Learning to Lead Student Achievement: A Mixed Methods Study on the Leadership Practices of New Zealand Primary School Principals

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Abstract

The study's purpose was to contribute to the understanding of professional learning needs of primary school principals and to provide more information about effective leadership practices which raise student achievement in the context of New Zealand's self-managing school system.

This study employed a mixed methods research design to explore how a group of New Zealand primary principals used their direct and indirect influence to impact student achievement. The principals participated in a pedagogically-based leadership programme over 18 months as first-time principals in 2007. The study was situated within a pedagogical leadership discourse to explore how the principals developed their leadership practices over the decade to 2017. The research took place in two phases. In Phase One, a questionnaire was used to explore how 67 principals had developed their leadership practices during the decade 2007-2017. In Phase Two, 12 volunteer principals participated in interviews and contributed documents for analysis to investigate the influence of principals' leadership practices on student achievement in New Zealand primary schools.

Findings appeared to show that an influence of New Zealand's self-managing schooling system was to increase principals' work intensity and reduce principals' focus on teaching and learning within their schools and the time for reflective practice. This work intensity was particularly noticeable for principals of small schools. Principals' decision making was strongly linked to their theories of action. Theories of action based on pedagogical leadership better influenced student achievement. However, the findings suggested that principals also required time to influence practices within their schools. Extended time enabled principals to align pedagogical theories of action with learning and teaching activities, integrate new learning, develop relationships, promote dialogue about teaching and learning within the community of practice and embed self-improving processes for reflection and development of teaching practices. Principals' participation in teachers' professional development enabled principals to better act as a resource for teachers, engage more effectively in dialogue about teaching and learning, integrate new learning into school-wide practices, and enhance processes which facilitated learning within the community of practice. Establishment of structures which developed a safe and orderly environment and

attended to the physical and psychological needs of students, appeared important prior to establishing structures which more directly emphasized classroom teaching and learning.

Findings showed that New Zealand primary school principals' professional learning is heuristic in response to contextual needs. Despite an emphasis on pedagogical leadership within New Zealand education policy and within the principal preparation programme attended by the principals in the study, not all the principals emphasized pedagogical leadership in their practice. Principals developed most of their pedagogical knowledge during their time as teachers. Principals, who continued to develop their pedagogical content knowledge by participating in teachers' professional development, led high achieving schools. The New Zealand education system, while providing autonomy for principals, relies on a high level of unfunded, informal support from vicarious experts such as experienced principals, school community members or other personal contacts to apprentice the principal in a proportion of the knowledge, skills and dispositions required to fulfil the principal's role. Local funding of principals' professional learning leads to inequities of access to professional learning for principals of small and geographically isolated schools.

The implications of the study are collaboration is required between practitioners, researchers and policy makers to advance solutions for problems of educational practice and that reduce contextual influences to principals' workloads and better enable principals to focus on teaching and learning within their schools.

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Abbreviations

Abbreviation	**Explanation**
ALiM	Accelerated Learning in Mathematics
ALL	Accelerated Learning in Literacy
ALLiS	Asian Language Learning in Schools
BES	Best Evidence Synthesis
CEO	Chief Executive Officer
CoL	Community of Learners
ELL	English Language Learner
ESOL	English as a Second Language
ERO	Education Review Office
FLE	Flexible Learning Environment
FTPP (FTP)	First-Time Principals' Programme
ILE	Innovative Learning Environment
MLE	Modern Learning Environment
MOE	Ministry of Education
NAGs	National Administrative Guidelines
NCEA	National Certificate of Educational Achievement
NZC	New Zealand Curriculum
NZEALS	New Zealand Educational Administration and Leadership Society
OECD	Organization for Economic Co-operation and Development
PB4L	Positive Behaviour for Learning
PIMRS	Principal Instructional Management Rating Scale
PIRLS	Progress in International Reading Literacy Study
PISA	Programme for International Student Assessment
RTA	Reflexive Thematic Analysis
SASS	School and Staff Survey
TAI	Teaching-As-Inquiry
TIMSS	Trends in International Mathematics and Science Study
TQM	Total Quality Management

Glossary

Decile	This refers to each of ten equal groups into which a population can be divided according to the distribution of values of a particular variable. In New Zealand schools, Decile 1 schools are the 10% of schools with the highest proportion of students from low socio-economic communities. Decile 10 schools are the 10% of schools with the highest proportion of students from high socio-economic communities. The deciles are calculated from census information from the area that students live in: household income, parental occupation, household crowding, educational qualifications, and the percentage of parents receiving government benefits (e.g., for unemployment or sickness). These indicators are adjusted after each census, and while the particular characteristics of one school's population may not have changed, if the characteristics of other schools have changed, this may cause a given school to move up or down in decile, as by definition, only one-tenth of all schools can be in any given decile band. Deciles determine some operational funding and a range of resource funding for schools.
First-Time Principals' Programme	A professional development programme available to newly appointed first-time New Zealand school principals. The programme was funded by the Ministry of Education and delivered by the University of Auckland, 2002-2017. The programme included residential courses, online learning, professional readings, and support from programme and local Ministry of Education mentors.
Vicarious expert (Vicarious expertise)	A term coined within the thesis to mean a person with prior expertise who may fulfil a particular task or role for someone else. The vicarious expert may temporarily fulfil the role while the person apprentices him/herself within the task or the vicarious expert may permanently fulfil the role in the stead of that person. In this sense the vicarious expert's knowledge or skill replaces any shortfalls in knowledge or skill from the inexperienced person. The concept was developed from the use of *vicarious* in vicarious trauma (VT) which refers to the *indirect* or secondary trauma that can occur when people (often in helping professions such as police, nurses and social workers) are exposed to difficult or disturbing images and stories second-hand. The people begin to experience post-traumatic stress disorder (PTSD) symptoms as if they had been involved directly in a traumatic event (Pearlman & McKay, 2008).
Work intensity	The number of hours an employee spends on a job and how intense the effort is during the hours that are worked that is, the work engagement, hours worked and stress. Work intensity is related to internal and external contextual factors. "Individuals who choose to work hard may do so because of a psychological inclination, or an inner drive to maximize satisfaction that may be coupled with a desire to fulfil personal needs and the organizational context" or the intensity of individuals' work may be related to technological and organizational values or changes (Burke, Singh & Fiksenbaum, 2010, p. 350).
Note bene	Spelling is consistent with *Shorter Oxford English Dictionary* (1933, 2020). This includes where optional spellings are possible, e.g., the popular use of British and American variations such as with 'z' or 's'.

Chapter One—Introduction

Rationale for the Study

Educational leadership is believed to have powerful effects on student achievement and hence on the economic and social well-being of a country (Dhuey & Smith, 2014; Faubert, 2012; Herman et al., 2017; Ministry of Education, 2008; Pont, et al., 2008). Principals are expected to improve the quality of teaching and learning, and student achievement as well as influence system-wide, educational reform for equity and social justice (Ärlestig et al., 2016; Gurr et al., 2006; Jensen et al,. 2015). Robinson and Timperley argue that "politicians, policy makers, and the public are convinced that the quality of school leaders, and of principals in particular, makes a substantial difference to the progress students make at school" (p. 5). This claim stands in contrast to research findings that within schools it is quality teaching that makes the biggest impact (Nettles & Herrington, 2007; Rawlins et al., 2014) and that in New Zealand a student's socio-economic background is more likely to influence student achievement (May et al., 2016; Pont et al., 2013).

Rather than assuming that leadership makes the difference, educational researchers are searching for evidence about how leaders directly and indirectly influence student achievement. While the quantity of research on leadership is substantive, the amount of research linking leadership to student achievement, though growing, remains comparatively small (Herman et al., 2017; Robinson et al., 2009; Saarivirta et al., 2016).

The search for direct influences of leadership on student achievement has been limited and troubled by methodologies which fail to measure the complexity of leadership. A particular problem with linking the influence of leadership practices to student achievement is that leadership actions are often mitigated by teachers and are therefore indirect. As a result, findings appear to contradict each other. Some researchers claim that leadership is the second most influential school-factor on student achievement after teaching quality (Clifford et al., 2012; Hallinger & Heck, 1998; Leithwood & Sun, 2012; Marzano et al., 2005; Seashore-Louis et al., 2010), while other researchers claim the influence of leadership on student achievement is minimal (Hattie, 2003; Scheerens, 2014; Witziers et al., 2003).

Governments are investing money in “whole of system” educational reform (Fullan, 2013, p. 9) based on the belief that leadership “makes a substantial difference” (ibid). With this kind of national investment, it is important to know what are the leadership practices that raise student achievement and the system structures which support the development of these practices. The Teaching Council of Aotearoa New Zealand[1] has argued that “research informed practice that is enabled by policy” (Education Council, 2017a, p. 4) is required to shift the quality of the education system and that, “if we are to make traction in education in Aotearoa New Zealand we need to be building knowledge and practice in our unique context” (p. 4). So what then, are the leadership practices which influence student achievement and how do primary school principals in New Zealand develop these practices?

Research Aim and Key Questions

To this end, this study explored how a group of New Zealand primary school principals, who were first-time principals in 2007, constructed their leadership practices over the decade 2007-17. The study investigated how the principals influenced teaching and learning within the unique context of their schools and situations. To explore the development and application of leadership practices by principals in New Zealand primary schools, the study considered three key questions:

1. How do New Zealand primary school principals develop their knowledge, skills, and dispositions for leadership?
2. What do New Zealand primary school principals do to ensure decisions are informed by knowledge about effective pedagogy?
3. What evidence is there of pedagogical leadership influencing student achievement in the New Zealand primary school context?

Raising Student Achievement in the New Zealand Context

Over the past decade, leadership practices within the New Zealand education system have emphasized pedagogical leadership as a theory of action, focusing leadership on the goal of improving teaching and learning (Ministry of Education, 2008). Research has shown 98% of New

[1] Teaching Council of Aotearoa New Zealand is the professional regulatory body for teachers in early childhood, primary and secondary schooling in New Zealand. The council was formerly known as the Teachers’ Council and as the Education Council.

Zealand principals develop their schools' educational goals based on student results (Pont et al., 2013). This practice is 23% higher than the OECD average (Pont et al., 2013). The greatest out-of-school influence on outcomes for students is that of socio-economic status and challenges to equity are often associated with indigenous and ethnic minorities in low socioeconomic populations (OECD, 2016, 2020; Tan, 2018). In New Zealand, these challenges to equity tend to be associated with the achievement of low socio-economic populations amongst Maori, Pasifika and migrant students (Lai et al., 2009; OECD, 2016, 2020). These inequities suggest that there are insufficiencies in school leaderships' understanding and implementation of structures which support effective pedagogy for these student populations (Wylie et al., 2018). This study explored principals' knowledge of effective pedagogy, the subsequent theories of action which they implemented, and investigated if these leadership practices made a difference to student achievement. As such, the study aimed to build on the growing body of research which focuses on *how* and *what* principals specifically do to raise student achievement (Day, 2015). In particular, this study investigated how the principals made links from evidence they gathered about student achievement, to what subsequent decisions and actions they took to influence gains in student achievement, including the development of supporting structures and systems within their schools.

This study was particularly influenced by the framework and findings of Robinson, Hohepa and Lloyd's Best Evidence Synthesis report, *School Leadership and Student Outcomes: Identifying What Works and Why* (2009). These leadership practices formed the framework of best practice for the 18-month principal preparation programme in which all the principals in this study participated and therefore contributed to the development of the principals' knowledge, skills and dispositions as leaders. As the third most autonomous education system in the OECD (Pont et al., 2013), New Zealand's education system is highly devolved and self-managing, but there is little research about the nature of educational leadership development within such an autonomous system. This study helps to address gaps in our knowledge about how principals develop their leadership practices in the New Zealand education system. This included identifying systemic constraints and opportunities where structures could be designed and resourced to effectively support the development of leadership practices, while still remaining responsive to individual contexts.

New Zealand primary principals have wide discretion in the development of their knowledge, skills, and dispositions for leadership. Principals' preparation and professional learning is unstructured and heuristic, and is influenced by their personal, school, community, and education system contexts. There are currently no prerequisite qualifications for principal positions in New Zealand, except that a principal must be a qualified teacher. School boards of trustees[2] select a principal for their school from self-nominated applicants. The professional skills and life experiences of parent representatives to recruit and appoint a capable principal, vary widely and are influenced by context. For example, New Zealand research has shown that more than 40% of boards of trustees appoint principals in reference to applicants' personalities rather than their professional learning (Brooking, 2008). Contextual influences such as a low socioeconomic school population (Morrison, 2013) and small rural schools (Slowley, 2017), diminish the parent boards capacity to effectively appoint principals. Therefore, individual schools' boards of trustees have considerable autonomy in their selection of principals and principals have considerable autonomy in their professional learning, but there are no system safeguards for principal competency and quality until something "goes wrong" (Robertson & Hill, 2016). While concerns about the competencies and qualities of principals are linked by logical argument to the effects of autonomy within the New Zealand education system (Brooking, 2008; Morrison, 2013; Slowley, 2017; Wylie et al., 2016), that body of research does not link principal qualities and competencies to student achievement.

A number of New Zealand doctoral studies which have linked student achievement to leadership practices but these have been undertaken in the secondary school sector (Bendikson, 2012; Gibbs, 2017; Highfield, 2012). Other New Zealand studies, which offer insights into the development of principals' practice, are doctoral case studies (Notman, 2005; S. Robertson, 2016; Thew, 2002) or case studies that formed part of the International Successful Schools Principalship project 2008-2010 (Notman, 2011) and the International School Leadership Development Network 2012 project (Notman, 2015; McNae et al., 2017). These studies

[2] Each New Zealand state and state-integrated school is governed by a crown entity known as a board of trustees. Boards are composed of school parents appointed to the board through triennial elections, a staff representative and the principal. The actions of the trustees are governed by the *Education and Training Act 2020* and includes being the legal employer of staff at its school.

investigated the practices of principals who were identified as successful but the studies' designs did not specifically link leadership actions to student achievement. One other doctoral study focused primarily on principals' professional learning without linking the development of leadership practice to student achievement (Malcolm,2012). This study investigated the gap in research which links student achievement to the influence of New Zealand primary principals' leadership practices.

