literature mounts and provides a concrete case for reviewing and developing skills and competencies for 21st century learning, a new reality unfolds. Our workforce demands a generation of students who are independent thinkers, decision makers and problem solvers. Schleicher (2012) suggest that what will matter most in the 21st century is that learners are able to employ these skills in a gradual broadening range of experiences and situations, to develop new competencies and relationships and take on new roles. The following table is a synthesis of 21st century skills and competencies from the reviewed literature:

Table 2.1 A synthesis of 21st century skills and competencies

Descriptor	Description
Cognitive domain	Metacognitive processes, strategies, with knowledge and creativity in digital environments.
Interpersonal domain	Communication, face to face and digital interaction, collaboration, teamwork, leadership, participation and contribution for lifelong learning and citizenship.
Intrapersonal domain	Critical thinking, decision making, problem solving, curiosity, initiative, adaptability, social responsibility and digital citizenship.

(Ananiadou & Claro, 2009; Kereluik et al., 2013; Luna Scott, 2015a; Pellegrino & Hilton, 2013; Wagner et al., 2006; MoE, 2007; Hipkins et al. 2014)

Reviewing this table, it is evident that although the exact set of 21st century skills and competencies are not universally agreed upon, there is a general consensus about the essential 21st century skills and competencies that students require for this contemporary society. An overarching theme emerging from this synthesis is a focus on students having a combination of skills that incorporate different skills than the past. These include literacy and numeracy foundation skills alongside dispositions and competencies such as collaboration, critical thinking and problem solving skills, initiative, curiosity and adaptability.

Educators must continually strive to prepare and equip our students for the 'real world' that they live in and which exists around them. Hanna et al. (2010) states that as we transition from a mainly passive society to a more active one, students, people, are no longer are choosing to be spectators. They want to participate. Furthermore, Hanna et al. (2010) states that lifelong 21st century skills are increasingly becoming more critical in a shifting world where there is more demand for a higher cognitive capacity. Although it is unpredictable of what lies ahead for our students in the future, the advantage is knowing that higher order skills as outlined in Table 2.1 are being increasingly prioritised in the workplace and society as skills and dispositions students need for this changing society in which they live. Bellanca (2010) heeds caution and encourages us to think critically about the future. They advise:

We cannot reasonably predict the capabilities people will routinely use in 2095 any more than a comparable group of scholars in 1907 could accurately forecast the competencies central to the workplace: citizenship and self-actualisation in 1995. What we are really attempting to discuss is the core capabilities people will need in the first part of the 21st century, say fifteen to thirty years hence- to qualify for an attractive, prosperous job and lifestyle (p. 3)

Pedagogies and new pedagogies

Emerging and new concepts about the nature of education and its most effective pedagogies in the 21st century are forming. There is universal consensus that the approaches to teaching and learning must be new and become more inclusive to accommodate and address 21st century themes (Luna Scott, 2015b). The purpose of transforming teaching and learning in schools is to address students' needs and prepare them for the kinds of learning and occupations of postmodern society.

Pedagogy embraces dialogue between teaching and learning, theory and practice, to guide learning in the context of teaching and teaching that has learning as its goal (Beetham & Sharpe, 2013). Pedagogy refers to the knowledge about the processes and practices of teaching and learning, including the overall educational purposes, aims and values. Fullan et al. (2014) describes 'new pedagogies' as a "model of learning partnerships between and amongst students and teachers, aiming towards deep learning goals and enabled by pervasive digital access" (p. 2). Many of the new pedagogies' elements are not new; instead it is the learning partnerships with students that are new (Fullan, Langworthy, & Barber, 2014). New pedagogies will be informed by research, critical reflection and analysis, based around specific principles such as, authentic relationships, respect for diversity, focus on central meaning making processes, engaged participation in relevant learning activities and autonomy development (Beetham & Sharpe, 2013; Cowie, Hipkins, et al., 2014).

These definitions suggest that new pedagogies are underpinned by constructivism. A constructivist approach in education proposes that teaching and learning is a process which is socially and culturally constructed within a specific context, and which is characterised by communication, interaction and collaboration. It is not a static process but one that is dynamic, transformative and active. Levin and Wadmany (2005) describes this approach:

The constructivist approach to learning conceptualises learning as a complex, interactive, changing, active and situated process that allows learners to individually construct their knowledge in a unique and meaningful way while confronting challenges and dilemmas, fears and excitement that not only applies to students but to teachers as well. (p. 299)

Reinforcing this approach, the aims of new pedagogies for 21st century learning are posited by Fullan et al. (2014) as follows:

- Deep learning – creating, using and applying new knowledge and utilising technology to connect to the world;
- Partnership – developing relationships between teachers and students to guide students' ability to regulate their own learning and application, through exploration, connectedness and authenticity within real world contexts; and
- Student achievement – learning outcomes are gauged in terms of students who create new knowledge, self-direct their own learning, demonstrate dispositions that reflect initiative and resilience, and who proactively develop their characters to be responsible citizens and lifelong learners.

These aims of new pedagogies describe how everyone in the educative process is invited to become the teacher and learner (Fullan et al., 2014). Saavedra and Opfer (2012) state that new pedagogies require new capacities from everyone. From teachers, new capacities are needed to use innovative and research based teaching strategies with learning technologies and real world applications, supported by continuous assessment of students learning progressions (Saavedra & Opfer, 2012). Bolstad et al. (2012) also support this, as they state that for teachers and students, new capacities are required from their partnership in learning to recognise and work with students strengths and develop their potential.

Scott (2015) suggest the following pedagogies:

- Quality – inclusive, equitable and relevant education opportunities;
- Participation – using social media to motivate student learning, communication, collaboration and shared knowledge building;

- Personalise learning – self, peer to peer organised and customised student learning with own approaches, processing, and self-reflection, with feedback from multiple sources;
- Project-based learning – self-management as an individual or team utilising interdisciplinary knowledge, multiple perspective(s), expertise with forms of resources to solving real life problems, create innovate concepts or projects;
- Collaboration and communication – formal and informal pairing and grouping of students interacting, developing understanding, solutions, and questioning to achieve a mutual learning goal with creativity and innovation;
- Employ learning tools – utilising forms of instruction to stimulate learning such as digital technologies, inquiry processes, learning, flexible environments; and
- Relationships – developing relationships where both teachers and students mutually motivate, engage, encourage, care, and respect to promote a safe learning environment (Luna Scott, 2015b).

Scott (2015b) concludes that new pedagogies for 21st century learning are based on adaptation. Teachers' roles will be modified as guides, facilitators, designers and creators of learning tools. In addition, transforming learning environments will provide more diverse learning experiences that operate in, through and about the class, school community, and beyond.

McLoughlin and Lee (2008) present a pedagogical model *'The Three 'P's of Pedagogy for a Networked Society: Personalization, Participation and Productivity'* This model shares common themes with Luna (2015b) that suggest pedagogy, with the support of technologies focuses on: personalisation – learner choice, agency, customization, self-regulation; participation – communication, collaboration, connectivity, community; productivity – learner-centric, contribution to knowledge, generates creativity and innovation (McLoughlin & Lee, 2008).

McLoughlin and Lee (2008) envision that this new paradigm of learning which focuses on networking and knowledge creation offers opportunities to transform pedagogies, especially with digital media and resources. They caution that digital tools need to be intentionally merged with pedagogical practices, as technology is a part of complex societal factors that can include differing student expectations, behaviours and demographics. Beetham & Sharpe (2013) also argue that digital technologies should be placed within proven pedagogical practices and models of teaching, where pedagogy comes before technology. (Beetham and Sharpe, 2013) state the purpose of sound pedagogical design as one of ensuring that there is consistency between the curriculum taught, teaching methods used, the learning environment created and the assessment procedures adopted.

Learning environments and ILEs highlight the importance of the alignment between design, setting and pedagogies (Benade, 2017b). Research suggests that, although there is significant spatial change in a growing number of schools' learning environments, this is failing to take sufficient account of pedagogy (Cleveland & Fisher, 2014). Osborne (2016) suggests that when teacher pedagogies are clarified, understood and matched with ILEs, there will be significant gains for teachers and for student outcomes. The OECD (2013) characterise ILEs pedagogies as the following: a) learning activities that are student centred; b) teachers' roles that are structured and well-designed to support inquiry and autonomous learning; c) personalised learning for individuals and groups to cater for culture, prior knowledge, motivation and abilities; d) inclusivity to individual and group learning needs; and e) social learning to encourage and develop individual and mutual cooperation, tolerance, and respect. Incorporating new pedagogies in new innovative learning environments will take dedicated time as it takes a high level of sophistication to manage project based learning and maintaining a focus on doing with understanding rather than doing for the sake of doing (Darling-Hammond & Barron, 2008).

The following table is a synthesis of 21st century pedagogies from the reviewed literature:

Table 2.2 A synthesis of effective pedagogies for the 21st century

Descriptor	Description
Personalisation	Student centred, learner choice, agency, customisation, self-regulation, relationship.
Participation	Communication, collaboration, connectivity, relationships, community.
Productivity	Learner-centric, metacognition awareness of knowledge building and contribution, generates creativity and innovation.
Partnership	Relationships, learning communities, interactions with learning environment and digital learning tools, lifelong learning

(Beetham and Sharpe, 2013; Bolstad et al. 2012; Cleveland and Fisher, 2014; Cowie, Hipkins, et al. 2011; Darling – Hammond and Barron, 2008; Fullan et al., 2014; Fullan, Langworthy and Barber, 2014; Levin, 1999; McLoughlin and Lee, 2008; Osborne, 2016; Saavedra and Opfer, 2012; Scott, 2015; Scott, 2015b)

This synthesis suggests some strong themes of change that underpin new and effective pedagogies. The first of these themes are changes in learning partnerships between teachers and students. Another theme emerging from this synthesis is that teaching and learning is becoming more personalised, flexible, authentic and accessible. Instead of the classroom being the framework for teaching and learning, this synthesis suggests that students can participate and innovate their own learning with the flexibility of collaboration, and connectivity to technologies that give students access to relevant resources and contexts of their own choice. These themes indicate that pedagogies for 21st century learning are concerned with students engaging in their own thinking processes and curiosities to make teaching and their own learning more meaningful.

Whilst predictions abound about the direction that education systems are headed, the classroom remains as the presiding central fixture of today's educational systems. For over a century a heavy emphasis has been on teaching which now is shifting to a heavy emphasis on learning. This synthesis of 21st century pedagogies represent effective ways in which students can be active participants and given opportunities to explore, share and deconstruct knowledge whilst being in a safe environment, with one or more teachers to guide understanding.

School change Leadership practices

The literature reviewed suggests that in the 21st century, school leaders need to provide educational leadership enabling teachers and eventually students, to obtain and utilise the skills, knowledge and attitudes essential to enhance learning (Amos et al., 2014; Fullan, 2013; Sheninger, 2014). The challenges associated with shifts in pedagogy need to facilitate pedagogies in digital flexible learning environments. This will require school leaders and teachers to become experts in adaptation and reflective practice (Benade, 2017b). To achieve whole school improvement and pedagogical change, there must be leadership that formulates a collaborative, unified vision as “Learning environments and systems do not change by themselves but need strong design with vision and strategies” (OECD, 2015, p. 19). School leaders and teachers who have the capacity to effectively guide change, with the challenges and opportunities it presents, are viewed as imperative in learning environments in order to enable and develop future focused thinking (Fullan, 2013).

During the rapid growth of our global landscape, schools are seen as increasingly important to address the changing identity of society; socially and economically. As schools are one of the few significant educational institutes left working directly with community to offer a partnership of learning and socialisation, it makes sense that they provide the platform and means for change. The OECD (2015) asserts that to lead change, leadership is critical, “Having a theory of change is not enough as there needs to be an

understanding and capacity to actually bring those changes about” (OECD, 2015, p. 21). Leaders require an in-depth knowledge of pedagogy in order to be equipped to confidently and competently take ground-breaking risks to challenge and deconstruct “boundaries that divide classrooms, schools and communities from each other” (OECD, 2015). However, Fullan (2013) cautions that many school leaders do not possess these necessary skills, knowledge and competencies to lead in this transformative 21st century environment.

A moral purpose for change can be achieved by breaking those boundaries to develop a learning community “through collaborative work cultures that respect differences and constantly build and test knowledge against measurable results” (Fullan, 2001, p. 44). Schleicher (2015) states that implementing change for 21st century learning represents a shift in thinking and shared norms and beliefs which can be problematic. Fullan (2001) notes that this can be overcome by leaders providing a clear vision and goals for change, supported by a rationale, in order to help teachers understand, and this will likely lead to less resistance. Cowie et al. (2011) further explain that, when schools move through curriculum reform, “time was the most commonly identified support needed to help teachers” (p. 56).

Over the last several decades, there has been increasing research and discussion around the nature of leadership including alternative perspectives and models for leadership and school improvement. Harris et al. (2013) presents a book *‘Effective Leadership for School Improvement’* which focuses on leadership for change being able to build capacity. Teachers are knowledge guides and in the very near future, their roles will become that of a learning facilitator. Harris (2013) highlight the need for a significant investment in building teachers capacities and skills and state change leadership as follows:

- Effective leaders in schools will be those who generate positive relationships to build collaborative cultures;

- Effective leaders are those who develop the capacity for school improvement through working with collaboration and by creating professional communities of learning, within and between schools; and
- Effective leaders have a shared vision with their school and that this is achieved when teachers work collaboratively and collectively as a learning community (Harris, 2013).

This present focus on 'leadership for change' originates from the expanding need to manage the change that is accelerating educational development, underpinned by a "socio-political context characterised by growing consumerism" (Law and Glover, 2000 as cited in, Harris et al., 2013, p. 12). Sheninger (2014) states that key drivers steering our world transformation provide an intrinsic motivation which acts as a driving catalyst for change in schools, and as schools change, so must the leadership. Stoll and Temperley (2010) identify four policy levers which collectively help school outcomes through effective school leadership practice. These policy levers emphasise the need to:

- (Re)define school leadership responsibilities;
- Distribute school leadership;
- Develop skills and knowledge for effective school leadership; and
- Create an attractive profession for school leadership.

Schleicher (2012) explains that these levers highlight the change that the 21st century presents, where increased demand for more responsibility and accountability from school leaders and leadership itself is no longer fixed in its nature but a continuum of learning and development. Translating these levers into specific leadership practices to support pedagogical change focuses how interconnected the relationships between policies, forms of leadership and tangible practices are. Schleicher (2015) presents an analysis of evidence from three sources which also identifies system level and school based policies that endorse effective school leadership. This analysis reinforces teachers' sense of effectiveness to nurture innovation in developing learning environments (Schleicher, 2015). The findings on effective school leadership

outlines three areas for development: (1) training in instructional leadership for principals; (2) encouraging and creating collaborative relationships between school community members; and (3) sharing responsibilities through distributed leadership (Schleicher, 2015).

The first area of effective school leadership identified is intimately aligned with the theme of change and developing pedagogy to facilitate 21st century learning. This area of development discusses how school leaders who develop their own instructional leadership can more effectively build cultures to support change. The second area reinforces that effective leadership enables teachers to succeed together, through a moral purpose, inquiry based practice, provision of time for professional development, research, and reflection to improve and transform teachers knowledge and skills. The last area of development is concerned with the relationship between school leadership and informed decision-making, which is about distributing and sharing authority and leadership roles with individuals and teams with responsibility and autonomy (Harris & Spillane, 2008).

Likewise, Leithwood et al. (2017) suggest a similar evidence based leadership model that impacts on and enables quality and improved teacher and student learning. This model proposes leadership is conceptualised through four paths which can act as an influence on learning (Leithwood, Sun, & Pollock, 2017):

1. Rational Path – staff knowledge, skills and understanding of curriculum, teaching and learning;
2. Emotions Path – development of individual and collective trust, relationships and confidence within the school organisation;
3. Organisational Path – structures such as policies, procedures and leadership that schools have, and put in place that frame the professional and holistic needs of staff; and
4. Family Path – engagement with the parent community for partnership of communication, collaboration and sense of community.