The Place of the Researcher

Leadership is described within the literature review as a contested concept. This lack of definition means it is important for researchers to situate their studies by clearly describing the study's context (Heifetz, 2010) and by identifying the epistemological lens through which the researcher views the phenomenon (Grint, 2005). In this study, the background of the researcher involves more than 30 years in the New Zealand education system as a primary school teacher, deputy principal, principal, curriculum lecturer and mathematics education researcher. Two questions have motivated the researcher's teaching practice, "How do I do my job better?" and "What is the evidence?" Reading, applying in context and evaluating best practice research are therefore integral to the researcher's own practice. As a member of the First-Time Principals' Programme 2007 cohort, the researcher applied Robinson et al.'s Leadership Dimensions (2007a, 2009) to her own principalship in action research interventions to improve student achievement. While this research is motivated by the goals of influencing leadership and hence student achievement, the researcher did not investigate her own practice within this study. However, some interpretations or insights may be supported by understandings developed from previous experiences in her practitioner roles as teacher, deputy principal, and principal. Findings from the research have already contributed to accommodations within the researcher's own leadership practices. She hopes that understandings contributed by this study will make a practical difference to others' leadership practice within the New Zealand education system and inform policy decisions about structures which will support principals' leadership practice in primary schools.

Thesis Organization

The thesis is organized into six chapters. The introductory chapter provided an overview of the thesis and introduced the perceived importance of educational leadership to governments in

raising student achievement. The introduction summarized the research debate regarding the influences of educational leadership on student achievement and has indicated the difficulties of measuring the complex phenomenon of leadership. The study is shown to investigate the influence of primary principals on student achievement in the context of the New Zealand education system, a system which emphasizes pedagogical leadership and where principals have wide discretion in their professional learning.

Chapter Two examines the body of literature which contributes to the understanding of leadership influences on student achievement. The chapter explains how leadership is a contested concept and situates the role of primary principal within the New Zealand context of this study as that of pedagogical leader (Ministry of Education, 2008). The chapter describes the heuristic nature of professional learning for primary principals in New Zealand and examines current models of best practice for the professional development of adult learners. Chapter Two also identifies the need for research into how principals develop their leadership practice in a system based on self-managing schools, and if, given such autonomy, leadership practice is linked to improvements in student achievement.

Chapter Three explains the pragmatic epistemology and the two-phased mixed methods research design for the study. This explanation includes: the rationale for the design and data integration, sample selection, the actions undertaken to reduce bias and increase reliability in data collection, a description of the data analyses, and ethical considerations. Methodological literature is discussed with particular reference to investigating the complex phenomenon of leadership.

Chapter Four describes the findings from Phase One and Phase Two of the study. The first section of the chapter describes a summary of the questionnaire responses from the wider cohort of 67 principals and shows the principals' changing learning needs over a decade, sources of professional development, and situates the demographic data of the sample in comparison to the population of New Zealand primary principals. The second section of the chapter describes the four major themes which were found to influence, and be influenced by, leadership practice and which emerged from the inductive and deductive analyses of qualitative data in Phase Two. These

findings are then compared for differences between schools with higher and lower student achievement. Links are made throughout the chapter between quantitative and qualitative data. These links are in the form of principals' comments which illustrate the data in a meaningful way and give "voice" to the practitioners' narrative.

Chapter Five discusses the findings in relation to previous research and interprets the findings in relation to the research questions. The chapter argues that principals' pedagogical leadership influences student achievement but contextual influences reduce principals' focus on teaching and learning. Claims are ae supported by evidence from the study are also made to the effect that the development of pedagogical leadership practices is not well-supported by structures within New Zealand's self-managing education system.

Chapter Six summarizes the main findings and contribution of the study to research, identifies the limitations of the study and offers suggestions for future research. The chapter concludes by linking the findings to recommendations for practitioners, researchers and policy makers in education.

The chapter that follows (Chapter Two) argues the relevancy of investigating the influence of school principals' leadership on student achievement and situates the study within current literature and the New Zealand education context.

Chapter Two—Literature Review

This chapter reviews the literature which reports the influence of leadership on student achievement. The chapter begins with a description of the literature review methods and identifies the search criteria. It explains why specific literature has been included or excluded from the review.

The next section of the literature review situates the concept of pedagogical leadership within the broader field of leadership studies. This section emphasizes that leadership has many competing definitions, which lack precision and make leadership studies difficult to compare. The pedagogical leadership approach used in this study is clarified and situated within the historical context of principalship within New Zealand.

The third section critically examines the type, quantity and quality of studies which explore the influences of leadership on student achievement. This section begins by examining major reviews in the field, then moves to individual qualitative, quantitative and mixed methods studies. The section shows the development of the field—how it has historically been influenced by North American researchers, how and why the number of studies has increased over the last decade, and the current lack of longitudinal studies.

The fourth section identifies the main methodologies and research techniques that have been used to measure the influence of leadership on student achievement. This section describes the significant difficulties in isolating variables to measure and analyse the complexity of leadership practices and to establish causal links to gains in student achievement. These methodological difficulties, combined with competing leadership definitions and models, have created significant issues for comparing the findings of studies and have resulted in debate over the viability of generalizations of “best practice”. This section highlights the need to develop better interfaces between practitioners, researchers, and policy makers to improve the New Zealand education system.

The fifth section discusses the influence of context and the implications context has for building and enacting principals’ leadership practices. Personal, school-community and systems contexts,

which influence and are influenced by principals, are discussed. That discussion illustrates a need for more research into the contextual constraints and opportunities for principals to influence student achievement in New Zealand's self-managing, education system. In this section, student achievement is situated within the historical New Zealand context. On-going, statistical inequities in student achievement for particular demographic populations of New Zealand are described and the significance of these inequities is linked to policy makers' concerns for the social and economic well-being of the country. The section highlights how multiple variations in context mean that best practice is difficult to generalize and difficult to resource.

The final section describes principal professional development. This description includes research from the field, for current best practice, and situates principal professional development opportunities in the historical New Zealand context where most principal professional development is at the discretion of the principal. The section shows very little evaluation has been undertaken on the effectiveness of, or barriers to, principals' professional development in the self-managing New Zealand school context. It also reveals studies which link principal professional development to student achievement are rare. While much of principals' knowledge of teaching and learning, was obtained from their training and experiences as teachers, there is a gap in research which investigates how principals' construct their knowledge and skills as leaders of pedagogy.

The chapter concludes with a summary of findings from the literature.

Literature Review Methods

The main sources of literature reviewed for this thesis were peer-reviewed journal articles and published books. However, other material was also reviewed. This supplementary material contributed to the understanding of the practices, policies, and research regarding the influence of educational leadership on student achievement, particularly in the New Zealand context. The supplementary material included unpublished New Zealand masters and doctoral theses, international conference papers, New Zealand government documents, and international commissioned reports. Initial keywords were developed to assist in the electronic search of the literature. These keywords were expanded as the review progressed. Not all researchers used

the same vocabulary and the expansion of the semantic filter enabled the concept of educational leadership as applied to student achievement to be reviewed more broadly. These key words are listed in Table 2.1.

Table 2.1

Key Words for Literature Review

Leader	Pedagogical	Impact	Student Achievement
principal head teacher administrator	instructional learner-focussed academic emphasis	gains effective/effectiveness success/successful improvement productivity	student outcomes student success schools/schooling

The initial searches were limited to publications from the year 2000 until 2020 but were later expanded to include earlier seminal work by key writers in the field. Studies which investigated the relationships between principals' leadership practices and students' achievement in both primary (elementary) and secondary schools were included in the literature review, as well as some studies which related to leadership in general, and a number of student achievement studies related to leadership from senior or middle school management. Studies which focused solely on raising student achievement through teacher practice within the classroom were excluded unless the external, leadership practices were documented.

The electronic searches were carried out using Discover, ERIC via EBSCOhost, ProQuest, Scopus, Google Scholar, NZResearch, and Iris Artificial Intelligence. These systematic searches highlighted several historical, key reviews of the influences of educational leadership on student achievement. The key reviews provided both source studies and additional references which had not been identified by the electronic searches. The key reviews are shown in Table 2.2.

Table 2.2

Key Reviews of Educational Leadership and its Impact on Student Achievement

Key Review	Year	Number of sources in review	Span of review
Leithwood & Montgomery	1984	90 interviews	1980-1984
Hallinger & Heck	1998	40 studies	1980-1995
Witziers, Bosker & Krüger	2003	37	1986-1996
Cotton	2003	81	1970-2003
Bell, Bolam & Cubillo	2003	8 studies	1988-2002
Marzano, Waters & McNulty	2005	69 studies	1978-2001
Chin	2007	28 studies	1997-2003
Pont, Nusche & Moorman	2008	22 reports	2007
Robinson, Hohepa & Lloyd	2009	27 (+107 supplementary studies)	1978-2007
Leithwood & Sun	2012	79 theses/dissertations	1996-2007
Day & Sammons	2013	unspecified	unspecified
Hallinger	2014	38 reviews	1960-2012
Osborne-Lampkin, Folsom & Herrington	2015	52	2001-2012
Pan, Nyeu & Chen	2015	80 studies	1994-2012
Hitt & Tucker	2016	56 studies	2000-2014
Leithwood	2016	42 studies	1992-2012
Karadag	2020	151 studies/dissertations	2008-2018

Leadership

Defining the Contested Concept of Leadership

The comparison of studies for effective, educational-leadership practices is made difficult by a lack of consensus and variability in understandings regarding leadership. There is no agreed definition for leadership. Research has generated multiple perspectives with competing leadership models, frameworks, and theories. Indeed, leadership has been described as, “one of the most observed and least understood phenomena on Earth” (Burns, 1978, p. 2). Even when addressing leadership in a single field such as education, there are still multiple theories of educational leadership.

Since it is unlikely for a consensual definition to be reached, it remains important for researchers to situate their leadership studies (Heifetz, 2010), and to clearly describe the *who, where, what and how* of leadership for a particular study—Who are the leaders? Where are the leaders situated (context)? What are the leaders achieving (goals)? How are the leaders achieving the goals in their situation (process)? (Grint, 2005).

Claims and counterclaims about leadership and student achievement have arisen when researchers have emphasized aspects of leadership practice and have conceptualized particular interpretative models, for example, transactional leadership, transformational leadership, distributive leadership, pedagogical leadership, and authentic leadership. These conceptual models have been described as an "adjective-plus" approach to leadership (Timperley & Robertson, 2011, p. 3). Leadership practices have been compared within these adjective-plus approaches for the relative effectiveness of a particular leadership model such as pedagogical, transformational or distributive leadership (Rost, 1991). For example, Robinson et al. (2009) showed pedagogical leadership approaches to be four times more effective than transformational approaches. Other research has shown, transformational and pedagogical approaches to leadership can converge in an integrated manner (Webb, 2005; Pinto et al., 2019), or remain relatively separate with leaders tending towards either a more transformational approach or a more pedagogical approach (Marks & Printy, 2003). Transformational leadership practices have been shown to have a small but positive outcome on student achievement (Campbell-Evans, 1993; Sun & Leithwood, 2012) while integrated approaches have shown a significantly higher positive outcome than using transformational practices alone (Marks & Printy, 2003; Musa & Noor, 2017). Findings in studies can appear contradictory due to the particular emphasis of a conceptual model when, in actuality, the different models contain many of the same leadership practices (Leithwood & Sun, 2012). While these conceptual models are an attempt by researchers to better analyse, explain, and develop generalizations about the complex phenomenon of leadership, they are not helpful for the practitioner (Sallee & Flood, 2012).

Antonakis and Day (2017) offer a broad definition of leadership, where leadership is:

> A formal or informal, contextually rooted and goal-influencing process, that occurs between the leader and a follower, groups of followers, or institutions. (Antonakis & Day, 2017, p. 5)

This definition highlights three important ideas about leadership, namely:

- Influence—leadership is an influence process which occurs reciprocally between leader and followers (Bryman, 2013), and is not limited to a formally designated role or position within an organization (Antonakis & Day, 2017; Robinson et al., 2009);
- Goals—leaders and followers commit to change, or the establishment of particular goals or outcomes (Bass & Stogdill, 1990; Druker, 1999; Piggot-Irvine, 2005; Yukl, 2008);
- Context—leadership is influenced by context or situation (Hallinger, 2016; Klar et al., 2019; Latham, Smith, & Wright, 2014; Southworth, 2003; Tan, 2018).

Historically, most discourses about leadership have been supplied by research from the business community (Rost, 1991; Wren, 1995) and the findings used to enhance an organization's economic productivity. During the twentieth century, three main approaches to leadership were offered. Two of these approaches were developed within the business paradigm—the *Trait Approach* and *Contingency Approaches*, and the third approach within the social sciences paradigm—the *Behaviour Approach*. These three approaches independently show that leadership can be:

- enhanced by natural traits or dispositions,
- learned, and
- affected by contexts or situations.