Leithwood et al. (2017) posits that with each of these paths, leaders increase student learning by improving the status or condition of each of the variables that emerge within and across each path. School leaders are able to have considerable positive influence on students' school experiences, on student learning and improved outcomes (Robinson, Hohepa, & Lloyd, 2009).

The literature concerned with 21st century change leadership is largely shaped and impacted by the growth and change of knowledge and technologies in our society and world. Fullan (2002) argues for cultural change where the school principal and school leaders are engaged in the big picture and are required to be conceptual thinkers, having the ability to transform the organisation through people. Moreover, Fullan (2002) suggests that the five key components that characterise successful educational leaders in the Knowledge Age are : (1) moral purpose; (2) an understanding of the change process; (3) the ability to improve relationships; (4) knowledge creation and sharing; and (5) coherence making. Leaders need to be able to “create fundamental transformations in learning cultures and the teaching profession” (Fullan, 2002, p. 16).

To develop and support educational change during the 21st century, educational leaders must focus on sustainability to develop the social environment, learning in context, cultivate leaders within and across schools and to enhance the working conditions, knowledge and skills of teachers (Fullan, 2002). A key challenge for leaders is the need for schools to prepare and provide teachers with specific learning opportunities and practices for development to improve student outcomes. Darling-Hammond and Bransford (2007) state that leaders and teachers that support learning for a complex world need to be lifelong learners who become adaptive experts rethinking key ideas about learning, pedagogy and the values and assumptions that may prevent them from change.

Leadership for the 21st century where conditions for change need to be facilitated is about obtaining and assigning human, intellectual and material resources. Resources that are strategic are those that are guided by goals aligned with philosophical and pedagogical purposes (Bolstad et al., 2012). Change leadership incorporates the skills, knowledge and competencies to motivate and guide people through clear communication and collaboration (Fullan, 2013). Schleicher (2015) also argues that this is a key factor in leading the change process. Fullan (2014) further suggests that the key to significant reform is leaders who can “create fundamental transformations in learning cultures and the teaching profession (p. 16). The industrial education model where leadership aligned with ‘one size fits all’ no longer fits or meets the needs of teachers or students of the 21st century. Robinson et al. (2009) suggest that to bring about effective reform in schools that “leaders at all levels of the system are required to play a vital role in working with teachers to identify and develop appropriate teaching resources and ensuring that these resources are readily available” (p. 111). Amos et al. (2014) also argues that leadership in the 21st century is not about one principal leader but about a united approach:

In a connected world, no individual person or organisation can ‘stand alone’. The success of one depends on others, and the failure of one impacts the others. In such a world, synergistic benefits of knowledge creation considerably outweigh the accumulated benefits of individual knowledge. (p. 37).

However, school change leadership does need to take into account that change does affect different people in various ways and that leadership is not characterised by the same qualities as management. Change needs to have a shared purpose, which encourages broad based, incremental and continuous change, with consistency, working as a collaborative community (Osborne, 2014).

Summary

This literature review outlines and provides confirmation of the relevancy of my thesis focus questions. The research concerned with 21st century learning, skills, knowledge, pedagogies and leadership practices is largely based on

research conducted earlier this century. Many of these 21st century learning concepts with models of learning, pedagogy and leadership are not new in parts, but as Bolstad et al. (2012) states, a cluster of new ideas. Understanding how these ideas and models have changed in nature and how these should be implemented in schools and classrooms still needs to be consolidated and communicated. The literature has attested to the importance of critically examining how education is responding to the needs of students in the 21st century, with what specific skills, knowledge, pedagogies and leadership practices are relevant and effective for improving student outcomes.

CHAPTER THREE

RESEARCH METHODOLOGY AND METHODS

Introduction

This chapter provides a description of the research design, data collection methods and analyses processes used in this research, commencing with an examination of the research design. This includes explanations of how focus groups were used for data collection, techniques of data analysis, and ethical and cultural considerations.

The aim of this research was to examine the perceptions of leaders and teachers in regard to the essential 21st century skills, knowledge and attitudes that students require living in our changing society. The research questions that underpinned this study were:

1. What do leaders and teachers perceive to be the essential '21st century' skills, knowledge and attitudes for students to acquire?
2. What pedagogies do leaders and teachers perceive best facilitate the learning of these '21st century' skills, knowledge and attitudes?
3. In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

RESEARCH DESIGN

Ontology and epistemology

In all educational research contexts, ontology relates to being in the world. Cohen et al. (2011) posits that the ontology of interpretivist research exemplifies how people make meaning in their worlds, whereas ontological beliefs and notions arise from the “nature of reality” and the “nature of things” (p. 3). Ontology includes making an assertion about “what is knowledge” (Frith, 2015, p. 15). The ontology of this phenomenological research is that participants (leaders and teachers) shared perceptions based on their experiences and relations with others (Creswell, 2002, p. 178). For this research study, the participants formed meaning through sharing and

describing their perceptions of key emerging concepts for education in the 21st century. The key questions for this research study were based on what leaders and teachers perceive as essential 21st century skills for students to acquire, and the most effective pedagogies and school leadership practices needed to facilitate these.

Epistemology describes the philosophical question that relates to the nature of knowledge and truth (Somekh & Lewin, 2011). The epistemology of interpretive research examines the theory of knowledge and pursues links between and amongst the elements for specific participants within a given context. This research study is founded in an interpretivist epistemology, as the examination will seek to understand the nature and relationships of key emerging elements of 21st century skills, knowledge and attitudes with effective pedagogies and school leadership practices. The interpretivist position of this research study is the outcome of connecting current and relevant theoretical knowledge regarding 21st century teaching and learning to the developing ideas and practice of new and effective pedagogies and leadership practices in schools.

Paradigm

An interpretivist epistemological approach was selected to support the research questions based on school leaders' and teachers' perceptions and experiences of essential 21st century skills, knowledge and attitudes students need to acquire. The researcher identified patterns of the participants' perceptions of what essential 21st century skills, knowledge and attitudes students need, with pedagogy and leadership practices needed to facilitate these. This research study examined how leaders and teachers understand and describe their perceptions and experiences and how these have influenced their professional practice.

My research methodology adopted an interpretive approach within a qualitative paradigm. Qualitative research gives validity to the participants' perspectives (Denzin & Lincoln, 2005) and, through gaining multiple

perspectives, researchers can gain insight into educational problems and the contexts in which they are situated (Bryman, 2012; Cohen et al., 2013; Denzin & Lincoln, 2005). Supporting this, Yin (2013) also describes qualitative research as a study of the meaning of people's lives under real world conditions, in which the research represents their views and perspectives within the contextual conditions in which they work. It contributes insights into existing or emerging ideas that might assist to describe human social behaviour from multiple sources, and not just one source (Wellington, 2015). The qualitative approach was appropriate for my research as it allowed me to gather meaningful data in the form of dialogue, as the leaders and teachers were asked to convey their personal accounts of their understandings and perceptions through focus groups in their natural setting. Denzin and Lincoln (2005) support this approach as they posit that qualitative researchers who use voice data attempt to increase their knowledge about their study participants.

A qualitative research approach aligns with my ontological and epistemological positioning's and the paradigm that underpins my research study. Bryman (2012) states that qualitative research connects with an interpretivist worldview as the purpose is to learn how people interpret the world in which they live. The qualitative design of my research study corresponds effectively with the stated ontology, epistemology and paradigm because the impact of developments in 21st century education on the leaders and teachers in schools can most effectively be studied by examining and identifying participants' perceptions and experiences.

RESEARCH METHODS

Selection of participants

For my qualitative research I used a purposive, non-probability sampling method. Purposive sampling is when the researcher stipulates the characteristics of a population of research interest and then attempts to locate individuals who possess those characteristics (Johnson & Christensen, 2012). This approach assisted me to make sound decisions as to the schools to

select and participants to interview, with the type and size of sampling to gather the necessary data, as suggested by Bryman (2012) and Davidson and Tolich (2003). Eight schools were identified from the *Auckland Primary Principals' Association* website (Somekh & Lewin, 2011) as being either an established school which had been operating for 25 or more years, or new schools which had only been open less than five years. I selected both established and new schools as I was interested in how both established schools and new schools perceive 21st century education and how this was conveyed in their learning environments and professional practice. Each of the eight schools was approached by an initial phone call to the school Principal, to invite middle and senior leaders and teachers to participate in this research. Following this phone call, I was invited to personally visit each school to pitch my research study at a staff meeting and ask for interest from staff members. At each of these staff meetings, after my pitch, I gave a Participant Information Sheet (see Appendix A) out to each staff member. Four schools declined participation in my research study due to the timing of the data collection. I received e-mails from interested staff members from each of the remaining four schools which included both leaders (middle/senior) and teachers. Unfortunately one of these four schools did not have enough interest from their staff. Once I had finalised three schools, I emailed the Consent Form (see Appendix B) to each of the participants to read and consider, and began the process of formulating a schedule for the two focus group discussions with each of the three schools.

Focus groups

The focus group method uses interactive discussion between the participants to explore a specific theme or topic in depth (Creswell, 2007). The focus group questions allowed flexible exploration of participants' responses with question prompts allowing them to further "open their world" to me (Johnson & Christensen, 2012). Focus group data are an interactive product, which provoke and reveal new ideas, connections and perceptions (Hennink, 2013). The focus group method was selected as it enabled facilitated discussion with a group to obtain several perspectives, where both strengths and weaknesses of an initiative could be identified. Focus group discussion appears to be a

straightforward data collection process, but still needs to be carefully planned with forethought. Therefore the researcher should have adequate confidence and interpersonal skills to lead and moderate the interaction of the group.

The use of focus group discussions has several advantages, including: (1) focus group questions are open-ended which gives participants the freedom to steer the direction of the discussion and venture into areas that the researcher might not have anticipated (Bryman, 2012; Hennink, 2013); (2) participants have the opportunity to question their practice, and bring important issues that they think are valid (Tolich & Davidson, 2011); and (3) the researcher can respond to and facilitate participants who may be dominant or speak over other participants (Bryman, 2012; Creswell, 2002). The particular advantages evident in using focus groups for my research were the flexibility for me to question participants further to seek more explanation, and for focus group participants to interact with other individuals' responses by adding further comments that either evoked support or challenge.

The use of focus groups also has limitations. Somekh and Lewin (2011) identify three barriers that can be created for participants within the process of conducting any kind of interviews – these limitations are imposition, grounding and emergence. Imposition is the barrier to guaranteeing that the research questions generate the most beneficial information from the focus groups. The grounding barrier is about ensuring the participants feel self-assured and safe to participate, with the emergence barrier being addressed when the researcher then assumes the listening role so participants feel comfortable and confident for their views to emerge (Auckland Primary Principals' Association, 2017). In my research, the grounding barrier was often evident amongst focus group participants on arrival. Some participants, especially from the teacher groups, made comment to each other that they were not sure if they could effectively contribute. I addressed this barrier by starting every focus group by thanking the participants for their time and expertise, and reassuring participants that they each had knowledge and experience to offer to this research. Additionally, I ensured they had a quiet and confidential environment, wholesome food to eat and demonstrated my role as an active

listener. I hoped that establishing a safe and professional focus group atmosphere enabled the participants to feel more content to share their experiences and perceptions about 21st century learning. Bryman (2012) suggests that focus group discussions have potential for less control over participants as there can be a tendency for two or more participants to speak at the same time. Somekh and Lewin (2011) hold a similar view, suggesting that the challenges within any interview method are the participant responses which often have varied levels of commitment, hidden agendas and truth and reality. This limitation was evident during my first focus group discussion. I had to pause the recorder several times to reinforce to the participants the ground rules of the discussion format which were discussed at the start. For the next five focus group discussions I used an effective strategy to ensure no participants spoke over others and that each individual was given a fair opportunity to speak. This strategy involved me setting a ground rule before the focus group discussion where participants who wanted to speak at any time during the discussion raised their hand and I would acknowledge and confirm this by nodding and pointing my hand towards them when they could commence. A limitation to this strategy was that some participants had to wait longer for their turn to speak and therefore sometimes appeared to forget their points. After the first two focus groups where I noticed this, I suggested participants noted their points down on paper whilst they waited so they would be ready to speak with more articulation.

Bryman (2012) suggests that to receive an adequate pool of ideas for analysis, focus groups should have between four to twelve participants. In my research a total of six focus group discussions were held with each group having five – seven participants, a total sample size of 32 participants. The school leaders and teachers within the research study responded to six questions which reflected the aims and nature of the study (see Appendix C). The focus groups were digitally recorded to ensure there was data accuracy and for reduction of bias (Tolich & Davidson, 2011).

DATA ANALYSIS

Once the data collection was concluded, the data was then analysed. Data analysis is the process of making sense of the research data by synthesising and organising raw data into a series of findings or results (Lofland, Snow, Anderson, & Lofland, 2006). Once the data collection was completed, the raw data from the focus group discussions were transcribed verbatim. Transcribing focus groups allows the researcher to “study the processes whereby meaning is collectively constructed within each session” (Somekh & Lewin, 2011) These transcripts were then formatted so that the transcribed data was on the left hand side of the page, with a margin on the right hand side provided for coding (Hennink, 2013). In addition to these transcripts, I also had anecdotal notes recording observations and specific thoughts related to focus group participants both during and after interviews. Bryman (2012) suggests that notes enable the researcher to reflect, and also aid with the processes of coding data and differentiating themes.

In order to sort data and create meaningful findings and results, a thematic analysis process was used. Lofland et al. (2006) explain thematic coding as a process of two parts: (1) initial coding – where data is organised and assigned to general categories; and (2) focused coding that integrates larger parts of similar information, refining the focus and eliminating unnecessary information. The purpose of this process is to ensure that there is a full and systematic analysis of the data. In doing so, the researcher is able to make sense of individual quotes as well as the relationships between quotes and links between data from various research sites (Bryman, 2012; Lofland et al., 2006). In my research, I organised and presented my findings utilising my research questions as overarching guides in conjunction with emerging themes. Each theme was allocated a colour. Each of the three schools were coded with a letter A-C and their focus groups of leaders (L) and teachers (T) were coded with numbers (e.g. School A: L1, T1). The colours and codes given emerged from specific ideas reoccurring within each focus group question (e.g. Theme colour: AL1, BL5). This analysis was a continuous process, comprehensively examining the transcripts multiple times until all

common experiences and perceptions were identified. To conclude the data analysis, I refined the categories formed from the data into main data themes that were presented in relation to each of the interview questions. Examples of these themes are: 'descriptions of 21st century learning environments'; and 'essential 21st century skills, knowledge and attitudes'. The coding process was finally formulated into a summary of findings. These findings are presented in Chapter Four.

Validity and trustworthiness

Validity is essential to rigorous research because if research is "invalid then it is worthless" (Lofland et al., 2006, p. 200). In qualitative research, Cohen et al. (2011) suggest that the validity of qualitative data is often determined by the reduction of the amount of bias that is sometimes obvious in the characteristics of the researcher, participants and question content. As the researcher, I needed to be aware of my own bias in relation to my own perspectives on the study topic. I have been in education for 25 years and personally experienced immense educational change in the last 10 years, so I have some very strong ideas and opinions about 21st century teaching and learning. Cohen et al. (2011) posits that the transference of the researcher's attitudes, feelings, values and apprehensions upon the participants needs to be avoided at all costs. To ensure validity was achieved within this study, specific strategies were employed to recognise any potential issues of researcher bias. Throughout the data collection and analysis, I ensured that I retained a neutral position, always maintaining focus on my research aims and questions.

Another aspect of research validity when conducting research interviews is the challenge of the guarantee of accuracy, trust and understanding by both the interviewer and participant (Bryman, 2012, p. 314). When facilitating focus group discussions, multiple perspectives of the same phenomenon are likely, and it is this range of accounts that is valued in interpretive study. Focus group discussions need to be well-structured and facilitated to ensure that every participant the opportunity to speak. Hennink (2013) advises that "With no structure one cannot make claims that any differences observed are due to

actual differences between groups, since all or most of the variability could just as easily be due to differences in the same way questions were asked” (p. 189). Having separate groups for the school leaders and teachers was a strategy to remove any likely power dynamics that may have either inhibited participants or led them to modify their responses.

The term ‘trustworthiness’ in qualitative research means that the data are credible, plausible and therefore defensible (Somekh & Lewin, 2011). Bryman (2012) states that qualitative researchers evaluate the quality of research by using a set of conditions to ensure its trustworthiness. Cohen et al. (2013) similarly posit that the trustworthiness and reliability of a research study can be regarded as the consistent measure between what researchers record as data and what really occurs in the natural setting being researched. Additionally, to ensure the trustworthiness of data is assured, there should be accurate recording of data in a focus group discussion with the endeavour of precise documentation (Hennink, 2013). In my research study, participants were emailed a copy of the sections of the transcript of their individual contributions to read and confirm the accuracy of their individual data, or make any additional clarifications of their quotes before data analysis proceeded (Bryman, 2012; Cohen et al., 2013). No participants asked for changes to their contribution within the transcript.

Triangulation

Triangulation enhances the credibility and dependability of qualitative research by making a comparison of multiple sources of evidence to help verify the accuracy of phenomena (Johnson & Christensen, 2012). Triangulation also contributes to the ‘rigour’ of the research (Bryman, 2012; Cohen et al., 2013). Four types of triangulation generally identified in the literature are: data triangulation, investigator triangulation, theory triangulation and methodological triangulation. Data triangulation refers to different data sets which have been collected at different times and was used in my research as there were several schools and multiple groups within each school involved in the data gathering and data analysis process (Cohen,

Manion, & Morrison, 2013). The individual school data provided different perspectives of participants' perceptions and experiences. Davidson and Tolich (2003) espouse that if the data from the various sources of information are considered similar, it provides more confidence in the validity of data. Within this research, data triangulation enabled an examination of many different participant responses to the same set of focus questions. This enabled a cross check of data from various sources which improved the validity and trustworthiness of these findings.

ETHICAL CONSIDERATIONS

Prior to commencing my research study, ethics approval was obtained through a written application to the Auckland University of Technology Research Ethics Committee. This approved written application incorporated the following ethical considerations:

- adequacy of the research design;
- benefits of the research study;
- risk of harm, including anonymity;
- informed and voluntary consent;
- disclosure and absence of deception;
- social and cultural sensitivity; and
- possible conflicts of interest.

Research ethics provide researchers with a guiding set of principles in conducting ethical studies (Flick, 2015).

Informed consent

Informed consent means that participants fully understand the nature of the research and what is required of them, so that they can voluntarily make a decision about whether they will participate or not (Flick, 2015), which is shown by participants consenting in writing. Bryman (2012) states that participants are given the opportunity to be fully informed from the start of the nature of research and the implications of their participation. For this research

study, I provided initial Participant Information Sheets (see Appendix A) at the time of my research 'pitch' at each staff meeting for each interested school. Those teaching staff interested in participating took one of these information sheets which provided comprehensive details about the research to be conducted in their school. Those leaders and teachers who were interested in participating registered their interest by responding by email to me directly. Those participants taking part were asked to read and sign a Consent Form (see Appendix B) directly prior to the commencement of the focus group. After the focus group discussions were concluded and transcribed, appropriate sections of transcript was given to each school's participants for validation and accuracy checking. After receiving the focus group transcripts to check and validate, research participants were given up to ten working days to withdraw their involvement, but after this duration their data were included in the research study.

Minimising harm

Researchers must consider their responsibility to minimise harm for their research participants to ensure that their research will not embarrass, hurt, or in any other way create a response or reaction that could influence the participants' willingness to participate (Johnson & Christensen, 2012). This research study minimised harm by ensuring that the focus group environment was comfortable, quiet and confidential, consent information was reviewed before each focus group, and the questions were carefully worded and trialled on a group before the first official recorded discussion. I only selected schools where I had no existing professional or personal relationships.

Confidentiality and anonymity

In this research study all data were confidential to the researcher and the participants. Johnson and Christensen (2012) describe confidentiality as the measures the researcher employs to protect the privacy of the research participants. Anonymity is also considered another action to safeguard the privacy and identity of participants as they are not known to the reader (Johnson & Christensen, 2012). Each of the participants' identities were kept

confidential throughout the data collection, and their identity and school identity remains confidential to all parties outside this research study. Pseudonyms for anonymity were used within the transcripts and this thesis to ensure participants privacy. Throughout this research process, AUTECH ethical procedures, consent forms, data collection and findings, participants' and schools' identities have been kept confidential in a locked cabinet.

Cultural sensitivity

Conducting research requires researchers to be sensitive and respectful towards culture and importance aspects of cultural protocol. Cultural sensitivity requires an awareness and development of interpersonal relationships and conduct when working with participants within the research context. In Aotearoa New Zealand, it is vital for researchers to understand the educational aim for Māori and Pākehā is to recognise each other as full partners, where all cultures are valued for their participation and contributions they bring (Ministry of Education, 2007). Demonstrating cultural respect through professional conduct and work ethic builds mutual trust between the researcher and the participants and in the research data collection process. In this research study, open and clear communication was utilised, with full information and assurance of participants about each part of the process. This was achieved by spending time before and after each focus groups to address the participants by further introducing myself, discussing the nature and process of each focus group discussion, fielding any questions and reassuring participants at the completion of each discussion that their contributions were valued.

Summary

This chapter summarises the rationale for the use of a qualitative research study. Incorporated in this were descriptions of research design, analysis and the method of data collection, along with considerations for reliability and validity. In conclusion, the ethical implications of my research were presented. The next chapter will present the findings of my research study.

CHAPTER FOUR: FINDINGS

Introduction

This chapter presents the findings from the six focus group discussions conducted with 32 participants in three Auckland schools. These findings identify school leaders' and teachers' perceptions of the essential 21st century skills, knowledge and attitudes that they believe students require, supported by pedagogies and leadership practices.

The structure of this chapter is as follows:

1. The focus group interview questions are stated;
2. A table presents the identified key sub-themes. The participants from the focus groups are identified and coded AL, AT, BL, BT, CL, CT to identify each school and position, which is either a school leader or teacher. Focus groups AL and BT had six participants; all other groups had five participants. In total, 32 participants were involved in the focus group discussions. Within each focus group, each participant has been ascribed with a numerical pseudonym. For example, the first participant from the focus group of school leaders in School A is identified by the pseudonym of AL1, and teachers AT1.

FINDINGS

Question one

Question one asked: How would you describe a 21st century learning environment? (Tell me what you think it's about). The data collected in response to this question are summarised below in Table 4.1.

Table 4.1 Descriptions of 21st century learning environments.

Response category	No. of responses from each focus group						Total
	AL	BL	CL	AT	BT	CT	
Innovating in learning environments	5	3	2	5	3	3	21
Being adaptable	4	3	2	4	3	3	19
Enabling students' agency	3	2	4	4	5	4	22

Participants identified that learning environments in their schools, ranging from traditional 'single cell' classrooms to flexible, larger spaces, are comprised of more than just a particular type of physical space. Participants used terms like "flexible space", "ILE" (Innovative Learning Environment) and "collaborative environments" to describe these learning environments. Participants recognised that these learning environments cater for, and sustain, multiple styles of teaching and learning through blending spacial and digital environmental dimensions. The following comments reflect this:

Learning spaces will progressively become more holistic in nature. They need to be developed to accommodate and stimulate risk-taking, meaningful projects, with tools to be connected and cater for all learning styles. This will engage students in their own learning. (CL4)

21st century learning doesn't occur in classrooms with four traditional walls but in a flexible space with a coach or mentor supported with digital tools to make learning meaningful and collaborative. (AL1)

There's not a 'one size fits all' model anymore. We have to be really diverse with different classroom settings, which are always fluid and ever changing, with technology being a huge aspect. (BT4)

These comments suggest that leaders and teachers identify the purpose of new innovation and flexibility in learning environments as an influential element of student learning and outcomes. Both leaders and teachers clearly indicated that learning environments are constantly changing to meet the needs of students for 21st century learning, whether this change is physical, social or digital. Equally, leaders and teachers identified that an integral component of utilising new learning environments is the pedagogy that relates to the physical space. Leaders' and teachers' responses identified that students are being encouraged to have 'student agency' which provides opportunities to give them a voice and, often, options in they how they learn, which stimulates a greater interest from and motivation of students. Furthermore, participants discussed how student engagement and achievement in learning is more effective and authentic when students have

the power to act on, direct or regulate their own learning. One leader also identified student agency as 'contemporary learning', and commented that 21st century learning is about both students and teachers taking agency for their own learning to develop and transform specific skills to suit our changing world. For example:

21st century learning is about personalisation to the student. It's about the students having their own agency to seek, gather and learn for themselves. It's about students learning to self-monitor and equips them with the support and skills to define their own learning goals.
(AL6)

With agency, students have more opportunity now in the modern environment for choice so that they can follow their own interests a bit more. They can still have sound learning in the basics, but also, they can follow where their interests lead them and be able to make more choices. (CT5)

Teachers have become a guiding support system that helps students navigate themselves through day-to-day lives and the curriculum. There is also a big shift in the way students work together. They are actually teaching each other and learning off each other, which they really respond too. (BT4)

In discussions based around learning environments and student agency, both leaders and teachers frequently used the term 'adaptability'. Adaptability was used in reference to students' ability and capacity to respond to change, uncertainty and innovation. For example:

It's about us adults knowing about our work places, and that these can change at anytime, anywhere, and you can work anytime, anywhere. It's about our students knowing these things and learning in different ways to be prepared. It's the teachers and students learning together as things change around us, breaking down the walls of when, where, what. (AT4)

Learning in this century is about adaptability. We have to move and change for what the students need and the students want for their learning and their future. (CT2)

New learning is about being flexible and adaptable. It about giving our students and teachers the space and support to be flexible in the ways they learn and apply that. (BT2)

Question two

Question two asked: What essential 21st century skills, attitudes and knowledge do you believe are your students' to develop at this school? (Tell what you think these are, and some reasons why). The data collected in response to this question are summarised below in Table 4.2.

Table 4.2 Essential 21st century skills, knowledge and attitudes.

	No. of responses from each focus group						
Response category	AL	BL	CL	AT	BT	CT	Total
Critical thinking	4	4	2	5	1	2	18
Interpersonal skills	5	2	4	5	1	3	20
Intrapersonal skills	5	0	2	5	2	3	17

The importance of interpersonal skills for 21st century learning was identified in 20 participant responses. In particular, School A leaders and teachers provided half of these. Specific interpersonal skills identified by participants were communication, collaboration, empathy, relating to others, tolerance and creativity. These interpersonal skills were identified as a cluster of skills, which gave students the ability to manage and regulate their relationships and interactions with others. These participants noted the following:

Collaboration skills, being able to work with different people, basically communication and creativity, but being able to look at different people and recognise what needs to be done. (BL2)

I think it's around the key competencies... interpersonal skills, collaborative skills. Those skills are so important when you consider

that probably 80% of the jobs that these kids will go into may not exist yet. And the world is, as you know, is looking really uncertain and full of problems, to say the least. So those skills become really, really important, probably as important, if not more important than teaching content. (CT4)

Responses indicated that these interpersonal skills have traditionally been assumed to be a part of a student's way of life but, with factors such as technology developing more presence in students' lives, and parents working more and/or not explicitly teaching these skills at home, these interpersonal skills need to be integrated through teaching and learning. For example this leader noted:

The future is in the handshake, I think 21st century learning skills are cyclical... if the future is in the handshake; it's in the interpersonal skills where students have the ability to connect with others. This needs to be a part of learning. (AL1)

Whilst leaders and teachers acknowledged the significance of interpersonal skills as being essential for 21st century learning, both leaders and teachers identified critical thinking as an overarching principle. In fact, some participant responses indicated that critical thinking could enhance interpersonal skills. Critical thinking was identified as the use of metacognitive skills. Participant descriptions such as 'how to think', 'how to learn', 'higher-order thinking skills', 'reflection', and 'self-awareness' were all used in reference to critical thinking. Participant responses recognised that the development of critical thinking enabled students to acquire the necessary tools to transfer their learning and skills to other learning and life contexts. For example:

I believe that critical thinking and problem solving are skills everyone needs, no matter what job they encounter in the future, they will need to solve some kind of problem, and there are going to be problems in this world that need to be solved that haven't existed yet. So, having the skills to get to some kind of solution is important. Students need to be able to think critically as there's so much information, which they instantly get, and they need to know if it's from a credible or fake source. (AT2)

Project management is an essential skill, because it rolls into critical thinking and problem solving, all of that together. It's about trying to do something in the big, seeing the big picture and those skills transferring to whatever job they end up in. (BL3)

Supporting the sub-themes of interpersonal skills and critical thinking, participants identified another set of essential 21st century skills as intrapersonal skills. Intrapersonal skills identified by participant responses were values, self-awareness, self-management, self-regulation and perseverance, with the most frequently discussed intrapersonal skill being resilience. Participant responses described intrapersonal skills as students' ability to develop abilities to internally self-manage and control their impulsiveness to consciously focus on expectations and tasks set, especially in flexible spaces. This participant noted:

Teaching the children self-management is going to be absolutely essential if we are going to hand over the control to them and let them find their own path, and initiative is really, really important too. (BT6)

The key skill of resilience was perceived to be the most essential intrapersonal skill for 21st century learning and living. Participant responses identified that living in this contemporary society, which seems to be evolving constantly, requires students to learn what resilience is and how to develop this. Participant responses discussed how historically, resilience developed more organically for students. However, similar to interpersonal skills, it was acknowledged that resilience is a skill that needs to be explicitly taught in schools. As academic and social settings develop and transform in the 21st century, students' responses to change and challenge is perceived to be crucial to their development and success in life. School A leaders and teachers in particular felt strongly about the teaching of intrapersonal skills with ten of these participants reinforcing the importance of these with specific comments:

I think that those intrapersonal skills are going to be really high on the list with the ability to be able to relate with others and themselves, the ability to be resilient and to keep a balance in their own lives. I think that students need to have an understanding of neuroscience to know how their mind, body and feelings work so that they are comfortable

with their own wellbeing themselves, and that builds onto relating to others and a wider society. (AL4)

Many of our students need resilience. It's the managing themselves in distractions and the "stickability" with the flexibility that they're getting within the modern learning environments. I think that's quite as strong area that we need to focus on, as well as teachers. (CT3)

Question three

Question three asked: What teaching approaches do you think are best to facilitate the learning of these 21st century skills, knowledge and attitudes? (Discuss which you think are more effective and why). The data collected in response to this question are summarised below in Table 4.3.

Table 4.3 Teaching approaches that facilitate 21st century skills, knowledge and attitudes.