Current leadership approaches have evolved from and continue to be influenced by understandings about leadership developed from these three approaches. For example, even though research using the Trait Approach has revealed only a weak relationship between personal traits and effective leadership (Levy, 2005), personal traits continue to play a role in perceived leadership effectiveness such as in school effectiveness research, where the "heroic" principal is hired to raise student achievement in a "failing" school (Branch et al., 2013). In addition, certain relationship-building traits are considered highly effective when influencing followers and building a climate of high trust in the workplace (Barnett & McCormick, 2012; Bryk & Schneider, 2003; Fink, 2014; Goleman, 1995; Harris, 2007; Judge et al., 2009; Keung & Rockinson-Szapkiw, 2013; McDowelle & Bell, 1997; Piggot-Irvine, 2005). Current practices in

professional development for principals are based on the behavioural approach with the understanding that leadership can be learned. In this way, a principal is considered able to learn a relatively small number of leadership behaviours or practices (Bass & Stogdill, 1990; Burns, 1978) to enhance the commitment and effort of organizational members toward the achievement of organizational goals (Allen et al., 2015; Leithwood & Sun, 2012; Shatzer et al., 2014) or to increase the effectiveness of teaching and learning (Boyce & Bowers, 2018; Brauckmann et al., 2016; Day et al., 2016; Fancera & Bliss, 2011; Gurr & Day, 2013; Hopkins, 2003; Neumerski, 2012; Robinson, 2010; Salfi, 2011; Sebastian et al., 2018; Taylor, 2010; Zepeda, 2014).

The Emergence of New Zealand Principals as Pedagogical Leaders

Within the context of this study the focus is on the principal as the leader. The principal has formal, hierarchical authority as the positional leader of the school, but is also seen as exercising informal influence. The principal may distribute both authority and influence to others in specific tasks and situations so that others may contribute to the leadership of teaching and learning in a school (Southworth, 2002; Torrance et al., 2016). However, the principal is uniquely positioned within the school to enhance the capacity of the organization. In this way, the principal influences student achievement by connecting multiple small influences, "to obtain large effects… [creating] synergy across the relevant variables" (Seashore-Louis et al., 2010, p. 9) and for this reason, it is claimed, "that leadership is second only to classroom instruction as an influence on student learning" (p. 9).

This study is situated within the pedagogical leadership discourse, where leadership focuses on teaching and learning, as this is emphasized throughout the New Zealand education system, in which:

- The principal is defined as the pedagogical leader of the school, the leader of teaching and learning (Ministry of Education, 2008).
- Effective pedagogy (teachers' actions to promote student learning) forms an important focus within New Zealand curriculum documents (Crown, 2007, p. 34-35).

- Pedagogical leadership is seen to play an important role in “leading learning communities” (Nettles & Herrington, 2007, p. 725) and developing theories of action to improve student learning (Zepeda, 2014).

While the New Zealand education system is pedagogically based, it also contains practices which are described within transformational and distributive leadership approaches. Each approach emphasizes different leadership practices but the practices, as noted above, are not exclusive to that approach. Pedagogical leadership emphasizes front-line education in the classroom while transformational leadership emphasizes vision and inspiration. Distributive leadership on the other hand, emphasizes the building of learning communities. However, the three approaches share much in common, as transformational and distributive leadership are based on particular, shared goals, and pedagogical leadership requires relational commitment to a shared vision for improvement. There is both historical and theoretical overlap within the three educational leadership models which contribute to understandings of leadership practices. Therefore, leadership practices, which may be argued as transformational or distributive, can be accommodated within a pedagogical framework, as the practices contribute to the improvement of teaching and learning (Gurr, 2015).

The following paragraphs are intended to show how the transformative, distributive and pedagogical approaches of researchers were assimilated into the leadership practices of New Zealand principals. This description is important to the study because it links the influences of the researcher, the practitioner, and the policy maker. The research approaches inherent in educational systems influence what principals and policy makers understand about effective leadership practice (McDonnell, 2008). Hence, research influences how principals define their work and develop their professional identities, and how policy makers develop the structures within which the principals work (Bottery, et al., 2008; Bourdieu, 1984; Honig, 2004; Karadag, 2020; McDonnell, 2008; Spillane et al., 2003; Woods, 2013). However, the theoretical constructs a researcher develops to separate and examine leadership practices, do not necessarily preserve the complexity of the leadership practices for the practitioner (Grissom & Loeb, 2011; Robinson, 1993; Sammons, 2010). The research conducted within an institution is often reliant on

government funding. In this way, the socio-political agendas of policy makers can implicitly or explicitly influence the research which occurs within an institution. Therefore, effective leadership practices do not rest with the principal alone and should be considered within the context of the national education system in addition to the school community (Bossert, et al., 1982; Bottery, et al., 2008; Ishimaru & Galloway, 2014). The opportunities and constraints afforded by context, will be discussed in the later section: *The influences of context on principals*. The following paragraphs show the development of the principal role within the New Zealand education system since the 1980s.

The Principal as Chief Executive Officer

While the New Zealand principal is currently designated as the pedagogical leader of the school, it is important to note that this emphasis on the leadership role has emerged after almost three decades of a self-managing school system. During the period of global educational reform which began with the economic downturn of the 1980s, many countries devolved central government control in education systems to local authorities. Standardized student achievement testing was used to identify "underperforming" schools and new leaders were appointed to transform them into successful schools to meet national benchmarks (Branch et al., 2013). In the late 1980s and early 1990s, many New Zealand government departments were privatized to increase efficiency and reduce costs.

The *Administering for Excellence* Report (Picot et al., 1988) criticized the then New Zealand Department of Education for ineffectiveness and recommended that the responsibility for governance and management of individual schools was devolved to elected parent boards of trustees, which would be monitored by specialised government agencies. The *Tomorrow's Schools* Report (Crown, 1988) gave the direction for reform, provided for the establishment of Maori-medium schools in addition to English-medium schools, and placed principals in the role of Chief Executive Officer (CEO). Employment of primary school principals became the responsibility of the elected parent boards of trustees, a role which had been previously fulfilled by regional boards of education. The administrative role of principals was reinforced by the newly established inspectorate, the Education Review Office, whose initial inspections were based on compliance management.

The Principal as Transformational Leader

Business models, such as *Total Quality Management* (TQM), which had been shown to transform organizations effectively outside the school context were applied to reform the structure of the New Zealand education system (Court & O'Neill, 2011; Sallis, 1993; Terry, 1996). TQM required that leaders established a unity of purpose and direction and maintained an environment where everyone could participate in the organization's goals, in a cycle of continuous improvement. This was adapted for education in the form of transformational leadership (Marzano et al., 2005; Murphy & Seashore-Louis, 1999; Sun & Leithwood, 2012) and other learning organization models (Kim, 1993, 2001; Senge, 1990).

In New Zealand, principals were required to work with their boards and communities to establish school charters which defined their schools in terms of a vision and goals (Stewart, 2000). The principals worked with teachers to develop a local curriculum plan to implement the national curriculum revisions. The revisions occurred as part of a government, achievement-initiative which linked quality teaching to curriculum outcomes. The initiative represented a shift in policy "from a focus on content, experiences and activities…due to pressure on government to account for investment in education by demonstrating what students achieved during schooling" (Ministry of Education, 2002, p. 5). The transformational leadership approaches had similarities to the heroic leader (Trait Approach) and emphasized the principal's indirect influence on student achievement by improving school organization, school culture, and collaboration. Leithwood and Sun (2012) identified 11 practices of transformational leadership that increased student achievement by influencing contextual, school variables:

- develop a shared vision and build goal consensus;
- hold high performance expectations of staff and students;
- provide individualized support for staff;
- encourage problem-solving and professional reflection;
- model valued behaviours, beliefs and values;
- strengthen the school culture;
- build structures to enable collaboration;
- engage parents and the wider community;

- focus on instructional development;
- reward goal completion; and
- monitor performance and address non-performance.

(adapted from, Leithwood & Sun, 2012, pp. 400-401).

These same practices are described in Cotton's 25 Leadership Behaviours (2003) for instructional leadership. Cotton summarized research from 81 studies (1970 - 2003) which measured the influences of principals on student achievement. She concluded:

> Strong administrative leadership, high expectations of students and staff, a safe and orderly school environment, a primary focus on learning, resources focused on achieving key objectives, regular monitoring of student learning progress, and instructional leadership on the part of the principal. (Cotton, 2003, p. 2)

These same practices are described in Marzano et al.'s 21 Leadership Responsibilities (2005), and Robinson et al.'s eight Leadership Dimensions (2009). The difference is not within the practices themselves, but rather within the conceptual perspective by which the researcher interprets the practices. An example of this confluence of leadership practices can be seen in Table 2.3 where the same leadership practice—talking about teaching and learning—is interpreted as instructional, transformational, or pedagogical by different researchers (Cotton, 2003; Leithwood & Sun, 2012; Marzano et al., 2005; Robinson et al., 2009; Waters & Cameron, 2007). Though the leadership practices may have different names, the descriptions of these practices are very similar (refer to Table 2.3). The descriptions of effective practice show that there is a confirmation of research findings between interpretations.

Table 2.3

An Example of Different Leadership Models Interpreting a Common Leadership Practice

Researchers Conceptual Framework of Leadership	**Leadership Practice *"Talking about teaching and learning"***	**Description of Practice**
Instructional leadership	Norm of continuous improvement Discussion of instructional issues	Continually push for improvement. They ensure that this process is a permanent part of school life…Facilitate discussion among staff about curriculum and instruction, and engage in these discussions themselves (Cotton, 2003, p. 70).
	Provide intellectual stimulation	Ensures faculty and staff are aware of the most current theories and practices and makes the discussion of these a regular aspect of the school's culture (Marzano et al., 2003, p. 42; Waters & Cameron, 2007, p. 9).
Transformational leadership	Developing people by providing intellectual stimulation and challenging the process	Challenge the staff's assumptions and encourage their creativity, and provide information to staff members to help them evaluate their practices, refine them, and carry out tasks more effectively (Leithwood & Sun, 2012, p.400).
Pedagogical leadership	Planning, coordinating and evaluating teaching and the curriculum Engaging in constructive problem talk	Promote collegial discussion of teaching and how it impacts on student achievement (Robinson et al. 2009, p.42). Engage teachers' theories of action. Lead discussions of the relative merits of current and alternative practice (Robinson et al. 2009, p.44)

Further examples of practice confluence between transformational, distributive and pedagogical leadership are shown in a later summary of effective leadership practices.

Transformational leadership theory, in New Zealand during the mid-1990s into the 2000s, helped principals design schools with a view to improving student outcomes. The New Zealand curriculum stocktake of the time argued quality teaching improved "student outcomes by 40-55%" and professional leadership improved "student outcomes by 6-9%", particularly when the leader led professional learning communities focussed on teaching and learning (Ministry of Education, 2002, p. 15).

The Principal as Distributive Leader

The development of professional learning communities within schools and the practical considerations of an ever-increasing workload for principals in New Zealand's self-managing education system (Wylie et al., 2016) led to the pragmatic adoption of leadership practices emphasized within distributive leadership approaches (Ewington et al., 2008; MacNeill et al., 2003).

Rather than focussing on the skills, traits and behaviours of individual leaders, distributive leadership approaches recognize that collaborative relationships enable change and build professional learning communities (Jones, et al., 2012). Distributed leadership was developed

from *Distributed Cognition* and *Activity Theory*, and was a decisive move away from "heroic leader" models (Spillane, 2006; Timperley, 2008, p. 57). The approach was influenced by ideas of communities of practice, whereby sharing information and experiences within the group around specific tasks, members learn from each other, and have an opportunity to develop themselves personally and professionally (Brown et al., 1989; Leithwood et al., 2007; Spillane et al., 2004; Wenger & Lave, 1991). Spillane (2006) argues that the distributive approach emphasizes "how leadership gets done through the ordinary, everyday practices involved in leadership routines and functions" (p. 5). However, distributive leadership shares commonalities with aspects of pedagogical and transformational leadership. For example, school effectiveness research has shown the importance of teacher involvement in decision making processes (Bowers et al., 2014; Conway & Andrews, 2016; Datnow, et al., 2013; Datnow et al., 2014; McNaughton & Lai, 2012; Park et al., 2013; Van Geel et al., 2016) and the contribution of strong collegial relationships to positive school improvement (Aldridge & Fraser, 2018; Andrews & Soder, 1987; Bellibas & Liu, 2018; Gibbs, 2017; Timperley & Parr, 2010; Vescio et al., 2008). Positive school performance has been shown to be more likely when principals and teachers have shared values, norms, and behaviours (Cotton, 2003; Goddard et al., 2010; Goddard et al., 2015; May et al., 2012; Mulford & Silins, 2003, 2011). Distributive leadership is also seen as important for developing future leaders, and for building the academic capacity of a school as a means of sustaining school improvement (Fullan, 2013; Harris & Spillane, 2008; Hitt & Tucker, 2016; Malcolm, 2012; Osborne-Lampkin et al., 2015; Peng, 2015; Pont et al., 2008b; Qvortrup, 2019; Sergiovanni, 1998).

MacNeill et al. (2003) have suggested that "the facilitative instructional leadership of the mid 1990s… superseded the top-down, principal driven model of instructional leadership of the 1980s" (p. 5) and shows influences of distributive leadership on instructional leadership. In this way, the distributive leadership approach contributes to the understandings of how a principal's influence on teaching and learning is mitigated by teachers, and leadership for teaching and learning is distributed within the learning community. Therefore, the principal's influence is often considered an indirect influence. Teachers have direct influence on teaching and learning in the classroom and principals influence the context within which the teachers work (Bell, et al., 2003; Robertson & Notman, 2013). However, given the small size of many primary schools, in approximately a

third of New Zealand primary schools, the principal also has a classroom teaching component and in this way directly influences student achievement as a teacher rather than a leader (Wylie et al., 2016).