Response category	No. of responses from each focus group						
	AL	BL	CL	AT	BT	CT	Total
Variety of pedagogies	3	3	4	3	4	4	21
Partnership in learning	3	4	2	5	1	4	19
Relationships	5	3	3	3	0	2	16

A key finding from the responses to this question is that the most effective way of facilitating teaching and learning of 21st century skills, knowledge and attitudes is through a variety of pedagogical approaches. All participant responses identified that they were experiencing pedagogical change in their schools. One teacher participant stressed:

There's a big change coming through teaching approaches. That's through ILE, where the flexibility of classes running workshops and allowing students to, if they know, where their learning gaps to take agency over their own learning and teaching opportunities. All those things are currently having a massive change in teaching approaches. (CT5)

Participant responses, in particular teacher responses, recognised that these changes being introduced in their schools have led to them sifting through incoming information to understand suggested new pedagogies. School A is a brand new foundation school; therefore their identified implementation of new pedagogies has been evident from the start. For the other two schools, new concepts have been introduced over time in different ways. This participant discussed their school's adoption of a new pedagogy:

Our school has embraced 'Visible Learning'. So, enabling students to have that student agency, we're becoming more and more reflective practitioners and taking on board what students have said about our own teaching, and our own pedagogy. It's about having to adapt to meet students' needs rather than the students having to adapt to our pedagogies. So, it's a journey forward together. (BL1)

Participant responses identified that utilising a variety of pedagogies for 21st century learning included using traditional and non-traditional practices. One participant described this as “not throwing the baby out with the bath water” (AT6). Participants agreed that a growth mindset of pedagogical approaches is inevitable and identified that teachers working together to combine new practices with traditional approaches was important, and described the effect of these on student and teacher outcomes. For example:

I think if I've got a skill, and she's got another, that's fine, so I don't see us having one way, I see it as a number of ways working together. I do think we do need to provoke the kids and light a fire under them, we need to inspire them, but we also need to get them to respond, whether it's by getting them to ask questions, or leading them. Somehow we have to get them to take the next step, whatever approach we use to get that. (AT1)

Participants identified that new pedagogies to facilitate essential 21st century skills, attitudes and knowledge are underpinned by learning partnerships. Teaching approaches characterised by teacher-directed practices are no longer perceived to support 21st century learning. Participant responses identified that if students are to progressively learn in various ways and at different paces, teachers need to differentiate teaching approaches for the range of student learning needs. This included students utilising their agency

to collaborate and work with other students, their teachers and networks through digital domains in order to learn. Participants identified a shift in their role as a teacher to the role of a facilitator, who guides students, monitors and supports their learning pathways, and conferences with them regularly for accountability and understanding. Participant comments included:

For teaching approaches you need to be clear on where you are going, you need to understand how to get there as well, and you need to be able to give up some of your authority because for us to say that kids need to be passionate about their learning, they have to have some input to their own teaching and learning programmes. You have to give this a try, and if it doesn't work, then it doesn't work, but you reflect and move on together. We believe we are on this journey together and if we make a mistake, we put our hand up, and then we move on; teachers and students. (CL4)

Being equal with your students, being on an equal path, being able to have those equal conversations, where they can have, as much control as you've got, is hugely important, because that's what's developing those essential skills. If students can't experience control then they're not free to make mistakes and they don't develop those self-management, real life skills that they are going to need when they leave school. For me, equal learning and equal respect is really important. (BT6)

Participants' responses to this question emphasised the importance of the relationship between teachers and their students to support new pedagogies. Relationships were the mechanism for building understanding, trust and open and honest communication to support each student's learning pathways. Eleven participants who held leadership positions indicated that teachers identifying the holistic needs of their students through genuine relationships provided an effective platform for personalised and individualised learning. As one leader participant respondent described, "*Teaching in the 21st century is all about 'whanaungatanga'. It's about relationships and connection through shared learning experiences and working together to students a sense of belonging*" (AL4). Other comments were:

It's about the relationships with the students. It's all good to say students need to take agency, but if they're not used to that, if they're being used to being spoon fed and everything, you need to know them. You need to be able to guide them in a direction that they're going to be able to hook into. (BL4)

It's about you as a teacher knowing your students very well. It's about knowing their specific needs, whether these are social or academic. The biggest teaching approach you can have to knowing your kids and that relationship you have with each and every one of them. (CT5)

Question four

Question four asked: What leadership support do you think teachers need to develop more knowledge for teaching and learning about these approaches? The data collected in response to this question are summarised below in Table 4.4.

Table 4.4 Leadership support for teachers development.

Response category	No. of responses from each focus group						Total
	AL	BL	CL	AT	BT	CT	
Educational leadership	5	4	4	5	5	4	27
Support systems	4	5	2	5	4	4	24

The responses for this question highlighted the importance of support as a strategy to enable teachers understanding of what new teaching and learning approaches are required for 21st century learning. Specific leadership practice will enable and equip teachers with educational leadership, pedagogical experiences and appropriate resources. Participant responses emphasised the requirement for building new knowledge for 21st century learning for all key stakeholders in education. To achieve this, these respondents expressed new knowledge needs to relate to their school's curriculum goals with relevant professional development specific to the individual needs of teachers. This provides teachers with the appropriate context and enhances their capacities to develop new knowledge and trial new pedagogical application. Leaders

reiterated this point made by some teacher participants, adding that as leaders their responsibility was to encourage teachers to trial new learning, even if they make mistakes.

It's about making sure our professional development is relevant to what our teachers need to learn about, and giving them time to go away and trial this learning. That's when the make or break situations happen. For me as the Principal, I don't care if it fails, as long as the teacher reflects on why it failed so they make it a better programme or try something else, so, for us our support is how it adds value to teachers learning programmes, and add value to the students learning.
(CL2)

Many of the approaches we are looking at, as teachers are completely new to us, as we were not exposed to them as students ourselves. If we are being responsive to student needs, then there needs to be an ability within the professional development of the school to be responsive to our needs as teachers. (AT5)

Three quarters of participants responded that being given support systems, especially 'time', enables them to have the opportunities to learn, implement, trial, and reflect to grasp new teaching and learning approaches for 21st century learning. Understanding and committing to developing a vision of 21st century skills and knowledge will take time and personalised support systems. Participant responses identified aligning content, new pedagogies and technologies will require continuous learning for the foreseeable future. Respondents described that with the provision of support strategies such as time and flexibility to develop new knowledge and skills, whilst immersed in day-to-day teaching, teachers can learn from their teaching. This provision of support systems enables teachers to reflect on practice, collaborate with others, observe others, coach others or be coached, network, and connect with other schools. The ability to have support systems for teachers' professional learning is highlighted in the comments below:

I've been teaching for fifteen years and when I started it was chalk and board, and there's a lot of people at this school who've been teaching

longer than I have. So, I think if you want everybody to get on board with these new teaching approaches, for them to actually have time and support to go and see how it works and to get quite specific development. Not a sit in the staffroom and talk about it, an actually hands-on, give it a go; see how it works because otherwise, they're going to be resistant to change. (BT7)

It's about being exposed to the opportunities, to see the research in action and what's working well in a similar school or a different. It's being given the creative license to try new things and to stuff up, but know that's okay. It's having the support of our management to know we can try things with time, to give these kids the best possible 21st century learning that we can. (AL6)

Question five

Question five asked: Are there any current or future challenges you see for your teachers, students or your school to integrate these essential 21st century teaching and learning approaches to integrate these essential skills, attitudes and knowledge?

The data collected in response to this question are summarized below in Table 4.5.

Table 4.5 Current or future challenges integrating 21st century learning

Response category	No. of responses from each focus group						
	AL	BL	CL	AT	BT	CT	Total
Lifelong learning	5	4	3	3	4	3	22
Responding to change and uncertainty	2	4	3	2	5	3	19

There was a range of responses to this question. Overarching these responses was the sub theme of change. Specific responses from leader participants identified that they felt confident about the systems and practices that need to be in place to support their teachers, but they were unsure of what support will be most needed and will be provided for their development. Respondents in leadership positions described their current priority and

success of this will be based on their leadership abilities to develop their teachers' practice to align with new pedagogies and technologies. However, they commented that this alignment would require system changes, growth mindsets with practice, and working with parents from diverse cultural and socio-economic communities to understand these. These leader respondents commented:

The challenge for us to implement 21st century learning is that things are always changing, so it's about us being able to change with these things and keeping ourselves on the edge of specific changes... it's about sustaining the journey that the current teachers and leaders in your school are creating together, but as students and teachers change how does that journey stay and fit with the values and beliefs you work with, and the tensions you have, to remain relevant and what you perceive as important for your students' (AL5)

I think when people don't see what the end result is meant to look like, it's very hard for them to buy in the pedagogy of what the school's trying to do. So, they are reluctant. People say they like change, but when it actually comes to do it, they're reluctant to jump on that boat. Without the knowledge and seeing where the pathway is heading, they're afraid to take that risk. With the old system, where if you took a risk, you got nailed for it, whereas now, we're encouraged to take risks. (BL2)

Teacher responses identified that the shift to the new concepts of 21st century pedagogies were creating challenges for all key stakeholders. Not only do teachers have to ensure that their students are engaged and are learning, teacher respondents also state, that they have to make sure that they are meeting their curriculum and school goals, that on the whole, reflects a new vision. These teacher responses highlight this:

There's a conflict between administrative requirements and what I see as frontline work, where you interact with your students. For our students, these curriculum changes are exciting, but they often conflict with curriculum, as these documents are now almost a decade old. Also, it conflicts with National Standards, as they measure everyone by

the same lines, whereas we are now aiming to individualise education. However, at the bottom of the concept of 21st century learning, there are a lot of exciting opportunities. (BT2)

I think the school curriculum needs to be updated and needs to be regularly updated to enable integration of 21st century teaching and learning practices, So, things like four year plans need to be out the window now because we're living in a changing world and that world is changing rapidly. (CT1)

Teacher participants emphasised the changes that new technology has incorporated into their classrooms and pedagogies. Not only do teachers feel that they have to learn the use of digital devices and domains, but also how they should utilise and merge these products and resources into their pedagogy. Additionally, some respondents described that specific on-going development and support is required to keep teachers updated about new technologies, as students appear to be more proficient and knowledgeable than they do. The teacher participant commented:

You've got new apps to learn; you've got new technology to learn. You've got to manage all these children. We've got diverse learning needs. We've also got kids who've got completely diverse needs because they've been on the Internet doing home learning and they want to do a certain subject. So, for me, the whole system is at the point where it needs a huge and radical change because one person cannot manage all of that. (BT5)

An interesting component of this question was that respondents identified some philosophical statements about how 21st century learning is changing and the expectations this creates for them and others. Learning theories that now focus on students' capacities to construct and interpret knowledge, instead of being passive receivers of knowledge, has moved well away from traditional theories of practice. Equally, both leader and teacher participants described the varied expectations that have arisen from the shift from the traditional teacher directed focus to the student centered focus which takes students out of rows of desks and chairs, memorising and rote learning, to

more active learning environments where students learn between informal and formal contexts with technology.

I guess the question is why have we changed from believing that we have things that we can help kids or give kids that they need in their lives? To feeling like it's our duty to keep them interested and engaged. I know engagement goes onto learning, but it's almost like our role has changed to entertainers. Having to maintain this constant interest, as kids are getting more used to instant gratification. All sorts of things that came with traditional education, we are taking away. We might be blaming it on technology but the parents and teachers are the adults, so we need to take control of what we are doing. (CT4)

Because we are a new school, I have a concern that there will be a dilution of values and principles and school philosophy, as our school grows in numbers and things keep changing. Meeting the family cultural expectations, could add to this challenge as the families that move into this community may not necessarily come from backgrounds that support our beliefs, but are coming to this school because it's in their zone. It could be a struggle balancing this expectation to prove that what we are doing is learning, and not perceived differently. It will be up to us to connect with the community to help them understand what our school is doing and how it will help their children for their future. (AL7)

The responses for this question also indicated that current and future challenges implementing 21st century learning bring different expectations from several key stakeholders about responding to change. The change in educational thinking, from delivering the curriculum to instilling learning within the dimensions of student's lives, is a significant one. Participant's responses described despite trialing and implementing new pedagogies, teachers still need to identify measureable student learning outcomes to provide quantitative data for parents, and leaders for Board of Trustees and other stakeholders such as the Education Review Office. Respondents identified the challenges of this with the subsequent tensions, open questions, and uncertainty. Especially, leaders emphasised that, until these key stakeholders

align policies, goals and expectations with each other, then there will be continue to be disconnect and areas of uncertainty. These are described in the comments below:

There are many stakeholders, so there are various tensions that have to be satisfied and played against, for example National Standards, which has really changed the way teachers, teach. In seven years that's quite visible now. This has created a disconnect with the kids, as they're saying my parents expect me to achieve this way, but if we actually believe in this 21st century learning and this way of going, actually what we are doing will satisfy all of those things but people may not necessarily believe or trust that yet. (AT4)

National Standards and government expectations; measuring everything against National Standards and understanding how this translates to 21st century learning. What does it actually look like and how is it measured? ... And then how is it meeting student needs? (CT3)

Summary

This chapter has presented the data collected through focus group discussions regarding school leaders and teachers perceptions of what essential 21st century skills and knowledge students need to be equipped for learning and living. Additionally, the data examines the suggested pedagogies and support practices needed to facilitate and implement these skills. From grouping the sub-themes identified in this chapter, the following themes arose: (1) 21st century learning is linked to the learning environment, metacognition and adaptability; (2) the development of essential 21st century skills and knowledge is addressed through new pedagogies that foster relationships, student agency and utilises technology; and (3) that leadership practices enable the implementation of new pedagogies more effectively. The following chapter will discuss these themes more comprehensively and connect them to the literature reviewed in Chapter Two.

CHAPTER FIVE: DISCUSSION OF FINDINGS

Introduction

This chapter discusses the overall findings from the focus groups presented in Chapter Four, linking the findings to the literature review in Chapter Two. This discussion of findings will be arranged by the themes that arose from the research questions:

1. What do school leaders and teachers 'perceive to be the essential 21st century skills, knowledge and attitudes for students to acquire?
2. What pedagogies do school leaders and teachers perceive best facilitate the learning of these 21st century' skills, knowledge and attitudes?
3. In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

Three main themes emerged from the focus group data:

- (i) Essential 21st century learning skills, knowledge and attitudes are linked to personalising learning
- (ii) The development of essential 21st century learning skills and knowledge is addressed through effective pedagogies, relationships and learning partnerships
- (iii) Rethinking learning and supporting teachers' roles and knowledge will be achieved through educational leadership.

These three themes will provide the framework for the discussion in this chapter. Additionally, this chapter will examine the relationships between the themes, sub-themes and the literature reviewed.

Theme one:

Essential 21st century learning skills, knowledge and attitudes are linked to personalising learning.

The key idea within this theme is that essential 21st century learning skills; knowledge and attitudes are linked to personalising learning. This is achieved through understanding educational change, innovation of learning environments, student agency and the essential skills required to learn and live in the 21st century.

Understanding educational change

In my research study, the common descriptors used by research participants when defining a 21st century learning environment was that a 21st century learning environment now refers to a global context that moves well past their school gates. Consensus emerged amongst the participants that 21st century learning environments which had been centered on the traditional classroom, have been strongly influenced by a world now characterised by continuous change and constant global pressures. Globalisation and new technologies have combined to create a changing learning environment in a time where education needs to adapt to the 21st century, and where boundaries, time, place and space are being broken down and replaced with new possibilities (Bolstad et al., 2012). Bolstad et al. (2012) research also advocates that, as a result of this, current education systems and practices are not responsive to the learning needs for all students in the 21st century.

Within each of their own school contexts, all three schools acknowledge that 'adaptation' is a key concept that underpins 21st century learning. Responses from three quarters of the research participant's admit that education systems can no longer remain fixed. In order for students to be prepared for different designs of work, business models and practices, they must acquire new and diverse skills (Bolstad et al., 2012). The challenge these three schools now face lies within the clarity of what this means for their school context and students. Research participants focus group findings were in consensus that students need to learn to continually adapt themselves. The OECD (2015) reinforced this point by stating that students need to develop competencies and dispositions to become active lifelong learners who are not just citizens of their society, but of the world. This finding is also supported by Darling-Hammond and Barron (2008) and Bentley (2012) who state that a paradigm shift has been made towards a Knowledge Age in which the cultivation of a different set of skills is refined for the 21st century global economy. This challenges 21st century education to achieve a more coherent educational system that can support what is known about quality learning and can assist new knowledge about learning and new purposes and aims for learning in a changing world (Barkatsas & Bertram, 2016).

Innovation in learning environments

The findings of this research correspond with the literature stating that essential 21st century learning skills, knowledge and attitudes focus on how students learn and are shaped and developed by the context in which they are situated, actively constructed and socially negotiated with others (Bentley, 2012). The three participating schools' perceptions and understandings of the essential 21st century learning skills, knowledge and attitudes students need to acquire, in this research, were based around this learning concept. Each school's leaders and teachers had numerous ideas and knowledge around this learning theory, highlighting their shift in mindsets towards a new 21st century learning paradigm.

Participant responses from all three research schools recognised the need to move away from the industrial era way of education with a 'one size fits all' model of learning, towards one where knowledge is viewed differently. This shift by the three research schools reflects the New Zealand Curriculum (Ministry of Education, 2007). This document states that learning needs to "encourage all students to reflect on their own learning processes and to learn how to learn" (Beetham & Sharpe, 2013; Bolstad et al., 2012; Gilbert, 2005; OECD, 2012). The focus group findings indicated each of the three schools is developing their knowledge and practices to meet this curriculum goal with new 21st century learning ideas and concepts. However, as Dovey and Fisher (2014) similarly caution in their work, the traditional model of teacher centered pedagogy still remains in many aspects of their practice. Each of the three schools are implementing new learning theories at different levels and in various ways but are not entirely confident of what this 21st century learning theory means in practice yet. As Benade's (2015a) research advocates, transformative responses and notions of knowledge are being conceived but, as many of the research participants admitted, this is a continuous process of learning with adaptation and change. Giving teachers the flexibility to develop and trial 21st century learning concepts and ideas, with creativity in their planning and practice, will provide time for reflection and understanding. This finding is supported by the work of Bolstad et al. (2012) and Hattie (2009) who suggest that 21st century learning is not a known formula but instead a cluster

of new ideas, knowledge and theories working towards finding a balance between surface and deep learning for student outcomes.

The findings align with Kereluik et al.'s (2013) theory that the 21st century is bold and breaks the mold, with flexibility, challenge, creativity and complexity. The three schools in this study all recognise that in preparing their students for the 21st century, with the ubiquity of technologies and interconnected nature of our world, transforming learning is crucial and will involve a major shift. One of the first initiatives of professional development that these three schools have implemented acknowledges their students' learning environment needs to be innovative, creative and designed differently to personalise and cater for individual learning needs and outcomes. Each school recognises that learning environments need to be specifically personalised to cater for each individual student's learning needs. Dumont and Istance (2010) argue similarly when they state that a learning environment should focus on the learners as its core participants. This promotes students' on-going engagement to develop their own understanding of their own activity.

Each of the three schools in this study has implemented ILE's in some shape or form. Research school A is a new foundation school especially designed with only ILE spaces whereas the other two schools indicated that their schools has mostly single cell classrooms, and some flexible, larger spaces. Bolstad et al. (2012) describes single cell classrooms as providing limitations for teachers to change their pedagogies, but research participants indicated that the purpose of all their learning spaces are changing their context for teaching and learning. The findings indicate that the reframing and rethinking of their learning environment context include creating new opportunities for authentic and personalised learning, collaborative teaching, flexible time and space arrangements and varied pedagogies. Leadbeater (2011) had similar findings to this, stating that the 21st century presents new principles to education that have new forms and functions of learning.

Student agency

The key finding from this data collection was that all three schools are focusing on 'student agency' as a central concept to developing their educational thinking and practice for 21st century learning skills, knowledge and attitudes. This thinking concurs with curriculum where student agency is embedded in the *New Zealand Curriculum* key competencies as "the capabilities that young people need for growing, working, and participating in their communities" (Ministry of Education, 2007, p. 38).

The findings from each research school reiterated that there is a tremendous paradigm shift to change their focus for students to move from being passive receivers of information and knowledge to being more actively engaged in their learning process. In relation to specific practices of student agency, these varied across the three schools. For two of the schools, they focused discussions around student agency about the concept of student voice. Student voice is an element of student agency, but it is only one aspect of students developing the capacity to self-regulate their own learning. For the third research school, student agency was about students being offered an extensive range of learning opportunities to access and express their perspectives and learning in order to implement their own decision-making. This research school data aligns with the work of Bolstad et al. (2012), who state that student agency "is about restructuring roles and relationships in ways that draw on the strengths and knowledge of each (i.e. teachers and students) in order to best support learning" (p. 42).

Essential 21st century skills

Another key finding of this research was that all three research schools identified critical thinking, interpersonal and intrapersonal skills as essential 21st century learning skills, knowledge and attitudes that students need to acquire for learning and life. This aligns with the literature in which Pellegrino and Hilton (2013) separate 21st century skills into three key domains that include the cognitive, interpersonal, and intrapersonal domains. School A participant data also concurred with Pellegrino and Hilton's (2013) work indicating that they teach these three domains in a trans-disciplinary mode as

a means to develop these skills across multiple disciplines. Many of the participants repeatedly emphasised the importance of education preparing students with the skills and competencies to build new capacities, to be autonomous, responsible and be equipped for real life scenarios. This aligns with the literature of Wagner et al. (2006) of '7 Survival skills for the 21st century'.

The consistent finding is that critical thinking is an essential 21st century learning skill. These critical thinking skills, also referred to as cognitive and metacognitive skills, problem solving skills or higher order thinking skills (OECD) are mostly related to knowledge management (Ministry of Education, 2007). These processes refer to acquiring, disseminating, selecting and processing information, integration, analysis, application and sharing in socially networked environments. Additionally, research participants indicated that due to digital technologies, the rate of information and communication requires students to develop new skills for processing and presenting forms of information through various contexts and formats. School B commented that changing traditional practice where students are being encouraged to work independently and with technologies is proving challenging. Participants commented that they are not confident that specific critical thinking skills are being developed in the most meaningful ways, and seek more innovative ways to facilitate, cultivate and monitor the development of these skills. In contrast to school B, schools A and C have begun trialing and are using more innovative styles of pedagogy and strategies to facilitate the development of critical thinking skills. School A commented that individual students might have demonstrated critical thinking skills and knowledge, but they are yet to see evidence of more students applying the appropriate dispositions of self-management to use these, especially in social settings. All three schools data findings indicated that critical thinking and problem solving is a fact of life moving further into the 21st century but are still in the early stages of developing understanding and pedagogies to foster these with articulation.

Interpersonal skills, knowledge and attitudes, were indicated as essential 21st century learning skills by all three research schools. Aligning with literature,

communication, collaboration, empathy, relating to others, tolerance and creativity, these were specifically commented as key skills and competencies (Luna Scott, 2015a). Equally, intrapersonal skills were perceived as essential 21st century learning skills, knowledge and attitudes by all three research schools. Also concurring with literature, values, self-awareness, self-management, self-regulation, perseverance and resilience are identified as supplementary skills for students to learn, manage and develop for response to attitudes, dispositions and response to failure (Luna 2015a).

The findings suggest that students need to acquire the skills and develop the attitudes to interact effectively and appropriately with people from diverse cultures with different learning and social needs, both within and beyond their local context. Pellegrino and Hilton's (2013) research explains how developing interpersonal and intrapersonal domains promotes effective and appropriate communication, collaboration and ethical behaviour within diverse social groups. This is already a key component in the majority of jobs and workplaces, and is perceived to become an even greater component over the years ahead. Moreover, rapidly advancing technologies and global knowledge economies and social integration are redefining the scope of communication skills at the workplace (Ananiadou & Claro, 2009). Supporting this is the literature based on key competencies from the *New Zealand Curriculum* (Ministry of Education, 2007) and *Key competencies for the Future* (Hipkins et al., 2014) that states when students develop competencies through education and related with the market, they will be prepared with future focused ideals of performance.

Summary

The findings related to this research question have established that the essential 21st century learning skills, knowledge and attitudes that student need to acquire are:

1. How students learn and how that learning is shaped and developed by the context in which it is situated, actively constructed and socially negotiated with others
2. Continual adaptation

3. Innovative and personalised learning environments
4. Student agency
5. Critical thinking, interpersonal and intrapersonal skills.

This research and findings have highlighted the need for change in our educational system. These findings emphasise that education systems need to develop to provide students with learning experiences that reflect real world scenarios and problems to prepare them more effectively for work opportunities. The greatest implications of incorporating the learning of 21st century skills appear to lie with existing curriculum and teachers. How rigorous is our current curriculum? It is very clear from these findings that teachers need to transform their understanding and skills of essential 21st century skills so they can innovate pedagogies to teach students more effectively.

Theme two:

Pedagogies for teachers that best facilitate the learning of essential 21st century skills, knowledge and attitudes are addressed through effective pedagogies, relationships and learning partnerships.

The key ideas within this theme are that traditional pedagogies are changing to new innovative and effective approaches that require a focus on authentic relationships to form new learning partnerships between teachers and students.

Effective pedagogies

A consistent finding from the focus group data, for the learning of essential 21st century skills, knowledge and attitudes, is to improve and transform traditional pedagogies to new innovative and effective pedagogies to create better students outcomes. This aligns with the literature concerned with rethinking pedagogy for the 21st century that states approaches to teaching and learning must be new and more inclusive to assist and address 21st century interdisciplinary themes (Hipkins et al., 2014; Ministry of Education, 2005). New, effective pedagogies will be informed by research, critical reflection and analysis, based around specific principles such as, authentic

relationships, respect for diversity, focus on central meaning making processes, engaged participation in relevant learning activities, and autonomy development (Beetham & Sharpe, 2013; Bolstad et al., 2012; Cowie, Hipkins, Keown, & Boyd, 2011; Fullan et al., 2014). The participant responses concur where each of the school's development for pedagogical change has centred around research of literature and other schools, reflective practice to support inquiry of practice and trialling new pedagogies based on knowledge building processes. This discussion supports Fullan et al.'s (2014) research which states that a key aim of building new pedagogies should be creating, using and applying deep learning to develop new knowledge.

Pedagogy embraces dialogue between teaching and learning, theory and practice, to guide learning in the context of teaching, and teaching that has learning as its goal (Beetham & Sharpe, 2013; Cowie, Hipkins, et al., 2011). All three schools indicated that pedagogy in its definition hasn't changed, but the relationships and interactions between students, teachers and the learning environment are changing and transforming. A constructivist approach in education posits that learning is a complex, changing, interactive, situated and active process that allows learners to individually construct their knowledge in a unique and meaningful way. Research participants acknowledged that this literature concurs with leaders, teachers and students where everyone in the educative process is invited to become the teacher and learner (Beetham & Sharpe, 2013). From teachers and students, new capacities are required from their partnership in learning to recognise and work with student strengths and develop their potential (Fullan et al., 2014). Luna (2015b) found that new pedagogies are about adapting many traditional elements of pedagogies to become more effective for 21st century learning needs. Traditional pedagogies are still perceived as meaningful aspects of practice by research participants. Specifically, participant responses from all three schools aligned with McLoughlin and Lee (2008) and Luna (2015b) that suggest that this new paradigm of learning offers opportunities to adapt and transform pedagogies. A key finding indicated that an opportunity for new pedagogy is adapting the role of a teacher, who has an influential role in the teaching and learning process. Teachers will still retain many of their traditional responsibilities,

especially in pastoral care, but this and other aspects of their role will be modified as guides, facilitators, designers and creators of learning tools to support students outcomes (Bolstad et al., 2012). McLoughlin and Lee (2008) states that this will frame the pedagogy theme of personalisation which focuses on the teacher personalising learning for student choice, agency, customisation and self-regulation. Biggs (1999, as cited in Beetham and Sharpe, 2013) explains irrespective of pedagogical change, the purpose of pedagogy should be one of ensuring that there is consistency and alignment of curriculum, instruction, learning environment and assessment, with careful examination of underlying assumptions of each aspect.

The key to developing new effective pedagogies for 21st century learning lies within developing a variety of pedagogies that are already understood and and those new pedagogies focused on innovation and theories of learning. The findings within this research indicated that each of the three schools are focused on developing new pedagogies but are all using a range of terms to describe their practices, which all have the purpose of student centred learning. Teachers from School A and School C refer to this variety of pedagogies as a 'toolkit' approach. Effective pedagogy that focuses on student centred learning incorporates a variety of teaching and learning approaches (Luna Scott, 2015b). Luna (2015b) synthesis of 21st century pedagogies states a number of suggested pedagogies that includes utilising different forms of instruction to stimulate and aid learning. In each of the research schools they are specifically focusing on developing new pedagogies such as project based learning, teaching and developing thinking skills, encouraging reflection, assessing with relevant tasks and continual feedback and using technologies to enable various mediums. Teachers working in ILE's commented how trialling the implementation of these pedagogies has felt more effective and meaningful when working with other teachers in the same learning environment. This aligns with Osborne (2016) who suggests that when teacher pedagogies are clarified, understood and matched with ILEs, there will be significant gains for teachers and for student outcomes.

Relationships

Another key finding of the research was which teaching approaches were considered to best facilitate the learning of essential 21st century skills, knowledge and attitudes is relationships. Some leader participants commented that the relationship between leaders and teachers is vital to support teaching approaches. Additional comments about fostering meaningful relationships were based around that although these have always been extremely important in school communities, they are seem to be more difficult to establish and maintain. As schools have become more busy and demanding with change, participants have found that other domains such as administration and time have become barriers to building relationships. However, as several leaders commented, fostering relationships will enable and support their learning community and described with visible passion that relationships establish a 'platform', the 'connection', and as quoted by a leader from School A *"Teaching in the 21st century is all about 'whanaungatanga'. It's about relationships and connection through shared learning experiences and working together to students a sense of belonging."* Building meaningful relationships is not a new concept to education but it is clearly a priority for school leaders and teachers in supporting change. The *New Zealand Curriculum* (2007) states a vision for students to be *"Connected"* and *"Able to relate well to others"* as *"Members of communities"* (Hattie, 2009), and includes the Key Competency *"Relating to others"* which is about *"interacting effectively with a diverse range of people in a variety of contexts with the ability to listen actively, recognise different points of view, negotiate, and share ideas."* (Ministry of Education, 2007, p. 12).

The surge of knowledge about the human brain and the nature of learning, combined with the expanding influence of technology, create the potential to transform even the most important component of education; the interaction of the teacher and the student (Ministry of Education, 2007, p. 7). Developing relationships where both teachers and students mutually motivate, engage, encourage, care and respect each other to promote a safe environment is a powerful pedagogy for 21st century learning (Luna, 2015b). The participant responses provide examples that support the aims of personalising learning

that adopts a more holistic approach to students' individual development. Through establishing a relationship of trust and understanding, focus group findings indicated that teachers with students are able to develop personal learning needs through effective collaboration and conferencing. Furthermore, findings described how motivation levels of students tend to be higher when they receive regular feedback on their learning goals, and have the opportunity to steer their own progress with support. Fullan et al. (2014) posits that the aim of new pedagogies needs to develop relationships between teachers and students to guide students' ability to regulate their own learning and application, through exploration, connectedness and authenticity, within real world contexts.

Although each of the three research schools differs on the number of ILE, their responses were consistent with how the literature describes the influence of relationships and interactions in flexible teaching and learning spaces with new pedagogical approaches. These environments enable effective pedagogy that guides student learning needs through student centred and personalised learning connected to their own experiences and those of the real world (OECD, 2003). The shift and redesign of physical, teaching and learning structures has opened opportunities for more collaboration between teachers and students, and students with students which presents new dimensions to relationship building. Research participants' findings indicate that this has placed students as a key resource. Although challenging for some teacher participants, to enable power shifts from teacher to students, comments acknowledged that given time to build relationships, trust and evidence of effectiveness, partnerships of learning will develop.