The principal's distribution of tasks is influenced by both personal and contextual variables (Hallinger et al., 1996). The principal alone cannot embody the required expertise within the multiplicity of his or her roles for leadership of curriculum, human resources, finances and property management of a school (Huber & Muijs, 2010). Therefore, s/he may seek vicarious expertise to permanently fulfil a particular task or temporarily apprentice him/herself within the task. For example, the principal may not have much expertise in managing business finances so s/he learns to create a budget with a board of trustees' member who is an accountant, or may contract a mathematics advisor to develop teachers' mathematics' pedagogy, or may consult an experienced principal to learn how to complete an administrative task. Context effects the principal's priorities, the intensity of his/her workload, and the opportunities to access vicarious expertise or distribute tasks. For example, opportunities to distribute leadership tasks are reduced in small or isolated schools (Latham et al., 2014; Notman, 2011; Starr & Simone, 2008), and raising student achievement in low socio-economic areas often begins by developing the capacity of schools to create a safe, orderly environment and connect to the community (Day, 2009; Day & Sammons, 2013; Jacobson, 2011; Klar & Brewer, 2013; May et al., 2012; Sammons et al., 2011). Therefore, distributed leadership is linked to contingency or situational approaches to leadership. However, distributive theory has been criticized for failing to recognize the extent of contextual influences and day-to-day enactment of the theory may simply devolve responsibilities to those lower in the hierarchy in the interests of efficiency, effectiveness and economy (Bottery, 2004; Cardno & Bassett, 2015) rather than democratically addressing the epistemology of learning—who decides what kind of knowledge is valuable and how that knowledge is imparted to learners. In contrast, Spillane et al., (2004) argue that "sociocultural context [is] a constitutive element of leadership practice" (p. 11) and that distributive approaches explain leadership as the interactions of leaders and followers in context. The effect of both personal and contextual variables on the principal's influence will be discussed further in two later sections of this literature

review: *The influences of context on principals* and *Inequities in access to professional development.*

The Principal as Pedagogical Leader

The importance of pedagogy and, subsequently, pedagogical leadership was embedded in New Zealand education in the first decade of the twenty-first century. At this time the New Zealand Ministry of Education initiated multiple projects aimed at raising student achievement. One such project was the *Iterative Best Evidence Synthesis Programme* (BES). New Zealand researchers were commissioned to produce a series of BES reports drawing together policy, research, and practice in education, to explain what works best to improve educational outcomes for students and why. Other initiatives included national, professional development projects in leadership, literacy and numeracy. An evaluation of the *Literacy Leadership Initiative 2001* (Timperley & Parr, 2003) showed that pedagogical leadership was not a priority with principals at this time:

> [The principals] saw their role as organizational or supportive or, occasionally, as one of delegation. Again, this may militate against an initiative aimed to develop them as instructional leaders who take responsibility for providing expertise for their school-based initiatives. (Timperley & Parr, 2003, p. 110)

The evaluation argued that principals needed to be involved in teacher professional development to "reduce the dichotomy between school management and student learning" (p. 3) to raise student achievement. This research reinforced the emerging findings of school improvement literature during the period, which stated that leadership needed to be focussed on the "instructional core" (Elmore, 2002, p. 122) to affect gains in student achievement.

Early models of instructional leadership focussed on principals managing the administrative processes of schools, and procedures related to instruction and supervision such as: creating an orderly environment, establishing clear teaching goals for the assessment and monitoring of students, and ensuring teachers had high learning-expectations of students (Bossert et al., 1982; Stoll, 1992). Hallinger and Murphy (1985) summarized the principal's instructional role as three Leadership Dimensions: defining the school's mission, managing the instructional program, and

promoting a positive school learning climate. These three dimensions were broadened into ten leadership practices:

- Defining the school mission
    - Framing clear school goals
    - Communicating clear school goals
- Managing the instructional programme
    - Supervising and evaluating instruction
    - Coordinating curriculum
    - Monitoring student progress
- Promoting a positive school learning climate
    - Protecting instructional time
    - Promoting professional development
    - Maintaining high visibility
    - Promoting incentives for teachers
    - Promoting incentives for learning

(Hallinger & Murphy, 1985, p. 221)

Later models explored the direct and indirect influences of leadership on student achievement (Hallinger & Heck, 1998; Watkins & Mortimore, 1999). These models continued to evolve, as collaborative inquiry, shared leadership, and the use of evidence-based research, began to play a fundamental role in professional teaching. For example, Blasé and Blasé (2000) showed that effective leadership practices reported by teachers included:

- making suggestions,
- giving feedback,
- modelling,
- using inquiry and soliciting advice and opinions,
- giving praise,
- emphasizing the study of teaching and learning,
- supporting collaboration efforts,

- developing coaching relationships,
- encouraging and supporting redesign of programmes,
- applying the principles of adult learning, growth, and development to all phases of staff development, and
- implementing action research to inform instructional decision making.

While Blasé and Blasé (2000, 2002) examined the influence of principals' instructional practices on teachers' reported self-efficacy, they did not measure changes in teachers' actual classroom practice nor changes in student achievement within the teachers' classrooms. Principals who gave teachers more autonomy and who were able to conduct non-threatening conversations were deemed more effective. Another later study by Boyce and Bower (2018) investigated the influences of instructional leadership in 109 quantitative studies from 1991-2013. The majority of studies selected for the review were doctoral theses. Most of the studies focussed on induction during the early years of teaching practice and measured school climate by quantifying teacher satisfaction using the *School and Staff Survey* (SASS). Professional development, a safe and orderly environment, shared decision making, teacher autonomy, personal and professional support, and professional learning communities played a role in teacher satisfaction. However, less than 5% of the studies measured student achievement. This point highlights a concern of research regarding the influence of leadership on school climate, when measures of teachers' positive-perceptions of school climate and leadership are not compared to measures of student achievement (Boyce & Bowers, 2018; Chin, 2007; Zheng et al., 2017). A positive school climate does not necessarily equate with gains in student achievement (Allen et al., 2015; Highfield, 2012). However, the contradictory findings would appear to be a result of the kinds of surveys used and it would seem important that pedagogical surveys (e.g., *Principal Instructional Management Rating Scale*, (Hallinger, 1982,1990), *Ontario Leadership Framework* (Leithwood, 2012), *Learning-Centred Leadership Framework* (Murphy et al., 2006), *Revised Instructional Leadership Questionnaire of China* (Hou et al., 2019) or *The Essential Supports Framework,* (Sebring et al. 2006)) and student achievement ought be included in measures.

As previously discussed, instructional leadership approaches were influenced by both distributive and transformational approaches to leadership as during the late 1990s and early 2000s. These

influences are exemplified by MacNeill et al.'s *Conceptual Frame for Pedagogic Leadership* (2003). MacNeill et al. argued that effective instructional leadership improves student achievement and therefore leaders must improve pedagogy by developing the capacity of teachers. These researchers proposed pedagogic leadership is evidenced by:

- discharge of moral obligations concerning societal expectations of schooling,
- presence of a shared vision and sense of mission about student learning,
- commitment to mission realisation by staff and students,
- application of expert knowledge about student learning and development,
- improvement of pedagogic practice,
- the engagement and empowerment of staff,
- presence of multiple leadership within the staff,
- emphasis on pedagogic rather than administrative functions by leaders,
- creation and sharing of knowledge throughout the school,
- development of relationships and a sense of community, and the
- application of a re-culturing approach towards school improvement.

(MacNeill et al., 2003, p.8)

Gradually a general concept of instructional leadership emerged where an instructional leader was seen: to develop a common vision and goals for stakeholders which emphasized teaching and learning, to monitor and provide feedback on the teaching and learning process, and to promote professional development (Alig-Mielcarek & Hoy, 2005; Leo, 2015; Robinson et al., 2009).

While pedagogical leadership emphasizes the relationship between teaching and learning, Male and Palaiologou (2017) argue that context must also be considered within that relationship as contextual factors such as values, beliefs, socio-economic status, mass media, social networking, information communication technologies, and national curriculum all influence student achievement. Therefore, pedagogical leadership is:

> Not merely concerned with the dichotomy of teaching, learning and outcomes, but is also concerned with an integrated conceptualization of the relations between teaching,

> the learning ecology of the community and the social set of axes in which the educational organisation is set. (Male & Palaiologu, 2015, p. 214)

The complexity of leadership practice means that pedagogical leadership (as with other leadership approaches such transformational, distributive and situational approaches to leadership) has been defined with different emphasizes, often closely linked to lists of practical behaviours which directly or indirectly influence teaching and learning (Andrews & Sodder, 1987; Ash & Hodge, 2016; Cotton, 2003; Marzano et al., 2005; Robinson et al., 2009). For the purposes of this study, principals' pedagogical leadership is understood to be leadership influence which focuses on teaching and learning, involves the development of shared goals (vision, values, knowledge) within the school, and develops relationships and learning within the community of practice with consideration of influences within the wider context in which the principal leads.

A study which had a profound influence on the development of instructional or pedagogical leadership in New Zealand was the BES report—*School Leadership and Student Outcomes: Identifying What Works and Why* (Robinson et al., 2009). The research report later became an internationally recognized piece of educational leadership research (Hallinger, 2014), and its immediate influence, along with other BES reports, was to underpin pedagogical understandings of leadership in the New Zealand education system.

These pedagogical influences specifically included the subject matter and framework for:

- The *First-Time Principals' Programme* (University of Auckland Centre for Educational Leadership, 2002-2017), a professional development programme in which all principals in this study, participated.
- The *Kiwi Leadership for Principals: Principals as Educational Leaders* document (Ministry of Education, 2008) which clarified expectations around principals' roles and informed New Zealand principals' performance management during the sample groups' tenure as principals.
- *Leading from the Middle: Educational Leadership for Middle and Senior Leaders* (Ministry of Education, 2012) which provided guidance for the distribution of leadership within schools and the development of management roles.

- *The New Zealand Curriculum* (2007) which has underpinned the New Zealand education system for the previous decade.

Robinson et al. used two meta-analyses: one to calculate effect sizes which quantified the direct and indirect influences of leaders in relation to student achievement (Robinson et al., 2009; Robinson, Lloyd, & Rowe, 2008; Robinson & Timperley, 2007); and one to compare the impact of pedagogical and transformational leadership. Robinson et al.'s literature review located only 27 studies which linked measures of leadership and student outcomes. There was little New Zealand research which adhered to the search criteria. However, to examine whether their findings were applicable to the New Zealand context, Robinson et al. (2009) conducted a qualitative analysis of 31 supplementary New Zealand studies. In this analysis, Robinson et al. backward mapped leadership influences on school conditions to indirect influences on student achievement. Robinson et al. concluded the impact of pedagogical leadership was four times that of transformational leadership, and identified eight leadership practices (Leadership Dimensions) which positively impacted student achievement:

- promoting and participating in teacher learning and development;
- establishing goals and expectations;
- planning, coordinating and evaluating teaching and the curriculum;
- resourcing strategically;
- ensuring an orderly and supportive environment;
- creating educationally powerful connections;
- engaging in constructive problem-solving talk; and
- selecting, developing and using smart tools.

There are strong similarities between Robinson et al.'s eight effective leadership practices and Halllinger's and Murphy's instructional behaviours of principals (1985). Similarities and differences between several other researchers' findings can be seen in Table 2.4. The leadership dimension which had the greatest effect size of 0.84 (Robinson et al., 2009, p. 39) was that of promoting and participating in teacher learning and development. High-performing schools had

leaders who were actively involved in learning and discussion with teachers and developed collective responsibility for student achievement and well-being.

Robinson et al. also described effective leaders as having knowledge, skills and dispositions including:

- a strong base of pedagogical knowledge, which was reflected in their decision making;
- analytical skills to investigate and solve complex problems in context;
- relational skills to build organizational and personal trust (through modelling integrity and competence, challenging dysfunctional behaviour, and establishing norms of respect); and
- well-developed interpersonal skills and values to be able to engage respectfully in challenging conversations to improve teaching and learning.

(adapted from Robinson et al., 2009, p. 46, 47)

Robinson et al.'s research findings underpinned the theoretical base of the First-Time Principals' Programme in which all the principals in this doctoral study participated and therefore influenced the principals' understandings of their role as pedagogical leaders. The theory influenced how the principals developed their professional and personal skills and capabilities to improve teaching and learning in their schools (Uljens & Ylimaki, 2017). This point will be described further in the later section on principals' professional development but serves to justify why this study is interpreted within a pedagogical leadership approach. However, more research is needed to investigate how well the theoretical knowledge was understood by principals, and to what extent knowledge was consciously developed by principals and applied to raise students' achievement in their schools.

Hallinger and Wang (2015) argue, pedagogical leadership "has demonstrated the strongest empirically-verified impact on student learning outcomes… [making it] a focus for school policy makers and practitioners. It also provides a rationale for why school personnel should focus on enhancing capacities for instructional leadership as a lever for school improvement" (p. 2). However, what precisely are the structures that provide school leaders with the "time, capacity

and support to focus on the practices most likely to improve student learning" (Pont et al., 2008b, p. 10)?