One specific area of concern and development for teachers which relationships enable, is the trust and use of digital tools as a part of increasingly more independent and flexible space. Digital tools play a crucial role in innovating learning environments but as Beetham and Sharpe (2013) and McLoughlin and Lee (2008) caution digital tools need to be intentionally merged with pedagogical practices, as technology is a part of complex societal factors that include differing student expectations, behaviours,

demographics, school pressures, and lifelong learning. Beetham and Sharpe (2013) suggest that using digital tools requires different pedagogical approaches, and until the relationships between the components of learning with new technologies is understood and researched more, collaboration and critical reflection is vital.

Learning partnerships

For any innovation or reform to be successful, there are both personal and professional obstacles that educators face. All those in education are more likely to learn from each other when they collaborate, disagree and conduct healthy debate, as sometimes ideas can be missed which are critical during implementation (OECD, 2013). The process of implementing 21st century pedagogies in schools is one that cannot be taken without careful examination and consideration. Aligning with the literature, Bull and Gilbert (2012) posit that developing new pedagogies for the 21st century means teachers need to build new knowledge and practice, and in order to transform teachers skills and knowledge, change needs to take place across the system and not just with individual teachers (Fullan, 2001). The key finding from this research was how the use of learning partnerships supports the development of knowledge and implementation of effective pedagogies for 21st century learning. Several school leaders indicated the process of implementation of new pedagogies starts with their own leadership and forming new partnerships of learning with their teachers and community. School leaders findings are supported by Bolstad et al. (2012) that states when creating a more coherent education system, the challenge is for educators to examine, collectively, the new purposes for learning in a changing world, what is already known about good learning and what can reinforce new knowledge about learning.

A research finding within this theme was the influence of collaboration on supporting the implementation of new pedagogies. Each of the three schools are establishing a culture of collaboration that fosters and provides opportunities of productive professional discussion and reflection, between teachers and school communities. This concurs with the synthesis of pedagogies of Luna (2015b). This synthesis states collaboration and

communication as formal and informal pairing and grouping of students (teachers, educators, community members) whom interact, identify, solve and apply mutual outcomes to achieve learning inquiry. The Principal from School A commented that educational change within school environments and communities must be developed through collaboration (Bull & Gilbert, 2012). As Fullan (2001) posits, when teachers work collaboratively, they build learning partnerships, effectively developed towards authentic pedagogy, actioning reform from a school wide perspective rather than sporadically.

The key to developing learning partnerships within school wide culture means education systems must incorporate what is known about adult learning and cognitive development as well as what is known about students' learning and development (Ravitch & Wirth, 2007). Teacher focus group findings strongly indicated that implementing new pedagogies requires specific and personalised support and development from school leaders that embody the principles of new learning theory. The literature that states that teachers and students require new capacities from their partnership in learning to recognise and work with student strengths and potential (Bolstad et al., 2012) also relates to the learning partnership between leaders and teachers. Similarly, the literature from Saavedra and Opfer (2012) states, from teachers, new capacities are needed to use innovative and research based teaching strategies with learning technologies, real world applications, supported by continuous assessment of student learning progressions (Bolstad et al., 2012). Again, this notion can be applied to school leaders in which they need to develop new capacities, supported by assessment of teachers' learning progressions. Several teachers from each of the three schools indicated that if leaders require them to make significant shifts of mind-sets and pedagogies that they need to know their teachers (learners). Specifically, they commented on relationship, flexibility, responsiveness and personalised support. This aligns with the literature of Luna (2015b) that states new pedagogies for the 21st century are about quality, inclusive, equitable and relevant education opportunities in which learning is personalised, reflective and supported with feedback from multiple sources.

Summary

The findings related to this research question have established that the teaching approaches that best facilitate the learning of essential 21st century learning skills, knowledge and attitudes are:

1. Effective pedagogies that incorporate traditional and new approaches;
2. Relationships between key stakeholders in education; and
3. Learning partnerships within education communities.

The findings indicate that education will need significant traction to move from traditional education towards 21st century approaches. Schools will need their communities to understand, support and contribute to their endeavours to develop new pedagogies to enable a genuine change for improved student outcomes.

Theme three:

Rethinking learning and supporting teachers' roles and knowledge will be achieved through educational leadership.

The key ideas within this theme are to rethink and redesign teaching and learning, school leaders need to provide educational leadership, support systems and lifelong learning opportunities.

Educational leadership

Educational leaders are increasingly examining the learning capacities required to both manage and lead a school, and to rebuild systems for the 21st century (Saavedra & Opfer, 2012). The key finding from this research was how the effective use of leadership supports teachers to build knowledge of the implementation of new pedagogies for 21st century learning, and of essential skills, knowledge and attitudes. All three schools in this study are examining ways to transform their schools and practice to serve their student needs for improved outcomes. For research teachers, this means examining curriculum knowledge and pedagogy while for research leaders, this means examining the knowledge and skills to support teachers to transform their practice. Each school has adopted their own action plan to support these

areas for their own school context. Each of the three schools had similar themes emerge for leadership practices to support educational change in their schools that were consistent with the literature. This finding is revealed in the work of Benade (2017b) who states that shifts in curriculum and pedagogy requires both school leaders and teachers to become experts in adaptation and reflective practice. OECD (2015) states that to lead change, theory of change is not enough; educational leadership is critical to bring understanding and capacity to bring effective change about.

Establishing new knowledge, understanding and pedagogies for most teacher participants has been a challenge in many ways. From all the questions posed to each focus group, this was the question that evoked the most responses from teachers and leaders. Research participants across the three schools indicated to adapt to and meet the perceived demands of 21st century education requires effective leadership. Schleicher (2015) who has extensive work through the OECD, states that creating strong leaders and confident teachers for 21st century learning environments requires training in instructional leadership for leaders, building collaborative relationships and sharing responsibilities through distributed leadership. Leading change for effective leadership requires communication, consultation, strategic planning with a shared vision, and access and engagement with personalised professional development (Wagner & Kegan, 2006).

Change leadership incorporates the skills, knowledge and competencies to motivate and guide people through clear communication and collaboration (Fullan, 2014; Robinson, Hohepa, & Lloyd, 2009; Sheringer, 2014). As Harris et al. (2013) suggests, effective leaders need to firstly generate positive relationships to build a shared vision and collaborative cultures, and secondly, to develop the capacity for school improvement by creating professional communities of learning within and between other schools. The key finding from this focus group data, for conditions for change, is leadership needs to clearly communicate, consult and collaborate for teacher participants to understand and feel more self-assured how to manage and implement change. Teacher participants acknowledge that National Curriculum steer

many school leaders decisions and actions, but supported by a clear vision and goals for change with a rationale, helps teachers understand, and this will likely lead to less resistance (Fullan, 2013). Fullan (2001) similarly posits a moral purpose for effective change leadership can be achieved by collaboratively breaking boundaries to develop a learning community, respecting differences and continually building and testing knowledge against measurable results. This finding also aligns with Osborne (2014) who states change needs to have a shared purpose, which encourages broad based, incremental and continuous change, with consistency, working as a collaborative community.

The OECD (2015) and Fullan (2013) caution leaders that they also require an in-depth knowledge of pedagogy to competently take groundbreaking risks to challenge and deconstruct boundaries during change. Several leaders, including a Principal, from across the three schools, acknowledged this. Leadership participant's roles vary in format within this study. There are middle leaders, associate and deputy principals and principals. Most of these participants are still classroom teachers. To understand 21st century curriculum and pedagogy, most of these participants indicated they are personally initiating or completing postgraduate study, and other forms of professional development to ensure they can provide effective educational leadership. For research participants, an example of professional learning, which was both proving effective and enabling a breakdown of boundaries, was visiting and collaborating with other schools. This finding is supported by the literature of Harris et al. (2013) who explains that those leaders who are building the capacity for school improvement, can do this more effectively by creating professional communities of learning with other schools.

Findings acknowledged an essential element for effective change leadership includes factors such as 'collective vision, goals, beliefs and values' or 'collaborative and organisational culture'. 21st century education requires all key stakeholders including, the Board of Trustees, teachers, students and parent community, to be informed and consulted. Research by Fullan (2013) states that leadership is more effective when all stakeholders are given a

voice and shared ownership. OECD (2015) further explains that, for whole school improvement and pedagogical change, there must be leadership that builds a collaborative, unified vision. A number of teacher participants believed that the shifts that they needed to establish in their roles and pedagogy was 'high stakes' or 'placing them back as learners' which made them feel unconfident and for some, very uncomfortable. These perceptions emphasised leadership research posited by Leithwood et al. (2017) that suggests an effective path for leaders to influence learning is to develop the emotional development of teachers and collective trust through relationships and confidence within the school community.

Rethinking and redesigning teaching and learning for students to acquire essential 21st century learning skills, knowledge and attitudes, requires school leaders to provide educational leadership. The key finding for this sub-theme was the ability for leaders to communicate and collaborate with teachers to collectively develop a shared vision and goals for educational outcomes. Participants commented that when they understand the rationale and direction they are moving in, they have more clarity about the support systems and processes that will enable teachers' knowledge and skill building, with confident and competent implementation. Educational leadership needs to incorporate working with and guiding students, teachers and parents towards adapting and enhancing educational processes towards common goals. It provides the platform and processes to understand and overcome any challenges that emerge from 21st century learning, in a changing and uncertain world.

Support Systems

Coherent systems created by school leaders are required to support teachers through change that enable them to explore new knowledge about learning, with the vision for learning, to develop new pedagogy through the 21st century (Fullan, 2001). The research participants highlight the importance of support systems and networks to enable teachers to develop the pedagogical knowledge and skills that are required for improved student outcomes. Each of the three schools key finding for support was relevant and personalised

professional learning and development. Each school had commenced implementing various forms of professional learning and development, with School A, a foundation school, having the point of difference as the result of the principal, senior and middle leaders having two terms prior to the school opening to plan and establish a new 21st century school. School A has a weekly timetable which has been specifically constructed to include daily professional learning for leaders and teachers.

A point of consensus from each research school is that the educational changes the 21st century presents requires all educators to become lifelong learners. Participants recognise that in the past, professional development for teachers has been focused on 'one size fits all'. Consistent with the literature concerned with leadership models for 21st century education, effective leadership needs to enable teachers to succeed together, through a moral purpose, to build knowledge and a culture of learning, to become experts in adapting to the world changing around them (Bolstad et al., 2012). As Fullan (2002) suggests, to make a cultural change, leaders need to focus on ways to sustain change to develop a social environment in which learning is in context and cultivated by leaders and teachers within and across schools. Research participants indicated that change in thinking and practice comes with numerous different challenges but if leaders provide learning opportunities and resources that are well communicated and aligned with the school philosophical and pedagogical purposes, this will motivate and guide development with more considerate and focused support (Linda Darling-Hammond & Bransford, 2007; Fullan, 2002; Schleicher, 2015).

Teacher research participants identified that the key finding concerning leadership support of professional learning and development related to the provision of 'time'. Teacher participants commented on needing time to learn, collaborate, implement/trial and reflect on new pedagogical approaches, access and observe practice of peers or teachers from other schools, develop a mentor system, network within the educational community, and take part in an effective appraisal process that helps them build their knowledge and practice. This concurs with the literature of Cowie et al. (2011) that states when schools move through curriculum reform, time is teachers key support

mechanism. Leithwood et al. (2017) work based on four pathways of leadership for influencing teaching and learning, provides a rational pathway that supports these findings. The rational pathway enables educators to be responsive to educational change as it is grounded in knowledge and skills about curriculum and pedagogy. Effective educational leaders in instruction must clearly provide the rationale of what 21st century schools and practices comprise of, and then provide opportunities for this to be understood and developed within the existing culture (Bolstad et al., 2012; Fullan & Grogan, 2013). In conjunction with a rational path, the organisation pathway puts in place the professional and holistic needs of teachers for professional learning and development. Furthermore, Schleicher (2012) suggests that leadership for the vision of 21st century schooling needs to expand beyond the school walls with other schools and communities in order to create connections, strengthen networks, and share in resources to build education together.

Lifelong learning

Findings from each of the three schools identified themes of current and future challenges that are perceived to influence both leaders and teachers progress with implementing 21st century learning. The consensus is that our world is changing, and as it has become increasingly more apparent that current practices are not responsive to the learning needs for all students in the 21st century (Leithwood, Sun, & Pollock, 2017). This means there is a need for all educators to continually learn to build new capacities to meet growing expectations. This is a crucial.

The key finding of research participants concerning current and future challenges of implementing 21st century learning is developing a new mindset towards continually learning as professionals. Acknowledgements were made by many participants that to progress as educators that they must integrate new learning theories, innovation, pedagogies and assessment. Coupled with this, teacher participants accepted that any risks, mistakes or challenges associated with these must be perceived as a valuable part of learning rather than failures. This aligns with the literature of Saavedra and Opfer (2012) that states that teachers must engage with a meaningful enquiry-based process of

significant transformation of mindset and practice to employ innovative and research-based pedagogies. Bull and Gilbert (2012) posit that this change involves the transformation of ingrained or fixed underlying assumptions which requires teachers to shift their paradigm from their past ways of thinking to a totally new understanding of their role and purpose. Several teacher participants from School B indicated that the shift is difficult and at times, problematic, as the perceived expectation is that many aspects of traditional practice no longer has value. This leaves some teacher participants feeling disempowered and uncertain of their role. In contrast to this, teacher participants from School A and C indicated their enthusiasm by the opportunities and potential of the new collaborations they were developing with students and colleagues, especially when teachers saw the value for relationships and student learning. Leadbeater (2011) states that unless the building blocks of traditional schools are broken down to generate the innovation needed for 21st century learning, then no real impact will be made.

Leader participants' current and future challenges, are concerned with developing teachers' capabilities and capacities, to develop lifelong learning mindsets. Several leader participants from School A indicated, for all educators to adapt to 21st century learning and pedagogies, educators must adopt the same student mindset and learning processes to develop the necessary habits, knowledge and skills, for a lifelong learning mindset. Additionally, leader participants from each of the three schools mentioned that an integral part of this lifelong learning is for educators to proficiently use new technologies and forms of media. The literature from Dumont and Istance (2010) argues this case that challenges leaders. They suggest an environment focused on 21st century learning should position the learners (teachers) as its core participants, which promotes and enables their active engagement and aims to develop in them an understanding of their own learning (Bolstad et al., 2012). This will assist them to develop the 'meta-cognitive skills' to monitor, evaluate and enhance their acquisition and use of knowledge in their practice. Bolstad et al. (2012) posits that lifelong learning strengthens the idea that moving towards more uncertainty and unpredictability will require growing individual responsibility. A consensus

amongst a majority of the research participants acknowledged that adopting a lifelong learning mindset is fast becoming a reality. School A, commented that they have educators from around New Zealand visiting their new school most school days, collaborating with, and learning from their pedagogies in their new innovative learning environment(s). The work of Amos et al (2014) states:

In a connected world, no individual person or organisation can 'stand alone'. The success of one depends on others, and the failure of one impacts the others. In such a world, synergistic benefits of knowledge creation considerably outweigh the accumulated benefits of individual knowledge (p. 37).

Responding to change and uncertainty emerged as another finding from research participants as a current and future challenge, in particular, Schools B and C. As Schleicher (2015) suggests, implementing change for 21st century learning represents a shift in thinking and shared norms and beliefs which can be problematic for all key stakeholders. Findings included comments from each of the three schools that acknowledged that as educators, they are cultivating global citizens for a society that is changing at a profound rate. Both leader and teacher participants indicated that as education dynamically changes, growing expectations from parents, government, and work industries regarding building new and effective knowledge, skills and pedagogies, tremendous stress has been placed on educators. These findings signify the challenge educators and schools have now and in the future, to create environments that become adaptive and allow change to happen. The literature from Osborne (2014) states, effective change needs to have a shared purpose, which encourages broad based, incremental and consistent continuous change, working as a collaborative community.