Table 2.4

A Summary of Effective Leadership Practices

Research Source	Emphasis on developing shared goals (vision, values, knowledge)	Emphasis on teaching and learning	Emphasis on relationships and developing professional community
Andrews & Soder (1987)	Communicator	Resource provider Instructional resource	Visible presence
Hallinger's Principal Instructional Management Rating Scale (1982, 1990, cited in 2011)	Frames the school's goal Communicates the school's goals Provides incentives for teachers Provides incentives for learning	Coordinates the curriculum Supervises and evaluates instruction Monitors student progress Protects instructional time Promotes professional development	Maintains high visibility
Cotton's 25 Leadership Behaviours (2003)	Safe and orderly environment Vision and goals focused on high levels of student learning High expectations for student learning Self-Confidence, responsibility, and perseverance Positive and supportive school climate Rituals, ceremonies, and other symbolic actions Recognition of student and staff achievement Role modelling	Ongoing pursuit of high levels of student learning Norm of continuous improvement Discussion of instructional issues Classroom observation and feedback to teachers Support of risk-taking Professional development opportunities and resources Protecting instructional time Monitoring student progress and sharing findings Use of student progress data for program improvement	Communication and interaction Emotional and interpersonal support Shared leadership, decision making, and staff empowerment Collaboration Support of teacher autonomy Visibility and accessibility Parent and community outreach and involvement
Marzano, Waters, & McNulty's 21 School-leader Responsibilities (2005)	Affirmation Change agent Contingent rewards Flexibility Focus Ideas/beliefs Knowledge of curriculum, instruction and assessment Optimizer Order Outreach	Discipline Intellectual stimulation Involvement in curriculum, instruction and assessment Monitoring and evaluation Resources	Communication Culture Input Relationships Situational awareness Visibility
Leithwood & Sun's Transformational Leadership Practices (2012)	Develop a shared vision and building goal consensus Strengthening school culture Hold high performance expectations Model valued behaviours, beliefs, and values Contingent reward Management by exception	Provide intellectual stimulation Focus on instructional development	Provide individualized support Strengthening school culture Building structures to enable collaboration Engaging parents and the wider community
Robinson, Hohepa & Lloyd's Leadership Dimensions and Capabilities (2009).	Establishing goals and expectations Ensuring an orderly and supportive environment Solving complex problems Ensure administrative decisions are informed by knowledge about effective pedagogy	Promoting and participating in teacher learning and development. Planning, coordinating and evaluating teaching and the curriculum Engaging in constructive problem-solving talk; and Selecting, developing and promoting smart tools Resourcing strategically	Creating educationally powerful connections Building relational trust Engage in open-to-learning conversations
Ash & Hodge's Five Critical Leadership Practices (2016)	Focus direction Ensure student-focussed vision and action	Lead learning Give life to data	Build a powerful organization

Principals' Knowledge of Educational Research

Research findings may influence practice, however, principals are unlikely to develop research knowledge from primary sources such as those used by researchers in the field. Their knowledge tends to develop from secondary sources where the research knowledge has been prepared as a report for potential users (Biddle & Saha, 2006) or in action research projects led by researchers (Forsten-Seiser, 2020). In New Zealand these secondary sources have included the Best Evidence Synthesis Iteration reports (Aitken & Sinnema, 2008; Alton-Lee, 2003; Anthony & Walshaw, 2007; Biddulph et al., 2003; Farquhar, 2003; Mitchell & Cubey, 2003; Robinson et al., 2009; Timperley et al., 2007), documents such as Kiwi Leadership for Principals (2008), professional workshops such as the First-Time Principals' Programme, and expert facilitation in professional learning groups (Malcolm, 2012). However, these secondary sources of research knowledge provide little information about methodologies, or the strengths and weaknesses of various kinds of research. Given the tendency to use secondary sources of research, principals often rely on researchers to provide the primary level of research critique or research literacy to identify and evaluate what is important knowledge (Alton-Lee, 2012). The artificial separation of knowledge into leadership styles, such as pedagogical leadership, transformational leadership, distributive leadership, and adaptive leadership among others, has informed different lines of research and altered the kinds of knowledge which is generated. Importantly, this compartmentalization or dichotomy does not exist in the principal's daily practice (Neumerski, 2012; Thew, 2002). What then, do researchers say about the influence of leadership practices on student achievement?

Linking Leadership to Student Achievement

This section of the literature review describes the research on the influence of leadership on student achievement. The discussion begins by examining major reviews which have summarized the influences of leadership on student achievement. This is followed by further investigation of quantitative, qualitative and mixed methods studies. The review highlights issues associated with measuring the complex phenomenon of direct and indirect leadership influence and the limitations of current methodologies.

The study of educational leadership and its influence is complex. It involves many variables which cannot be isolated nor clearly linked. There are often tensions between making the research meaningful to the practitioner, valid for the researcher, and informative for the policy maker (Robinson, 1993; Southworth, 1995; Spillane & Healey, 2010).

The landscape of studies on the influence of leadership on student achievement has changed during the last two decades, both with the number and the source of studies. Prior to 2010, relatively small numbers of studies measured the influence of leadership on student achievement (as shown in Table 2.2). This small number occurred, irrespective of the plethora of surveys on principal effectiveness and case studies of school improvement. The studies themselves were criticized as often lacking rigour and referenced predominantly to a small group of North American researchers (Hallinger et al., 2014).

In the second decade of the twenty-first century, the number of studies investigating the influence of leadership on student achievement increased (as shown in Table 2.2). Many of these studies originated from masters and doctoral students and the findings were only reported in theses' databases. However, as the researchers' careers progressed over time, subsequent studies were reported in peer reviewed publications. The methodologies often employed surveys to gather perceptions of teachers and principals, and analysed data with simple descriptive statistics. The implications of using such methodologies are included in later discussion.

For the most part studies, which have contributed to the understanding of the influence of leadership on student achievement in the second decade of this century, originated from researchers at tertiary institutes who were involved in the provision of principal professional development programmes and from researchers working with philanthropic educational trusts (e.g. Wallace Foundation, North America; Education Development Trust, United Kingdom). Moreover, reviews showed a growing number of studies beyond the traditional North American author base (Ärlestig et al., 2016; Hallinger, 2014, 2018; Hallinger & Chen, 2015; Pan et al., 2015). There are few longitudinal studies.

Reviews of Educational Leadership

To evaluate the broader body of evidence and summarize current trends and future directions, "scholars, policy makers, and practitioners often rely on published reviews of research" (Hallinger,

2014, p. 540). These reviews can range from meta-analyses, where researchers form statistically based generalizations (Leithwood & Sun, 2012; Marzano et al., 2005; Osborne-Lampkin et al., 2015; Robinson et al., 2009; Witziers et al., 2003), to synthesized narratives, which summarize the findings from a collection of studies on a topic by looking for patterns in those studies (Cotton, 2003).

However, reviews of research are not equally robust. Common failings include: a lack of rigour to explain the rationale used to identify source studies; failure to make methodologies explicit and transparent when collecting, extracting, evaluating, and analysing data; failure to declare the reasoning behind choices which impact findings; and avoidance of adjustment for the relative size of data sets or observing protocols for margins of error so that subsequent statistical generalizations are mitigated (Hallinger, 2014).

In light of these concerns, Hallinger (2014) conducted a review of studies from nine international journals which reviewed educational leadership and management. From over 10,000 studies published from the period 1960-2012, Hallinger identified 38 reviews of educational leadership and management. He analysed the studies to evaluate how systematically each review had been conducted. His analysis identified eight exemplary reviews, which included a review undertaken by New Zealand researchers (Robinson et al., 2008).

In Hallinger's review (2014), studies of educational leadership contributed to less than 0.5 per cent of all the educational leadership and management studies published during the sample period. The number of studies which linked leadership to student achievement is a sub-set of this and indicates the relative scarcity of these studies. Marzano et al. (2005) also found this when they identified 5000 studies on educational leadership in the period 1978-2001 but found only 69 linked leadership to student achievement. The field is further narrowed by the sources of the research. Hallinger (2014) found that fifty per cent of the 38 papers were contributed by the same seven authors, albeit over several decades. The studies were also dominated by North American authors. The low numbers of published articles and the finite number of researchers involved, indicates that there was only a small amount of research available to inform politicians, policy makers, and the public about the effectiveness of educational leadership prior to the 2000s.

However, this finding appears to be changing as fourteen papers reviewed educational leadership and management in the decade 2000-2009. A further six papers on the subject were published in the first two years of the decade 2010-2019. Hallinger's review ended in 2012 but indicated a growing interest in the impact of educational leadership and a trend in the use of meta-analysis (Hallinger, 2014).

Hallinger's review also showed that papers from the second decade of the twenty-first century contained reviews from English-speaking Commonwealth countries as well as those from North American origin. There was also one Asian review. Researchers of educational leadership from non-English speaking countries tend not to be well-known outside their own country, unless the research occurs in a common language such as between Canada and France, and between Germany, Austria and Switzerland; or where there are close cultural connections such as the social democracy of the Nordic countries (Ärlestig et al., 2016).

The Asian review summarized research on the impact of leadership on student achievement in China (Walker et al., 2012). Walker et al. concluded that Chinese research was influenced by Western research conventions but emphasized that while the methods were similar, the purposes were different. Most of the research conducted by institutes was prescriptive in that they aimed to arrive at definitive conclusions or findings that could quickly inform recommendations for educational policy. The researchers involved were not accustomed to descriptive studies that aimed to generate general understandings or insights into educational processes. This example highlights how the activities of practitioners, researchers and policy makers reciprocally influence each other, and generate both opportunities and constraints by creating the contexts of particular education systems.

Hallinger (2014) found the majority of reviews used studies which had been peer-reviewed in journals to increase the rigour of the review. However, there were exceptions. One exception was the Marzano et al. (2005) review which deliberately sourced material from unpublished theses and dissertations to remove the publication bias of journals, as part of building a stronger interface between research and practice. Another exception was Leithwood and Sun's meta-analysis (2012) of unpublished studies on transformational leadership. They concluded that more research needed to be carried out on specific leadership practices rather than leadership models.

Causal Links Between Leadership and Student Achievement

Student achievement is associated with positive gains to measures of valued student outcomes. These outcomes may be relatively narrow such as the student's mastery of specific knowledge and skills or broad such as the student's development of metacognitive and affective skills. Achievement gain is often measured as the difference in student performance between two given points in time and hence described as value-added achievement (Leckie et al., 2021; Teddlie & Reynolds, 2000).

Both quantitative and qualitative studies have been used to measure the effects of leadership on student achievement. Quantitative studies rely on the collection of discrete data which are then compared to theoretical models or to other experimental results. Statistical analysis is used to sample populations, to determine relationships, correlations, and causality between different attributes or events, and to measure differences between sets of empirical data. However, given the complexity of the relationship between leadership and student achievement, it is difficult to define and isolate variables. Indeed, some researchers suggest that it is impossible to measure leaders' practices as distinct from other related variables (Witziers et al., 2003).

School effectiveness research, which has a strong focus on student outcomes, generally defines a more effective school as one that promotes better student outcomes than would be predicted on the basis of student intake demographics (Heck, 2004). For the purposes of research, a high achieving school is assumed to have effective leadership. This is stated by logical argument rather than empirical observation (Belchetz & Leithwood, 2007; Branch et al., 2013; Southworth, 1995). However, Hallinger and Heck (2011c) argue that the influences *on* the leader must be considered as well as the influences *of* the leader. In this way, they suggest inferential statistics may be used to compare two or more empirically collected data sets or to compare experimental data with theoretical constructs, but that school effectiveness cannot be solely linked to successful school leadership.

One research practice, to more clearly isolate variables for quantitative comparisons, is to separate the direct and indirect influences of leadership on student achievement. Indirect influences on and of leadership can be represented by mediating or moderating variables. An example of a mediating variable is when a principal influences a teacher by resourcing

professional development for the teacher which then influences the teacher's classroom practice and students' achievement within her classroom. The student achievement is not directly influenced by the principal but is mediated by the teacher.

Moderating variables are often contextual such as school size, student population demographics, geographical position of the school (urban or rural, isolated), prior experience of the principal, or socio-political structures of the community or education system in which the leader operates. An example of a moderating variable is when a principal uses the same practices to influence students' achievement in a high decile[3] and then a low decile school but achieves different results. The students' achievement is influenced or moderated by socio-economic background. A common practice of successful school research is to attempt to control moderating variables by comparing high achieving schools and low achieving schools with similar student populations (Bamburg & Andrews, 1991; Shatzer et al., 2014).

Limitations of Methodologies

Qualitative evidence often comes from case studies which start by identifying schools that show successful student achievement in either academic learning or social goals. Having identified a successful school, the studies then analyse leadership behaviours for their effectiveness and in relation to student achievement (Cotton, 2003).

These types of studies became particularly prevalent during the global educational reform movement of the early 2000s when researchers, such as Hanushek, related improvement in student achievement to Gross Domestic Product gains for the United States (Hanushek, 2004). That research reinforced, for governments, that economic productivity is a primary objective of education and reignited an interest in *Taylorism*, where a manufacturing process (or in this case learning in schools) can be broken down into a series of small, achievable tasks to maximize efficiency and profit. These studies elevated the status of assessments such as TIMSS (Trends in International Mathematics and Science Study) PIRLS (Progress in International Reading

[3] In New Zealand, a 1-10 system used by the Ministry of Education to indicate the socio-economic status of the communities from which the schools draw their students. Low decile schools receive a higher level of government funding.

Literacy Study) and PISA (Programme for International Student Assessment) as measures of "value added" (Heck, 2000).

In New Zealand, publicly available national achievement data for high schools in the form of the National Certificate of Educational Achievement (NCEA) assessment data has been used as a value-added measure to identify and compare high and low achieving schools. These data were used in three New Zealand doctoral studies (Bendikson, 2011; Gibbs, 2017; Highfield, 2012) which investigated the influences of secondary school instructional leadership on student achievement. Two of the studies investigated the influence of leadership from middle management on student achievement and one study investigated the influence of the principal on student achievement. Gibbs' (2017) findings suggested that effective literacy leaders focused on: improving student engagement and attainment, fostered organizational coherence, and created a culture for improvement. Bendikson's (2011) findings argued that management cannot be separated from leadership. In her study, Bendikson found that principals of high-achieving schools had a greater depth of previous experience and established orderly systems, processes and routines to support teaching and learning, and developed the professional learning community. Highfield (2012) found that 62% of variation in student achievement was accounted for by socio-economic status (measured by decile). However, middle leadership influenced student achievement by developing shared achievement goals with teachers, targeting resources, promoting high expectations and engagement of students, and encouraging teachers' reflective professional practice.

While these three doctoral studies (Bendikson, 2011; Gibbs, 2017; Highfield, 2012) contribute to the understanding of the influence of leadership practices on student achievement in high schools, there is currently no similar research in the context of New Zealand primary schools.

Robinson et al.'s (2009) meta-analysis identified 27 individual studies, published between 1978-2006, which linked leadership to student achievement. Only one of these studies was a New Zealand study (May & Wagemaker, 1993). Most studies measured gains in students' mathematics and reading. Seventeen studies were undertaken in primary schools, four in high schools, and six in a combination of primary, middle and high schools. This gap in studies in the context of New Zealand primary schools is contradictory, when the trend shown by Robinson et al. (2009),

indicated most international research focused on primary school principals' influence on students' achievement. Why haven't New Zealand researchers investigated the influences of primary schools' principals on student achievement, especially given the opportunities for principals' influence afforded within the context of the highly self-managing New Zealand education system?

In New Zealand, students' socio-economic status is a predictor of educational achievement (Biddulph et al., 2003; Harker, 2006; May et al., 2016). However, school effectiveness research challenges this outcome and suggests leadership can influence this result (Andrews & Soder, 1987; Boyle & Humphreys, 2012; Klar & Brewer, 2013; Tan, 2018). Boyle and Humphreys argue that the effects of out-of-school factors, such as socio-economic status, can be overcome by effective leaders who develop highly effective systems to produce high student achievement. These two researchers investigated Hackney, the most deprived borough in London, which after a decade of "reform" was found to be performing above the national average at primary school level and at the national average for English secondary schools (Fullan, 2013). Though the student achievement data are quantitative, Boyle and Humphreys focused on qualitative data to understand how leadership improved student achievement. They interviewed 36 people and recorded over 25 hours of conversations to synthesize common themes or ideas. Data were triangulated when three people, from different roles, expressed a common view. Though student achievement was proven, the qualities of effective educational leadership were not correlated directly to these outcomes but *assumed* to be causal. This is the case with much leadership research. More work needs to be done to develop diverse and robust methodological tools, in order to quantify social artefacts such as leadership practice.

One research group which attempted to create new methodological tools was Spillane and his colleagues in their work on distributive leadership (Spillane & Orlina, 2005). These researchers suggested that interactions are "the key to unlocking leadership practice" (p. 174) and are central to the methodological challenges of measuring leadership. Shadowing approaches are often too expensive to use, and questionnaire approaches can be invalidated by the differences between reported practice and actual practice. Instead, they developed a method to observe and analyse didactic interactions at the group level. This method included developing and validating a series of logs—daily practice logs, experienced sampling method logs, and event logs, which documented leadership practice. As well as a research tool, the logs were used by leaders as

part of their professional reflection. Other methodological tools such as Hallinger's and Heck's reciprocal-effects model (2011b) appear too complex for practical application but may provide quantifiable insights into the mediated effects of leadership.

The Interface Between Research and Practitioner

Several studies over recent years have combined both qualitative and quantitative research such as the six year study by the Wallace Foundation, *Learning From Leadership: Investigating the Links to Improved Student Learning*, (Seashore-Louis et al., 2010) and a meta-analysis for the Best Evidence Synthesis Iteration, *School Leadership and Student Outcomes: Identifying What Works and Why* (Robinson et al., 2009).

Robinson, Hohepa, and Lloyd's research is situated as part of New Zealand's *Best Evidence Synthesis Project.* This project was designed as an innovation "to use research evidence and advance the strategic use of collaborative research and development to improve education at a system level in ways that serve the public good" (Alton-Lee, 2012, p. 5). The authors located 27 peer-reviewed studies and used 107 supplementary studies in a meta-analysis to examine the links between leadership and student achievement. Previous meta-analyses had not always separated the direct and indirect impact of leadership on student achievement (Marzano et al., 2005; Witziers et al., 2003) which had created a wide variation in the estimated impact, and differing summaries.

A problem for meta-analysis studies is how to account for the differing methodological quality of the studies (Hattie, 2008). Variations can occur due to choices of key words for sieving the database either by the researchers conducting the meta-analysis, or by the research authors, when coding the original study's abstract. Studies also need to be 'like enough' to be compared. To mitigate this, Robinson et al.'s methodology involved a collaborative process of checking and revision with national and international quality assurers (Robinson et al., 2009, p. 77).

Most of the studies reviewed used staff opinion questionnaires to focus on leadership practices. The authors were aware that such surveys are prone to subjectivity and bias, and cite research which shows that "there is a strong correlation between the way staff rate their leaders and the extent to which they like them" (Robinson et al., 2009, p. 92). For this reason, they suggest

"pedagogical" questionnaires such as the Principal Instructional Management Rating Scale (1982,1990), are better.

Robinson et al. (2009) reiterate that the Leadership Dimensions are not to be used as a checklist but be embedded in leadership theory which emphasizes relational and pedagogical practice, because "leading teacher learning and development" (p. 38) is twice as powerful as any other factor in affecting student outcomes.

The Influences of Context on Principals

Principals' leadership practices are influenced by context (Jacobson & Day, 2007). While the influence of context is highlighted by contingency theories, it is also acknowledged in multiple definitions and frameworks. New Zealand principals are required by the Ministry of Education to adapt their leadership practices to "meet the particular demands of school context" as "context has major implications for leadership and management arrangements, professional development, shaping the curriculum, developing learning environments, managing resources, and engaging with communities" (Ministry of Education, 2008, pp. 13, 15).

Context acts like "a set of constraints" that influence the principal's practice or contingencies (Bazire & Brézillon, 2005, p. 38). Context is a variable which needs to be considered when measuring cause and effect between complex educational leadership practices and student gains, as it limits the researcher's facility to generalize findings about leadership practices—what works to raise student achievement in one context, may not work in another context (Clarke & Wildy, 2013). Many contextual variables are difficult to isolate and hence it is difficult to measure the variables of leadership practice which cause gains in student achievement. The influence of context may be reciprocal in that the principal may be able to influence the context or be influenced by the context, and hence effect the student outcomes (Bruggencate et al., 2012; Dempster, 2011; Forsten-Seiser, 2020; Hallinger & Heck, 2011a, 2011b, 2011c; Seashore-Louis & Robinson, 2012). The variables are often dependent or mediating which makes it difficult to measure the origin of cause and subsequent effects (Leithwood & Montgomery, 1984). That is, the outcomes may not be traceable to the leader even when the leader has affected them. However, a description of situations and practices, may allow a practitioner to recognize aspects of another leader's practice and apply it to his or her own leadership (Ärlestig et al., 2016).

Contextual variables affect both leadership practice and professional learning (Bernardo et al., 2019; Drysdale & Gurr, 2016; Ewington et al., 2008; Forssten-Seiser, 2020; Johnson et al., 2008; Karadag, 2020; Latham et al., 2014; Pashiardis & Brauckmann, 2013; Rodriguez-Gomez et al., 2020; Southworth, 2002; Veelen et al., 2017). Therefore, it can be argued that principals have an ethical responsibility to question the validity and legitimacy of knowledge and practices, to be aware of the constraints and affordances which influence teaching and learning, not only within their schools but within their local communities, national education system and globally (Bottery, 2004; Spillane et al., 2004).

The word "context" is like the word "leadership", in that it is a contested concept with multiple definitions according to one's discipline and viewpoint. Context is etymologically derived from the Latin *contextum,* meaning: to weave or twine together, to connect or unite, to continue, to build or construct, or to devise and invent (*Cassell's Latin-English School Dictionary,* 1947). In its initial English usage, context was used to describe the text before and after a particular verbal or written text. Within research, context positions a phenomenon and provides additional information to explain and interpret the phenomenon.

In leadership studies, contextual variables can be both internal and external to the leader. Internal contextual variables take the form of knowledge constructed by the leader such as their values and beliefs (Hallinger et al., 2018; Notman, 2012; S. Robertson, 2016, 2017; Sergiovanni, 1992; Wang et al., 2016), and representations of experiences (Cardno & Youngs, 2013). Some studies showed the indirect influence of principals' beliefs and values on student achievement as a function of the development of school culture and of decision making when faced with competing demands (Day et al., 2016; Hallinger et al., 1996; Shatzer et al. 2014; Slater & Nelson, 2013) These values and beliefs are "expressed through the application and accumulation of combinations of values-informed organizational, personal, and task-centred strategies and actions" (Day et al., 2016, p. 225). In one sense the principal's personal values and educational beliefs serve as a point of origin, and are therefore integral to the establishment of goals, the prioritisation of demands and the determination of how actions will be achieved (Notman et al., 2009).

External contextual variables are those events and situations which influence the leadership practice in the broader organization and environment in which the school and principal are located (Hallinger, 2016). An external contextual variable may have immediacy and though it does not directly influence a particular task it does influence the outcomes, such as students' socio-economic status (Alig-Mielcarek & Hoy, 2005; May et al., 2016) or whether the school is rural or urban (Ewington et al., 2008; Notman, 2015; Pashiardis et al., 2011). The influence of contextual variables on student achievement has long been recognized as a source of inequity in New Zealand schooling where socio-economic status remains a predictor of achievement. Socio-economic status, when encompassing levels of parent-education, family resources, housing stability, nutrition, prior experiences, and health factors generates ethnic disparities in educational achievement (Biddulph et al., 2003; Harker, 2006; Leithwood & Jantzi, 1999; May et al., 2012; Snook & O'Neill, 2010, 2014; Wylie, 2013). Though New Zealand students as a whole maintain a higher average than the OECD average, students of Māori and Pasifika ethnicity record a lower average achievement (May et al., 2016). International monitoring assessments such as PISA[2] reading, science and mathematics show the average score for Māori and Pasifika students remains lower than the OECD average. In recent years migrant groups are also showing lower equity of achievement (OECD, 2016). This is despite the average score of New Zealand students remaining above the OECD average in science, reading and mathematics since the assessment began in 2000. Policy makers are concerned for the future social and economic well-being of New Zealand when 38% of the population are Māori or Pasifika (Tomorrow's Schools Independent Taskforce, 2016, p. 29).

Other contextual variables have less immediacy such as the "bureaucratic demands of educational agencies and political educational directions set by central government" (Notman, 2015, p. 43). These variables can influence outcomes by causing competing demands for priorities, definitions of work, and resources including the time available to complete leadership tasks (Garcia-Garduno & Martinez-Martinez, 2013; Karadag, 2020; Lee et al., 2012; May et al., 2012; Ogram & Youngs, 2014; Webber, 2013). These contextual variables are independent variables as they exert causal influences on the leadership practice. For example, Belchetz's and Leithwood's (2007) qualitative study investigated changes in principals' practices in response to Ontario's 2003 educational policy reforms. In the context of the study, Ontario policy makers

designed reforms to increase public accountability for student achievement and this resulted in changes in the structures and amounts of school funding, changes in curriculum and changes in achievement reporting. The changes in policy influenced the principals in the study to focus more narrowly on setting goals that measured student learning, and to develop structures that supported inquiry into continual, school improvement. The design of the study is also typical of many qualitative studies which research the influence of leadership on student achievement, in that:

- the sample was small (6 principals, 11 teachers, and 6 parents);
- the interview data of 1-2 hours per participant was reduced to common themes;
- leadership practices were assumed to have causal influence in gains to student achievement;
- effective principals were identified by "value-added" student achievement data (from reading assessments) and confirmed by peers' perceptions (superintending principals); and
- in order to be compared, the schools needed to be of a similar size and student demographic.

In Belchetz's and Leithwood's (2007) study, there was no comparison of leadership practices between high and low achieving schools. Rather, qualitative data were analysed to show commonalities in how principals set directions, helped people, redesigned the organization and managed the instructional programme. All the principals in the study altered their practices in response to the changed educational policies (showing contingency leadership), developed a shared vision and built goal consensus (showing transformational leadership), and focussed on teaching and learning (showing pedagogical leadership).

Effective leadership practice in one context may not be successful in another context and creates challenges of situational or adaptive practice for principals (Southworth, 2003). This is particularly true for New Zealand primary school principals, given the nature of the self-managing system that they work in. New Zealand school contexts are more varied than most other OECD countries with approximately half of all schools situated in provincial or rural areas (Ministry of Education, 2008).

The challenges of context to leadership practice show strong influences in high needs schools (Day et al., 2016; Klar et al., 2019; Notman, 2015). Research shows that leadership focus on teaching and learning is reduced in high needs schools by a focus on students' physiological and safety needs (Maslow, 1943). At high needs schools, leadership spends more time attending to student behaviour and welfare (May et al., 2012; Seashore-Louis et al., 2010).

Hallinger (2016) argues that the degree of control that a principal is able to exert over contextual variables varies and therefore effective leadership practices which raise student achievement "must be interpreted in light of the practical constraints (and opportunities) that arise from the leader's context" (p. 24). In contrast, Spillane argues that there are four broad categories of leadership practices which are used by "successful leaders in many different contexts" (Spillane, 2011, p. 45). These broad categories are: developing common goals and expectations, building the capacity of the organization by developing people, building a collaborative culture and relational connections, and managing the instructional programme.

Principal Professional Development in New Zealand

Principal professional development, both preparation and training, is considered key to strengthening the New Zealand education system (Pont et al., 2013). While the term professional development can be used interchangeably within literature with other terms such as continuous education, professional learning, continuing professional development, staff development, in-service and skills training, it may also be treated as having a discrete and separate meaning (Bredeson, 2000; Webster-Wright, 2009). In this instance, professional development will be considered broadly as, what principals say they learn and know, and how they use this knowledge in everyday work. The following sections describe New Zealand principal preparation and professional development, and highlight concerns about principal preparedness, principal quality, the ad hoc nature of on-going professional development for the experienced principal and a lack of structured, funded support to allow principals to focus on the practices most likely to improve student achievement.

Andragogy—the Principles of Adult Learning

There are multiple factors associated with the acquisition and application of professional development. Each factor has implications for the successful, individual, professional development of teachers and principals, as well as for effective communities of learning. One such factor includes understanding how adults learn (*andragogy*). Principals develop their understanding of teaching and learning as teachers of children (*pedagogy*) and may not have considered how learners differ as adults (Dennison & Shenton, 2018). Knowles (1975) noted distinctions between the adult and child learner, one being that children have a different motivation for learning than adults and respond to more extrinsic rewards. Adult learners are more independent and have more experience compared to children. Adults initiate learning when they perceive a need to know and learning is likely to be based on problem-solving, whereas children's learning within the school setting usually builds on an age-related mastery of subjects.