Summary

The findings related to this research question have established that effective school leadership practice that creates the conditions to facilitate the teaching and learning of essential 21st century skills, knowledge and attitudes are:

1. Educational leadership which enables leaders and teachers to learn, collaborate and create a shared vision for improved educational outcomes;
2. Support systems and processes that are catered to teacher learning needs and development to enhance knowledge and skill building; and
3. Lifelong learning to enable teachers to continually learn, adapt to, and overcome any challenges that emerge from 21st century teaching and learning.

The findings regarding school leadership practices have a deep impact on influencing educational change. Leadership in schools is more than maintaining high standards, it is about school leaders having a moral purpose who act with intention to make a difference in the lives of students. To sustain school improvement, school leaders must foster the conditions for teachers to build knowledge and support them as they develop new practice.

Summary of chapter

This chapter has presented discussion of the literature presented in Chapter Two in relation to the three themes that emerged from the focus group data. The discussion focus has been on the themes of: (i) essential 21st century learning skills, knowledge and attitudes are linked to personalising learning; and (ii) the development of essential 21st century learning skills and how knowledge is addressed through effective pedagogies, relationships and learning partnerships; and (iii) that rethinking learning and supporting teachers' roles and knowledge will be achieved more effectively through educational leadership.

In Chapter Six I will review key questions stimulated from the findings and formulate conclusions in response to the research questions. To follow, limitations of the study will be considered and recommendations for 21st century learning and research will be stated.

CHAPTER SIX: CONCLUSIONS AND RECOMMENDATIONS

This final chapter will provide a summary of this research study. It will make overall conclusions, discuss any limitations of this study and make recommendations for further research. This research study examined what educators perceive as essential 21st century skills, knowledge and attitudes for students to acquire. Additionally, it examines the pedagogies and leadership practices suggested to support these. This research study considered middle and senior leaders, and teachers perceptions and experiences of 21st century learning.

An overview of the research study

The objective of this research study was to investigate what educators perceive as essential 21st century skills, knowledge and attitudes students require for today's society. Furthermore, to identify what pedagogies do school leaders and teachers perceive best facilitate the learning of these '21st century' skills, knowledge and attitudes, and in what ways does school leadership practice create the conditions to facilitate this teaching and learning.

Conclusions

Research question one: What do leaders and teachers perceive to be the essential '21st century' skills, knowledge and attitudes for students to acquire?

Conclusion one

Educational leaders need to develop a set of well-defined and shared principles about 21st century learning needs for schools.

A lack of certainty and clarity of how 21st century learning environments should be defined was a consistent finding for the participants. Literature from Amos et al. (2014) urges educational leaders to provide both teachers and students with the tools and infrastructure to that will enable their understanding and practice. This research findings suggest that school

communities need to discuss what 21st century learning could look like, what conditions are best required for learning, and the gaps between learning in the real world and learning in schools. Although no one can confidently predict the future of education, participants agree that globalisation and new technologies have emphasised the growing disconnect between traditional and new kinds of learning needed. Both leaders and teachers in the schools studied discussed similar themes and beliefs about 21st century learning but are seeking common set of principles of the role and purpose of education in a world defined by change (Dumont & Istance, 2010). In each of the three schools participants commented on New Zealand's curriculum Key Competencies and how student learning is focused on learning dispositions and action competencies. However, some participants commented that the understanding of this, and the strategies to facilitate this in teaching and learning, is still up to individual school or teacher interpretation. This doesn't seem to be a problem but this research and related literature stress what is needed now is to develop strategies to merge ideas together within educational communities. To help further the scope of this understanding, a larger scale research study should be used with mixed research methods to confirm more viewpoints. Bull and Gilbert (2012) suggest to support this schools should be collaborating to ensure there is a coherent set of shared ideas and principles about what is expected in schooling in the 21st century.

Conclusion two

Our students and teachers need to be lifelong learners, understanding the skills, knowledge and attitudes needed to adapt and to create own learning pathways.

For the successful transition to 21st century learning this research concludes that a significant element of the paradigm shift from traditional education, where school cultures are more orientated around teaching rather learning, is moving towards learner development. Participants from all three research schools spoke about traditional teacher orientated cultures where students (and teachers) have had minimal opportunities to have agency of their own learning. This study found that schools must identify and create opportunities to create communities of learners where not only students, but leaders,

teachers and parents are engaged with learning that is meaningful to them and can adapt to the realities of the 21st century. Both leaders and teachers findings indicated that instead on focusing on curriculum content or answers which are based from traditional education, learner agency needs to be centred around questions that are situated in the curiosity and interests of the student in which they construct their own knowledge. This research and related literature articulate that to adapt to our changing world we must place student agency at the core of the *New Zealand Curriculum* (2007) with the vision for “*Confident, connected actively involved lifelong learners.*” (Bolstad et al., 2012).

Conclusion three

Students need to develop metacognitive skills to construct their own knowledge in environments that promote personalised learning.

This research infers that the essential 21st century skills, knowledge and attitudes students need is strongly influenced by their learning environment which should be innovated in ways that support students to regulate their own learning through constructing, connecting, collaborating and problem solving. This research emphasised that students should be conditioned by their learning to be critical thinkers, communicators, collaborators, principled, interactive with technologies and resilient to change. Both this research and related literature highlight that essential 21st century skills, knowledge and attitudes are measured by being able to build new knowledge, self-regulate personalised learning, actively persevere through problem solving and challenges, relate and collaborate with others, and develop lifelong capacities (Ministry of Education, 2007, p. 7).

Research question two: What pedagogies do leaders and teachers perceive best facilitate the learning of these ‘21st century’ skills, knowledge and attitudes?

Conclusion four

Teachers need to learn and adapt pedagogies that facilitate and innovate the learning of essential 21st century skills, knowledge and attitudes.

Rethinking pedagogy for any era in education requires consideration. However, the changes in our society and globally mean that the change required in education is more significant than the past. This research concludes that rethinking pedagogies that facilitate 21st century learning is as vital as identifying the skills and competencies that students need to develop. This research emphasised that people learn in a variety of ways, so pedagogies that are most meaningful are those that help students to learn most effectively. This study found that traditional pedagogies are not obsolete. Teachers from this study highlighted that pedagogies that support new learning are about adapting many elements of traditional pedagogy to transform from teacher centered learning to self-directed learning. It was also highlighted that there is an urgent need for curricula open to transdisciplinary focus, student input and diversity. This research and related literature acknowledge that irrespective of pedagogical change the purpose of pedagogy should be as one of ensuring that there is consistency and alignment of curriculum, instruction, learning environment and assessment, with careful examination of underlying assumptions of each aspect (Biggs, 1999, as cited in Beetham and Sharpe, 2013).

Conclusion five

Building relationships and learning partnerships need to underpin new and effective pedagogies to assist with changing pedagogy and practice.

This research concludes that rapport between teachers and students is essential to any meaningful learning partnership. With the growing presence of technology in learning environments and in students' personal lives, this research highlighted the need to ensure human interactions are kept at the forefront of learning. Both leaders and teachers from this study recognised that relationships between all parties concerned with pedagogy for 21st

century learning, needs to be influenced by genuine care, collaboration, learning partnerships and relevant, inclusive and equitable learning opportunities. Both this research and related literature acknowledge that the aim of new pedagogies needs to develop relationships to guide learners ability to regulate their own learning and application, through exploration, connectedness and authenticity, within real world contexts (Fullan et al., 2014).

Research question three: In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

Conclusion six

Educational leadership within the school organisation of individuals and teams support the examination of learning capacities to rebuild systems and practice.

This research concludes that a pivotal leadership practice to facilitate new teaching and learning is the ability of leaders within a school organisation to lead in ways that teachers can acquire and use the skills and knowledge needed to enhance learning. Leader participants from all three schools articulated that the role of leaders in schools such as Principals, senior and middle leaders may not possess all the skills and competencies needed to lead a changing environment. Therefore they themselves are required to engage with professional learning in order to become competent in the new direction of schooling. Additionally, participants recognised that many individuals within a school organisation who are not appointed to formal leadership roles may also be able to provide aspects of educational leadership through their own learning and development. With the increase in the rate of change and the number of new initiatives in educational contexts, it is evident that Principals cannot lead change alone. This study found that for school leaders to transition to significant change that their responsibility is to provide a clear understanding of the culture of the school community so that change being considered is understood, valued and collaborated with and by all stakeholders. Teacher participants commented that to build their personal capabilities and learning capacities that they need strong and engaged

leadership that educates and communicates with clear expectations and guidelines, time, access and support for new learning, feedback, and a culture of collective practice.

Conclusion seven

To create the conditions to facilitate new learning, the alignment of schools' educational change with collaborative and coherent systems is imperative.

This research concludes that aligning changing environments, curriculum, and pedagogy in schools with collaborative and coherent systems successfully enables leaders and teachers to develop the pedagogical knowledge and skills that are required for improved student outcomes. This study found that schools focused on 21st century learning promote and enable new learning for not only students but also leaders, teachers, the school community and across communities. This study found that responding to educational change requires schools to create conditions and environments that are adaptive and allow change to happen. Both leaders and teachers mentioned that in the past that they would engage with educational systems and professional development that were set up and provided for them but to transition to new systems, learning and practices, schools require a shared purpose, collaborative processes, personalised professional learning and partnerships in learning. However, for school leaders to educate their school communities, the literature concerned with change reinforces that the leader must have a vision and be able to confidently communicate the rationale underpinning that vision to the school's stakeholders (Fullan & Langworthy, 2014).

Limitations of the research study

The limitations of this research study are positioned within the methodology used. The small scale of this research study suggests that the findings and conclusions may not generalise other schools focused on 21st century learning but could be transferable to other school contexts as the findings and recommendations make connections and interact with current literature and theories. Cohen et al. (2011) suggest that it is up to those reading this

research to evaluate the degree to which these findings and conclusions can be related to their own environment.

The other limitation of this research study is the use of one method to collect data. This may be considered to be a limitation as Cohen et al. (2011) suggests that there could be issues with triangulation of data if consistency and objectivity are trying to be achieved. Using mixed methods would have helped me to further confirm different viewpoints that may have delivered extra support for the findings and conclusions.

Recommendations

This research has provided findings that have produced three recommendations. While the factors of essential 21st century skills, knowledge and attitudes, pedagogies and leadership practices has been examined individually, their themes and connections cannot be moderated. In comprehending the literature and research findings it is vital to highlight the significance of leadership as a major influence and factor in 21st century education. These recommendations recognise the interconnectness between each theme and the ways in which each of them contribute to effective change and understanding the emerging themes of teaching and learning in the 21st century.

Recommendation one

That school leaders establish and a set of well-defined and shared principles about 21st century learning that identifies essential 21st century skills, knowledge and attitudes students require to contribute to, and live effectively in this contemporary society.

Recommendation two

That school leaders recruit and allocate appropriate time and relevant resources to support the development, capacities, and learning partnerships of teachers to gain pedagogical knowledge and skills to understand and facilitate 21st century learning effectively.

Recommendation three

That school leaders access and engage with professional development with the aim of being educational leaders. School leaders need to develop more knowledge of leadership theories, styles and practices to effectively manage and lead change to equip both teachers and (emerging) leaders capacities to teach and learn in the 21st century.

Recommendation Four

One of the limitations of this study was the small sample size of three schools. A recommendation is to undertake more study around this research focus to explore more perspectives and findings about essential 21st century skills, knowledge and attitudes.

Final Conclusion

This research explored the perceptions of school leaders and teachers in New Zealand schools about their perspectives and experiences with 21st century teaching and learning. The research findings and recommendations make strong connections with the body of literature about essential 21st century skills, pedagogies and leadership practices. This research suggests that school leaders need to take a strategic and collaborative approach to developing learning environments, curricula, practices and partnerships of learning to understand and meet the challenges associated with teaching, learning and living in the 21st century.

REFERENCES

- Amos, C., O'Riley, B., Copeland, T., Fidow, S., Langford, D., Newton, C., . . . Zwimpfer, L. (2014). *Future-focused learning in connected communities*. Wellington, New Zealand: 21st Century Learning Reference Group.
- Ananiadou, K., & Claro, M. (2009). 21st century skills and competences for new millennium learners in OECD countries. In O. E. W. Papers (Ed.), (Vol. No. 41): OECD Publishing.
- Auckland Primary Principals' Association. (2017). Retrieved 2017, from <http://www.appa.org.nz>
- Barkatsas, T., & Bertram, A. (2016). *Global Learning in the 21st Century*. Rotterdam, The Netherlands: Sense Publishers.
- Beane, J. A. (2013). A common core of a different sort: Putting democracy at the center of the curriculum. *Middle School Journal*, 44(3), 6-14.
- Beetham, H., & Sharpe, R. (2013). *Rethinking pedagogy for a digital age: Designing for 21st century learning*. New York, USA: Routledge.
- Bellanca, J. A. (2010). *21st century skills: Rethinking how students learn*. Bloomington, IN: Solution Tree Press.
- Benade, L. (2017a). *Being A Teacher in the 21st Century: A Critical New Zealand Research Study*. Singapore: Springer.
- Benade, L. (2017b). The Future Is Now: What '21st-Century Learning' means for Teaching. In *Being A Teacher in the 21st Century* (pp. 25-73). Singapore: Springer.
- Bentley, T. (2012). *Learning beyond the classroom: Education for a changing world*. New York, NY: Routledge.
- Bolstad, R., Gilbert, J., McDowall, S., Bull, A., Boyd, S., & Hipkins, R. (2012). *Supporting future-oriented learning & teaching: A New Zealand perspective*. Wellington: New Zealand: Ministry of Education.
- Bryman, A. (2012). *Social research methods* (4th ed.): New York : Oxford University Press.
- Bull, A., & Gilbert, J. (2012). Swimming out of our depth? Leading learning in 21st century schools. *New Zealand Council for Educational Research*.
- Charteris, J., Smardon, D., & Nelson, E. (2016). Innovative learning environments and discourses of leadership: Is physical change out of step with pedagogical development? *Journal of Educational Leadership, Policy and Practice*, 31(1/2), 33.
- Claxton, G. (2013). *What's the point of school?: Rediscovering the heart of education*. Oxford, England: Oneworld.
- Cleveland, B., & Fisher, K. (2014). The evaluation of physical learning environments: A critical review of the literature. *Learning Environments Research*, 17(1), 1-28.
- Cohen, L., Manion, L., & Morrison, K. (2013). *Research methods in education* (7th ed.). Abingdon: Routledge.
- Cowie, B., Hipkins, R., Keown, P., & Boyd, S. (2011). *The shape of curriculum change*. Wellington: Ministry of Education.
- Cowie, B., Jones, A., & Harlow, A. (2011). The distribution of leadership as an influence on the implementation of a national policy initiative: The example of the Laptops for Teachers scheme. *School leadership and management*, 31(1), 47-63.