To influence teachers effectively, principals need to build their own pedagogical knowledge but also develop a concurrent understanding of effective adult learning practices. Knowles developed six key principles of andragogic learning (Knowles et al., 2012) which are relevant to teachers and principals, as adult learners, and which have been shown to be highly relevant to exemplary principal preparation programmes when applied to professional learning communities (Bowers & White, 2014; Davis & Darling-Hammond, 2012). According to Knowles, learning needs to:

- be relevant—adults want to know why, what and how they need to learn something before undertaking the learning;
- be self-directed—as a person matures his/her self-concept moves from one of being a dependent personality toward one of being a self-directed human being, having more autonomy, control and self-direction in his/her learning;
- account for prior experience—as a person matures s/he accumulates a growing reservoir of experience that becomes an increasing resource for learning, including mental models, beliefs and values;
- be timely—as a person matures his/her readiness to learn becomes oriented increasingly to the developmental tasks of his/her social roles;

- be contextually orientated—as a person matures his/her time perspective changes from one of postponed application of knowledge to immediacy of application, and accordingly his/her orientation toward learning shifts from one of subject-centeredness to one of problem centeredness; and
- motivate—as a person matures the motivation to learn is increasingly internal, so learning must have intrinsic value as well as extrinsic reward.

(adapted from Knowles, Holton, Swanson, 2012, p. 4)

A key aspect of adult learning is that it is self-directed. Knowles describes self-direction as:

> A process in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes. (Knowles, 1975, p. 18)

Self-directed learning (*heutagogy*) is a readily applicable approach to principals' professional development in the context of the New Zealand self-managing school system. The approach allows for flexibility given individual principals' contexts and interests (Dempster et al.,2012). Self-directed learning within an organization requires negotiated accountability and is likely to occur within the principal's performance management cycle. However, school boards show a lack of consistency and rigour in the implementation of the current performance management system. In particular, wide variation exists in levels of accountability and principals' appraisals are poorly linked to student achievement (Education Review Office, 2014; Sinnema et al,. 2015; Wylie et al., 2016).

International research into principals' professional development has been prompted by succession concerns, due to principal shortages, and by the debate regarding the impact of leadership on student achievement (Brauckmann & Pashiardis, 2011; Cardno & Youngs, 2013; Parylo, 2012; Pont et al., 2008b). However, there has been a reported lack of funding to enable research on educational leadership (Ärlestig et al., 2016), especially for mixed methods, longitudinal studies which use both quantitative and qualitative methods to "understand the complexity in educational administration" and "result in findings that can be generalized while also

ensuring that the results should have practical implications in a specific and unique local context" (p. 8).

The New Zealand Principal Role—Influences of High Autonomy and High Workload

New Zealand primary school principals experience more autonomy than their Organization for Economic Co-operation and Development (OECD) colleagues and a wider range of administrative duties (Pont et al., 2008b). New Zealand primary principals:

> As well as being pedagogical leaders…are responsible for the day-to-day management of a broad range of policy and operational matters, including personnel, finance, property, health and safety, and the interpretation and delivery of the national curriculum... [and are] ultimately responsible for the day-to-day management of everything that happens in their schools. (Ministry of Education, 2008, p. 7)

This greater degree of autonomy suggests that New Zealand principals have broad opportunities to influence what occurs in their schools and yet the administrative workload may also decrease their focus on teaching and learning (Burgon, 2012; Dempster, 2011; New Zealand Education Institute, 2019b; Organization for Economic Co-operation and Development, 2019; Wylie, 2017; Wylie et al., 2016). With the dilemma of prioritizing a high workload, it is important for principals to know which leadership practices influence student achievement and how to maintain this influence while balancing the many demands of their role.

Sabbatical Leave. Paid sabbatical leave is one way in which principals may continue their professional learning without the concurrent influences of their administrative workload. Traditionally, sabbatical leave has four principles: the leave has a defined goal, compensation makes the leave possible, prior service has been established so that the leave has been earned and is understood to be necessary, and there is an expectation that the leave will benefit both the sabbatee and the institution (Pillinger et al., 2019). New Zealand sabbatical leave for primary school principals follows these principles. Principals who have had at least five years' service in state or state-integrated[4] schools and who are employed under their primary schools' collective

[4] State-integrated schools teach the New Zealand Curriculum, but keep their own special character (usually a philosophical or religious belief) as part of their school programme. State-integrated schools receive the same

contract may apply for paid leave of ten weeks, which is one school term, for the purpose of "professional learning, reflection and rejuvenation" ("Primary Principals' Sabbaticals", 2020). The selection process occurs nationally, and the principals must be supported by their schools' boards. The Ministry of Education compensates the school for the costs of an acting principal, but costs associated with the leave itself must be negotiated with the school's board of trustees or paid by the principal. At the conclusion of the leave, each principal is required to complete a report which is placed on a national website. These reports are descriptive and not linked to measures of student achievement. However, the reports typically highlight the influence of workload on professional learning, as evidenced by a principal who undertook paid sabbatical leave in 2015:

> As a principal, my time is valuable. The myriad of demands—administrative, educational and relational—can rob time from the important work of instructional leadership. The 'tyranny of the urgent' can distract us from the more important (but often less pressing) goal of students' achievement. However, no matter how important this 'other' work is, schools are about teaching and learning; all other activities are secondary to these basic goals…I am very grateful for the opportunity to undertake this sabbatical study. I have found it stimulating and challenging. The wide ranging nature of my findings and the opportunity to reflect has contributed to the growth of my own leadership, educational and personal philosophies. I trust there will be evidence that this investment has been worthwhile. (Burns, 2015, p. 4, 6)

Currently, there is no academic research which evaluates the effectiveness of the programme of paid sabbatical leave for New Zealand principals nor the subsequent leadership influence to student achievement.

New Zealand Principals' Professional Development

In New Zealand there are no mandatory preparation programmes for principals. Principal professional development continues to be criticized for being ad hoc (Brooking, 2008; Malcolm, 2012; Patuawa, 2006; Robertson & Strachan, 1997; Wylie et al., 2016) and, as with overseas,

government funding per student as other state schools but their buildings and land are privately owned, so they usually charge a compulsory fee, or attendance dues, to support property costs.

informal learning with on-the-job experience and networking with colleagues appears to play an important role (Ringling et al., 2020; Veelen et al., 2017).

During the last three decades of New Zealand's self-managing school system, the role of principal has evolved from an emphasis on administration to an emphasis on the leadership of teaching and learning (Education Review Office, 2016b). In response to this evolution, principal training, credentialling and the effectiveness of professional development is being re-evaluated both in New Zealand and in multiple jurisdictions across the world (Australian Institute for Teaching and School Leadership, 2015; Osborne-Lampkin et al., 2015). New Zealand's response has been the development of two documents in consultation with the education sector—*The Leadership Strategy for the Teaching Profession of Aotearoa New Zealand* (2018) and *The Educational Leadership Capability Framework* (2018)—and the proposed development of a national Centre for Leadership Excellence.

The aim of the leadership strategy is broadly defined to include, "the growth and development of leadership capability for all registered teachers across English medium and Māori medium settings in New Zealand—in both positional and non-positional leadership roles" (Education Council, 2018, p. 4). The aspirations to build the capacity and capability of the New Zealand education system are stated as general principles. However, the structure, resourcing and details of practical applications of these leadership strategies are yet to be determined.

As an interim measure, from 2018, the Ministry of Education has contracted the services of an independent education consultancy company to provide support for beginning principals through contact with a local leadership advisor, a local mentor, and a regional management group. Prior to 2018, three national leadership-development programmes were funded by the Ministry of Education:

- The First-Time Principals' Programme, designed and delivered by the University of Auckland, 2002-2017.
- The Aspiring Principals' Programme, designed and delivered by the University of Waikato, 2008-2016.
- The Experienced Principals' Development Programme, administered nationally by 10 tertiary providers, over 18 months, 2009-2010.

Of particular importance to this study, is the First-Time Principals' Programme which formed the basis of principal preparation for all the principals in this study. The programme was designed "to develop the knowledge, skills and capabilities of first-time principals to support their successful school leadership" (*First-Time Principals Programme 2007,* p. 2) and focussed on pedagogical theory and leadership practices which improve learning and teaching (Robinson & Timperley, 2007).

The programme format was adjusted during its sixteen years' tenure, but for the 2007 principal cohort it was an 18-months' course including:

- Three, national three-day residential courses in Auckland (April 2007, September 2007, July 2008).
- Mentoring by an experienced principal with school-based visits, shadowing, and support.
- Online learning with curriculum modules, forums for discussion, and links to resources and education sector communities.
- Leadership and Management Advisers from regional Ministry of Education offices for ongoing support with management and compliance responsibilities.

The principals within this programme received a strong foundation of pedagogical leadership theory, which was intended to influence how they defined their work and constructed their professional identity (Scott & Scott, 2013). The course itself was designed to align with known principles of effective principal preparation programmes of the time (Auckland University, 2007; Davis et al., 2005; LaPointe et al., 2006) which included:

- a clear focus and values about leadership and learning around which the program is coherently organized;
- standards-based curriculum emphasizing instructional leadership, organizational development, and change management;
- field-based internships with skilled supervision;
- cohort groups that create opportunities for collaboration and teamwork in practice-oriented situations;

- active instructional strategies that link theory and practice, such as problem based learning;
- rigorous recruitment and selection of both candidates and faculty; and
- strong partnerships with schools and districts to support quality field-based learning

(Davis & Darling-Hammond, 2012, pp. 25, 26)

The application of the principals' learning was measured immediately before and after the course using a self-assessment tool (Robinson et al., 2012), and six years' later, long-term effects were evaluated by a survey to which 43 of the 2007 cohort primary and secondary principals responded (Patuawa et al., 2013). The 2013 survey was designed to measure the sustained impact of the programme for the principals' cohorts 2006-2009 and consisted of 17 quantitative and three qualitative questions. Results from the survey showed principals valued both mentoring and the residential courses as professional development, while support from the Ministry of Education was considered low. The research clearly measured the preferences of the principals as adult learners and is a useful consideration in the development of future principal preparation programmes. However, the research did not connect the principals' learning to students' achievement which is a strong criticism from the literature regarding the evaluation of principal preparation programmes (Campanotta et al., 2018; Cosner, 2019; Davis & Darling-Hammond, 2012; Grissom et al., 2019). Patuawa et al.'s research (2013) did not investigate the constraints the principals experienced within their particular contexts per se, but these are indicated by some anecdotal comments which were reported from qualitative data such as, "The FTP programme was very important, as much for the collegial support as for the content. I was initially a principal at a country school and without the FTP programme would have felt more isolated in my role" (p. 19).

This doctoral study does not aim to evaluate the effectiveness of the First-Time Principals' Programme, but rather, to build on Patuawa et al.'s findings (2013) by contributing further information about principals' preferences in professional development, considering the constraints and opportunities afforded by context, and by connecting the leadership of participants in the New Zealand programme to student achievement data.

Unregulated Principal Selection

Since the reforms of the Education Act 1989, in New Zealand, each principal is employed by the school's board of trustees. Biases, notably around gender and quality (Brooking, 2008), have been generated by this unregulated system which allows the autonomy of individual boards to appoint principals and which has no requirements regarding principals' qualifications.

> Boards left to their own devices have shown a preference for male principals, and have discriminated against women applicants in a number of ways… if boards continue to overlook well qualified women in place of inexperienced male principals, it does not auger well for quality leadership into the future. (Brooking, 2008, p. 42)

Most principals adopt the national principals' collective agreement as the basis of their employment contract. The collective agreement requires principals to have been trained and certified teachers, and though this means principals usually come to the role experienced in curriculum and pedagogy from their teacher training and classroom experiences, they often need to develop skills in finances, human resource management and leading organizations (Brundrett & Crawford, 2012). The collective agreement also requires principals to adhere to a set of professional standards for on-going performance management. However, the professional development associated with appraisal goals has been shown to widely vary throughout the sector (Education Review Office, 2014). This variation suggests a lack of understanding by school boards as to what constitutes effective leadership. The lack of credentialling is a weakness within the New Zealand education system, and permits the selection of poorly qualified principals, followed by ineffective professional development and poor outcomes for students (Brooking, 2008). In comparison, research has shown that high-quality principal preparation, rigorous hiring procedures and a performance management cycle designed to develop as well as measure principal effectiveness supports gains in student achievement and ensures a continuous supply of high-quality principals (DiGaudio & Bickmore, 2019; Herman et al., 2017; Mendels, 2016).

About 1% of New Zealand primary schools per year require a statutory intervention associated with risks to students' educational performance and/or risks to students' welfare, while approximately 4% of schools require statutory interventions associated with risks to the operation

of the school such as: financial management issues; personnel management and/or asset management; poor planning, policy setting and reporting to parents; poor community relationships; and not complying with legislation (Ministry of Education, 2020). The need for statutory interventions raises concerns about an education system that enables the selection and retention of ineffective principals (Ministry of Education, 2014). More research is required to evaluate the influence of "uncredentialled" principals on student achievement.

Inequities in Access to Professional Development

Research suggests that in New Zealand there are inequities in access to professional development for principals (Notman, 2015). Ultimately, these inequities are a product of how professional development is resourced. Principals' professional development is funded from four sources—a budgeted portion of each school's operational grant, application to national Ministry of Education contracts, sponsorship (e.g., regional principals' association events sponsored by local firms, private education trusts such as Springboard Trust), and by the principals themselves. Each school's operational grant is based on the number of students with some additional funding given to schools which are small, schools which are isolated, or schools in areas with a low socio-economic population (Ministry of Education, 2020). However, proportionally the costs of professional development including time, course expenses, travel, food and accommodation, and personnel coverage have a greater impact on the smaller budget of a small school. There is evidence of principals in small schools choosing not to participate in professional development due to the effect it would have on the school's ability to purchase teaching and curriculum resources which more directly impact the students' learning (Notman, 2011). There is also evidence of almost 100% participation in principal professional development where all associated costs were met externally by the Ministry of Education (Patuawa et al., 2013). These two examples suggest system structure can produce inequities in principal professional development and could affect over a quarter of New Zealand principals given that 27% of New Zealand schools are small schools (Wylie et al., 2016). More research needs to be undertaken to investigate such systems barriers and their effects on principals' professional development in New Zealand.