- Creswell, J. W. (2002). *Research design: Qualitative, quantitative and mixed methods approaches*. Thousand Oaks, CA: Sage Publications.
- Creswell, J. W. (2007). *Qualitative inquiry & research design* (2nd ed.). Thousand Oaks, CA: Sage Publications.
- Darling-Hammond, L., & Barron, B. (2008). *How can we teach for meaningful learning?* San Francisco, CA: Jossey Bass.
- Darling-Hammond, L., & Bransford, J. (2007). *Preparing teachers for a changing world: What teachers should learn and be able to do*. San Francisco, CA: Jossey Bass.
- Davidson, C., & Tolich, M. (2003). *Social science research in New Zealand: Many paths to understanding*. Auckland: Pearson.
- Delors, J. (1998). *Learning: The treasure within*. Paris: UNESCO.
- Denzin, N., & Lincoln, Y. (2005). *The Sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.
- Dovey, K., & Fisher, K. (2014). Designing for adaptation: The school as socio-spatial assemblage. *The Journal of Architecture*, 19(1), 43-63.
- Dumont, H., & Istance, D. (2010). Analysing and designing learning environments for the 21st century. *The nature of learning: Using research to inspire practice*, 19-34.
- Flick, U. (2015). *Introducing research methodology: A beginner's guide to doing a research project* (2nd ed.). London, England: Sage.
- Frith, K. (2015). Are your school interiors giving you a pedagogical edge? *Mapping learning environment evaluation across the design and education landscape*, 20.
- Fullan, M. (2001). *The new meaning of educational change* (3rd ed.). London, England: Routledge.
- Fullan, M. (2002). The change. *Educational leadership*, 59(8), 16-20.
- Fullan, M. (2013). *Stratosphere: Integrating technology, pedagogy, and change knowledge*. Canada: Pearson.
- Fullan, M. (2014). *The principal: Three keys to maximizing impact*. Somerset NJ: John Wiley & Sons.
- Fullan, M., & Donnelly, K. (2013). *Alive in the swamp: Assessing digital innovations in education*. London, UK: Nesta.
- Fullan, M., & Grogan, M. (2013). *The Jossey-Bass reader on educational leadership*: John Wiley & Sons.
- Fullan, M., Langworthy, M., & Barber, M. (2014). *A rich seam: How new pedagogies find deep learning*. London, England: Pearson.
- Gilbert, J. (2005). *Catching the knowledge wave?: The knowledge society and the future of education*: Nzcer Press Wellington.
- Hanna, D., David, I., & Francisco, B. (2010). *Educational research and innovation the nature of learning using research to inspire practice: Using research to inspire practice*: OECD Publishing.
- Harris, A. (2013). Teacher leadership and school improvement. In *Effective leadership for school improvement* (pp. 82-93). London, UK: Routledge.
- Harris, A., & Spillane, J. (2008). Distributed leadership through the looking glass. *Management in education*, 22(1), 31-34.
- Hattie, J. A. (2009). *Visible learning: A synthesis of 800+ meta-analyses on achievement*. London, England: Routledge.
- Hennink, M. M. (2013). *Focus group discussions*: Oxford USA: Oxford University Press.

- Hipkins, R., Bolstad, R., Boyd, S., & McDowall, S. (2014). *Key competencies for the future*. Wellington, New Zealand: NZCER Press
- Johnson, B., & Christensen, L. (2012). *Educational research: Quantitative, qualitative, and mixed approaches*. Los Angeles, CA: Sage.
- Kaye, N. (2012). Inquiry into 21st century learning environments and digital literacy: Wellington, New Zealand: House of Representatives.
- Kereluik, K., Mishra, P., Fahnoe, C., & Terry, L. (2013). What knowledge is of most worth: Teacher knowledge for 21st century learning. *Journal of Digital Learning in Teacher Education*, 29(4), 127-140.
- Leadbeater, C. (2011). *Rethinking innovation in education: Opening up the debate*. Melbourne, Australia: Centre for Strategic Innovation.
- Leithwood, K., Sun, J., & Pollock, K. (2017). How School Leaders Contribute to Student Success: The Four Paths Framework (Vol. 23): Springer.
- Levin, T., & Wadmany, R. (2005). Changes in educational beliefs and classroom practices of teachers and students in rich technology-based classrooms [1]. *Technology, Pedagogy and Education*, Vol. 14, No. 3, 2005, 14(3), 281-307.
- Lofland, J., Snow, D., Anderson, L., & Lofland, L. H. (2006). *Analyzing social settings: A guide to qualitative observation and analysis* (4th ed.). Belmont, CA: Wadsworth, Thomson.
- Luna Scott, C. (2015a). THE FUTURES OF LEARNING 2: What kind of Learning for the 21st Century? *UNESCO Education research and foresight, ERF Working papers series, No 15*.
- Luna Scott, C. (2015b). The Futures of Learning 3: what kind of pedagogies for the 21st century?
- McLoughlin, C., & Lee, M. J. (2008). The three p's of pedagogy for the networked society: Personalization, participation, and productivity. *International Journal of Teaching and Learning in Higher Education*, 20(1), 10-27.
- Ministry of Education. (2005). *Key competencies: The New Zealand Curriculum/Marautanga Project* Wellington, New Zealand: Learning Media.
- Ministry of Education. (2007). *The New Zealand Curriculum*. Wellington, New Zealand: Learning Media Limited.
- Ministry of Education. (2017). Innovative learning environments. Retrieved from <http://ile.education.govt.nz/>
- OECD. (2003). *Networks of Innovation: Towards new models for managing schools and systems*. Paris, France: OECD.
- OECD. (2012). *The nature of learning: Using research to inspire practice*. Practitioner Guide. Retrieved from <http://www.oecd.org/edu/ceri/50300814.pdf>
- OECD. (2013). *Innovative learning environments: Educational research and innovation*. Retrieved from <http://dx.doi.org/10.1787/9789264203488-en>
- OECD. (2015). *Schooling Redesign: Towards Innovative Learning Systems*. Paris: OECD Publishing. doi:10.1787/9789264245914-en
- Osborne, M. (2016). *Innovative Learning Environments: Core Education White Paper*, Auckland.
- Pellegrino, J., & Hilton, M. (2013). *Education for life and work: Developing transferable knowledge and skills in the 21st century*. Washington, DC: National Academies Press.
- Ravitch, S. M., & Wirth, K. (2007). Developing a pedagogy of opportunity for students and their teachers: Navigations and negotiations in insider action research. *Action Research*, 5(1), 75-91.

- Roberts, J., & Bolstad, R. (2010). *Better than a professional? Students as co-contributors to educational design*. Wellington, New Zealand: NZCER.
- Robinson, V., Hohepa, M., & Lloyd, C. (2009). *School leadership and student outcomes: Identifying what works and why. Best Evidence Synthesis Iteration BES*. Wellington, New Zealand: Ministry of Education.
- Saavedra, A. R., & Opfer, V. D. (2012). Learning 21st-century skills requires 21st-century teaching. *Phi Delta Kappan*, 94(2), 8-13.
- Sahlberg, P. (2011). *Finnish Lessons*. New York, NY: Teachers College Press.
- Schleicher, A. (2012). *Preparing teachers and developing school leaders for the 21st century: Lessons from around the world*. France: OECD Publishing.
- Schleicher, A. (2015). *Schools for 21st-Century Learners: Strong Leaders, Confident Teachers, Innovative Approaches*. . France: OECD Publishing.
- Sheninger, E. (2014). *Digital leadership: Changing paradigms for changing times*. Thousand Oaks, California: Corwin Press.
- Somekh, B., & Lewin, C. (2011). *Theory and methods in social research* (2nd ed.). London, UK: Sage.
- Stoll, L., & Temperley, J. (2010). *Improving School Leadership*. Retrieved from <https://www.oecd-ilibrary.org/content/publication/9789264083509-en>. doi:<https://doi.org/10.1787/9789264083509-en>
- Tolich, M., & Davidson, C. (2011). *An introduction to research methods: Getting started*. Auckland, New Zealand: Pearson.
- Wagner, T., & Kegan, R. (2006). *Change leadership : a practical guide to transforming our schools* (1 ed.). San Francisco: Jossey-Bass.
- Wellington, J. (2015). *Educational research : Contemporary issues and practical approaches* (2nd ed.): London, England : Bloomsbury.
- Woolner, P., McCarter, S., Wall, K., & Higgins, S. (2012). Changed learning through changed space: When can a participatory approach to the learning environment challenge preconceptions and alter practice? *Improving Schools*, 15(1), 45-60.
- Yin, R. K. (2013). *Case study research: Design and methods* (5th ed.). Thousand Oaks, CA: Sage publications.

Appendix A – Participant Information Sheet

The logo for Auckland University of Technology (AUT) is displayed in white text on a black rectangular background.

TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

Participant Information Sheet: Teachers' and School leaders' focus groups

Project title: The emerging key concepts of teaching and learning in the 21st Century.

Project Supervisor: Alison Smith

Researcher: Cushla Shepherd

An Invitation

Kia ora. My name is Cushla Shepherd and I am enrolled in the Master of Educational Leadership degree at Auckland University of Technology. I have study leave from my role at Orewa College for 32 weeks in 2017.

This research will explore teachers' perceptions of the essential 21st century skills, knowledge and attitudes that students need to acquire, and what pedagogies and leadership practices facilitate this. The particular context for the research is middle schools. This research is part of my thesis study, which will allow me to complete a Master of Educational Leadership qualification. Participation in this research is voluntary and you may withdraw at any time prior to the data analysis phase of my study (i.e. 10 days after you receive your focus group transcript from me for checking).

What is the purpose of this research?

The aims of this study are:

4. What do teachers' perceive to be the essential '21st century' skills, knowledge and attitudes for students' to acquire?
5. What pedagogies do teachers' perceive best facilitate the learning of these '21st century' skills, knowledge and attitudes?
6. In what ways does school leadership practice create the conditions to facilitate this teaching and learning?

How was I identified and why am I being invited to participate in this research?

Your school was identified to participate in this research through your last ERO report that included feedback relating to creating conditions for developing best teaching and learning practice for the 21st century. Information for this research study was presented and discussed at your staff meeting. Following my presentation at this meeting I handed out this information sheet to each attending staff member - it summarises the research study and provides my contact details so that you can express your interest in being a participant.

Once you have confirmed your interest in participating in this study, I will send you an e-mail confirming your participation.

How do I agree to participate in this research?

You can agree to participate in this research by emailing me at the contact details below. I can answer any questions you may have.

What will happen in this research?

Your participation will be confirmed by e-mail from me. Following this you will be asked to complete a consent form to participate in a focus group discussion. There will be two focus groups; one focus group for teachers and the other for school leaders. Each focus group discussion will include six participants, and take approx. 45-60 minutes. The location of focus group discussions will be in the closed and private meeting room at your school, and will be conducted at an agreed time.

What are the discomforts and risks?

This research has been designed to minimise the possibility of any discomfort or risk to you. During the focus group you will be asked to engage in discussion about your perceptions of the essential 21st century skills that students need to acquire, and the pedagogy and leadership practices required facilitating these. These discussions will include reflective practice, opinions and ideas. The focus group protocol, setting and facilitation will ensure your participation is executed with professionalism. You do not have to answer any questions that make you feel uncomfortable.

How will these discomforts and risks be alleviated?

The focus group discussions will take place in a venue that will assure your privacy and confidentiality. As I have mentioned above, you have the right not to answer a question if you do not wish to, and you can withdraw from the focus group at any time.

What are the benefits?

The research will benefit participants to have an opportunity to discuss and give feedback from their own perceptions of what essential 21st century skills, knowledge and attitudes students need to acquire, with teaching and leadership practices. Through focus group discussions participants benefit from a collaborative setting to have a meaningful and validating role in shaping the research.

The research benefits the researcher as it develops and improves their own knowledge which they can transfer to their school setting, and enables the researcher to gain their Masters of Educational Leadership degree.

The findings from the research may be transferable to other schools, especially within the researchers Community of Learning school cluster. The findings may inform those teachers and school leaders insight to which essential 21st century skills and knowledge will better serve the needs of our students.

How will my privacy be protected?

Your identity, including your name, the name of your school and the names of any other teachers or students you refer to, will be protected by the use of pseudonyms in the final thesis. The two small focus groups of participants in your school setting means that most participants will be known to each other, therefore confidentiality is limited. Each focus group participant will sign a confidentiality form.

What are the costs of participating in this research?

The only cost to you will be that of your time. If you are selected to participate in a focus group, this will take approximately 45-60 minutes. To negate any costs of travel, the focus group discussion can take place in a private meeting room at your school if you are comfortable with this location. Alternatively, we can conduct the focus group at AUT.

What opportunity do I have to consider this invitation?

Following the initial staff meeting presentation informing the staff about the research study and opportunity to participate, you will be given this information sheet which has the researchers contact details. If you would like to be considered for the focus group, you will have 10 days to inform me of your intent to participate. Once you have registered your interest, your participation will be confirmed by e-mail. This focus group will be digitally recorded and transcribed.

Will I receive feedback on the results of this research?

Yes. I will provide you with a digital summary of the thesis findings when the final thesis is completed.

What do I do if I have concerns about this research?

- Any concerns regarding the nature of this project should be notified in the first instance to my Principal Supervisor, Alison Smith, alsmith@aut.ac.nz, or phone 921 9999 ext. 7363
- Concerns regarding the conduct of the research should be notified to the Executive Secretary of AUTC, Kate O'Connor, ethics@aut.ac.nz or phone 921 9999 ext. 6038.

Whom do I contact for further information about this research?

Please keep this Information Sheet. You are also able to contact the research team as follows:

Researcher Contact Details:

Cushla Shepherd – cushshepherd@me.com

Project Supervisor Contact Details:

Alison Smith - alsmith@aut.ac.nz

*Approved by the Auckland University of Technology Ethics Committee on **Monday 4 September** AUTC Reference number **17/30***

Appendix B – Participant Consent Form

AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKĀU RAU

Consent Form: Teachers' and school leaders' focus groups

Project title: The emerging key concepts of teaching and learning in the 21st Century.

Project Supervisor: Alison Smith

Researcher: Cushla Shepherd

- ☐ I have read and understood the information provided about this research project in the Information Sheet dated September/October 2017
- ☐ I have had an opportunity to ask questions and to have them answered.
- ☐ I understand that identity of my fellow participants and our discussions in the focus group is confidential to the group and I agree to keep this information confidential.
- ☐ I understand that notes will be taken during the focus group and that it will also be audiotaped and transcribed.
- ☐ I understand that taking part in this study is voluntary (my choice) and that I may withdraw from the study at any time without being disadvantaged in any way.
- ☐ I understand that if I withdraw from the study then, while it may not be possible to destroy all records of the focus group discussion of which I was part, I will be offered the choice between having any data that is identifiable as belonging to me removed or allowing it to continue to be used. However, once the findings have been produced, removal of my data may not be possible.
- ☐ I agree to take part in this research.
- ☐ I wish to receive a summary of the research findings (please tick one): Yes ☐ No ☐

Participant's signature:

Participant's name:

Participant's Contact Details (if appropriate):

.....
.....
.....
.....

Date:

Approved by the Auckland University of Technology Ethics Committee on *Monday 4 September* AUTEK Reference number *17/300*

Appendix C – Focus Group Questions



TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

Outline of questions for focus group: Leaders and Teachers

Project title: The key emerging concepts of teaching and learning in the 21st Century.

Project Supervisor: Alison Smith

Researcher: Cushla Shepherd

1. How would you describe a 21st century learning environment?
2. What essential 21st century learning skills and knowledge do you believe are important for your students to develop at this school?
3. What teaching approaches do you think are best to facilitate the learning of these 21st century skills and knowledge?
4. What supports do think that your teachers need to develop more knowledge for teaching and learning about these approaches?
5. Are there any current or future challenges you see for your staff, students or the school to integrate essential 21st century teaching and learning approaches to integrate these essential 21st century skills and knowledge?
6. Is there anything else you can tell me about this matter?

Appendix D – Transcriber consent form

AUT

TE WĀNANGA ARONUI
O TĀMAKI MAKAU RAU

Confidentiality Agreement: Transcriber

Project title: The emerging key concepts of teaching and learning in the 21st Century.

Project Supervisor: Alison Smith

Researcher: Cushla Shepherd

- ☐ I understand that all the material I will be asked to transcribe is confidential.
- ☐ I understand that the contents of the tapes or recordings can only be discussed with the researchers.
- ☐ I will not keep any copies of the transcripts nor allow third parties access to them.

Transcriber's signature.....

Transcriber's name.....

Transcriber's Contact Details (if appropriate):

.....
.....
.....
.....

Date:

Project Supervisor's Contact Details (if appropriate):

.....
.....
.....
.....

Approved by the Auckland University of Technology Ethics Committee on *Monday 4 September* AUTEK Reference number *17/300*