Principles of Effective Professional Development

Effective professional development has been described as structured professional learning which results in changes in pedagogy and improved student achievement (Darling-Hammond et al., 2017). Within New Zealand professional standards documents, principals are explicitly required to "promote, participate in and support ongoing professional learning linked to student progress" (New Zealand Education Institute, 2019a, p. 43). However, the "pursuit" of professional development for the purpose of improving student achievement has been criticized as being too narrow in its conceptualization of professional learning (Webster-Wright, 2009, p. 702).

New Zealand research (Malcolm, 2012) has shown that primary school principals engage in a range of professional development from contextually-based informal learning to formal learning programmes and tertiary qualifications. This professional learning is undertaken at their own prerogative and with learning needs changing over time to reflect an increasing focus on improving student learning (Brown & Chai, 2012; Hvidston et al., 2015; Malcolm, 2012; Patuawa et al., 2013; Robinson et al., 2012). Biddle and Saha (2006) showed that principals who obtained qualifications through professional education or who habitually read professional books were more likely to use research knowledge, but that workload strongly influenced the time available for professional reading and reflection. Research has shown that principals need to engage in formal, informal and practical experiences to develop their principalship (Scott et al, 2013). This range of experiences allows for knowledge to be applied within the leader's context (Bredeson et al., 2011). Transactional methods of knowledge delivery, such as listening to an expert in a workshop, have been criticized for failing to account for situational differences and opportunities in which the leader will implement the knowledge (Kedian et al, 2016). Instead, it is suggested that professional development might include experiences such as action research which utilizes "genuine dialogue" to inquire into and develop practitioner learning (Kedian et al., 2016, p. 182) . Research has also shown that there is little evaluation in the New Zealand context of how principals select these experiences nor the subsequent influence on the development of the principals' knowledge, skills and dispositions (Robinson, 2017).

Leadership and Teaching as a Process of Inquiry

New Zealand principal professional development has been criticized for focussing on preparatory programmes rather than developing experienced principals (Education Council, 2018) but there is little national research to evaluate the effectiveness of either principal preparation programmes (Piggot-Irvine & Youngs, 2011; Robertson & Earl, 2013, 2014) or the needs of experienced principals in relation to their influence on student achievement. What little evidence there is, is provided from discourses in teaching as a process of inquiry (Le Fevre et al., 2015; Timperley et al., 2014; Timperley & Parr, 2003, 2010).

In a recent Swedish study, Forsten-Seiser (2020) suggested that structures such as action research projects in partnerships between universities and practitioners can promote reflection in professional learning and capacity building, and influence student achievement. In New Zealand, the teacher-as-researcher role had been explored and developed during the 1990s with impetus from educational academics (Robinson, 1993). In this model, teachers are required to think about their own teaching, collect evidence, identify researchable questions and design interventions as small-scale experiments in their classrooms. The New Zealand Curriculum (Crown, 2007) included a requirement for teachers to be involved in action research (Kemmis & Taggart, 1988) in the form of *Teaching-As-Inquiry*. The process of inquiry forms a part of New Zealand professional standards for teachers where teachers are required to "use inquiry, collaborative problem solving and professional learning to improve professional capability to impact on the learning and achievement of all learners" (Education Council, 2017b, p.18). Teaching-As-Inquiry was also seen as a "key policy lever" to foster professional development and thus enhance quality teaching for increased student achievement (Timperley et al., 2009, p. 228).

Leadership plays an important role in setting up the organizational structures and climate that facilitates this teacher-learning (Akiba, 2015; Aldridge & Fraser, 2018; Bellibas & Liu, 2018; Hallinger & Heck, 1998; Lantz-Andersson, Lundin & Selwyn, 2018; Leithwood & Sun, 2012; Mestry et al., 2013; Morales, 2016; Seashore-Louis et al., 2010; Timperley et al., 2007). In turn, student achievement is enhanced when leaders influence structures which develop communities of learning and build school capacity (Marsh & Farrell, 2015). These influences may involve regular meetings when teachers reflect on their practice, share problem-solving and professional

development, and create opportunities to develop trust and practice distributed leadership (Blase & Blase, 2000; Leithwood, 2016; Murphy, 2015; Tschannen-Moran, 2009; Youngs & King, 2002).

However, New Zealand research has indicated the Teaching-As-Inquiry model has been poorly implemented within New Zealand schools (Education Review Office, 2011; Timperley & Parr, 2010). Timperley et al. (2009) argue that unless action research focuses professional inquiry on student learning needs from which teaching learning needs are identified then there is little evidence of inquiry increasing student achievement.

The lack of implementation suggests that principals are failing to effectively create the necessary organizational structures for the Teaching-As-Inquiry process to function. A lack of effective implementation is concerning when Teaching-As-Inquiry is the main curriculum structure for targeting improvements in student achievement for New Zealand schools (Ministry of Education, 2007, p. 35). There appears to be some disparity between the knowledge needed to use the Teaching-As-Inquiry model as a teacher and the knowledge needed to use the model as a leader of teaching and learning. In contrast, North American research has shown strong gains in student achievement when principals' professional development programmes linked leadership learning to creating the organizational conditions necessary for Teaching-As-Inquiry type models of evidence-based intervention (Herman et al., 2017). The models found to link strongly to the most effective student achievement outcomes were coaching models with an inquiry project based on a research-theory of action, which provided both personal development for the principal and school improvement. A similar, inquiry-based project was trialled in New Zealand for experienced principals, *Experienced Principals' Development Programme,* during 2009-2010 but evaluation outcomes were not linked to student achievement data. The evaluation of the programme was based on principals' self-reporting of the programme's relevance to their professional learning development as an experienced principal (Cardno & Youngs, 2013).

In the New Zealand context, there would appear to be a disconnect between action research theory and the practical implementation of Teaching-As-Inquiry, which suggests a lack of principals' professional development. This suggestion is supported by research from Le Fevre et al. (2015) which showed leaders lack the skills to engage in challenging, non-defensive conversations with teachers about their practice. Leaders also tended to "move very rapidly from

identifying a problem to offering or soliciting strategies about how to resolve it…[skipping] the phase of causal inquiry" (Robinson, 2017, p. 3). Robinson argues that for educational leaders to solve the complex problems of teaching and learning their educational decisions must be strongly informed by quality research or practice-based evidence, but that currently, "the strong tradition of research on teacher content and pedagogical content knowledge has no parallel in leadership research" (p. 3).

Mentorship and Coaching

Mentorship and coaching are practices which may support reflective-learning conversations and inquiry into professional practice (Davys & Beddoe, 2021; Roberston, 2011; Robinson & Lai, 2006; Service et al., 2018). Mentoring and coaching have been used for the identification, socialization, professional development and retention of principals (Crow, 2012; Parylo et al., 2012; Sciarappa & Mason, 2014; Service et al., 2016).

Within the literature, the terms mentor and coach are used ambiguously. The terms can be treated separately, blended or used interchangeably. The word mentor has its origins in Homer's ancient Greek poem, *The Odyssey*, in which Mentor, a friend of Odysseus, was entrusted with Odysseus' son's education in his absence. MacLennan (2017) describes a mentor as someone to learn "from" and a coach as someone to learn "with" (p. 5). A mentor is usually someone who is more experienced from within the same field as the mentee. The mentor apprentices the mentee through the provision of vicarious expertise and modelling. In contrast, a leadership coach's professional field is often cognitive coaching and hence outside schooling (Bloom et al., 2003), and provides "deliberate support to another individual to assist him/her in clarifying and/or achieving goals" (Bloom et al., 2005, p. 5). However, professional development through peer-coaching may blend these roles when the coach is an experienced principal who has training in cognitive coaching (Roberston, 2011). Despite the wide ranging application of the terms, there are commonalities within definitions, with both mentors and coaches required to: build trust, listen, observe, question, and provide feedback (Bloom et al., 2005).

Research during the last three decades has shown that mentorship programmes may raise student achievement by influencing the development of the knowledge, skills and dispositions of school leaders (Bynoe, 2015; Davis & Darling-Hammond, 2012; Seashore-Louis et al., 2010;

Service et al., 2018). In the New Zealand context, mentors would appear to be a valued source of professional learning for principals. In Patuawa et al.'s (2013) evaluation of the First-Time Principals Programme, the mentoring strand of the programme was perceived by principals as having the highest sustained impact on their practice. Bynoe (2015) suggests that important features of mentor programmes are:

- programmes are both contextual and experiential;
- co-designed and co-delivered by a university centre and local school district; and
- focus on precise learning outcomes and specific competencies.

In this way, the principal is exposed to new knowledge and supported in the development of his/her practice by both researchers and expert practitioners. Selection and matching of compatible mentors and mentees are important. Leadership development has been shown to be limited by mismatches between the values and beliefs, race and gender of mentors and mentees (Bush et al., 1996). The impartiality of the mentor role can also be in conflict with accountability demands for performance management, and mentees can show a lack of willingness to reveal limitations to their mentors, if the mentor also sustains an evaluative role (Bush et al., 1996). The workload and competing demands associated with the principals' role may limit time for critical reflection about leadership practices (Wylie, 2017), so a strength of mentoring, is that it provides structured-time for professional, critical reflection through dialogue with the mentor (Jacob-Ward, 2013; Kedian et al., 2016; Service et al., 2018).

Summary

The final section of this chapter summarizes the themes that have emerged within the reviewed literature. The focus of the literature review has been to examine the influences of leadership on student achievement and what is known, and not known, about how New Zealand principals develop their leadership practice.

It has been argued that leadership is a contested concept. Researchers have generated multiple interpretations in their search to better understand the influences of leadership on student achievement. However, this range of interpretations has made studies difficult to compare and may not preserve all that is inherent in principals' daily practice. It is suggested that though the

term “pedagogical leadership” is used to describe expectations of principals as leaders of teaching and learning in New Zealand schools, in both practice and theory, this interpretation of leadership also contains many shared practices from within transformational and distributive leadership discourses.

The complexity of the school leadership role and variation in contextual influences means it is difficult to measure leadership influences. Educational leadership research is not always linked to student achievement. In particular, school improvement and school effectiveness research are often based on surveys of teacher and principal perceptions of school climate and culture. However, the number of studies and the range of countries involved in studies which do connect the influences of leadership to student achievement has increased during the last decade. Most studies employ simple, descriptive statistics in their methodologies. Studies which use more complex, inferential statistical modelling are rare, as are longitudinal studies.

The leadership influences of principals may be direct or indirect. However, the principal is uniquely positioned within the school organization to influence the structures within which teachers work and apply many small influences within the school.

It has been argued that principals’ influences may be mitigated or enhanced by the context of the wider education systems in which they work. These systems may influence professional development opportunities and constraints, professional identity and autonomy, work intensification, principal credentialling and appointments, and performance management. These influences on the development of principals’ leadership practices may subsequently influence student achievement.

Large reviews, meta-analyses and syntheses of research have influenced policy makers’ decision making and hence influenced the resourcing and the system within which principals work. The Best Evidence Synthesis project (BES), resourced by the New Zealand government and undertaken by New Zealand researchers, provided rich evidence of best educational practice. However, the findings were delivered in a transactional manner to schools, as a document to read, with limited dialogue between practitioners, researchers and policy makers as co-members of the education, professional learning community.

Though principals may have a strong curriculum knowledge from their teacher-training and teaching experiences, there is a limited pedagogical research base for what principals know as leaders of teaching and learning in schools. New Zealand principals have wide discretion to engage in professional development but little is known about what New Zealand primary school principals do to develop their practice nor if, and how, it is linked to improvements in student achievement.

The current study examines the influences of New Zealand primary principals' leadership on the achievement of students within their schools and how these principals developed their leadership practice since first becoming principals in 2007. The following chapter describes the research design—"the strategy, plan of action, process or design lying behind the choice and use of particular methods and linking the choice and use of methods to the desired outcomes" (Crotty, 1998, p. 3). The complexity of measuring leadership influence is identified within the chapter and linked to rationales for the selection of particular methods to investigate how primary school principals develop their leadership practice and how that practice influences student achievement in the New Zealand context.

Chapter Three—Methodology

This chapter describes the research methodology. The chapter is organized into five sections which focus on aspects of the methodology: the study's organization and researcher's perspective, the sample selection, the data collection, the data analysis, and ethical considerations. The chapter begins with restating the research aim and key questions.

The study employed a mixed methods research strategy to explore how a group of New Zealand primary school principals used their influence to impact student achievement. The research took place in two phases. Phase One involved 67 members of the First-Time Principals' Programme 2007 cohort completing a questionnaire. In Phase Two, twelve of these principals participated in interviews and contributed documents for analysis.

The study was designed to collect both quantitative and qualitative data to explore:

- How do New Zealand primary school principals develop their knowledge, skills, and dispositions for leadership?
- What do New Zealand primary school principals do to ensure decisions are informed by knowledge about effective pedagogy?
- What evidence is there of pedagogical leadership influencing student achievement in the New Zealand primary school context?

Study Organization

Rationale for the Research Strategy

Leadership is a complex concept and multiple theoretical perspectives have been constructed to explain and interpret it (Grint, 2005). As discussed in the literature review, the complexity of leadership practice has made it difficult to isolate principals' direct and indirect influences on student achievement using current methodologies. Another difficulty associated with practice-based research in education is that the "standards of the methodological rigour make it impossible to preserve the complexity of the practice situation" (Robinson, 1993, p. 12). While it was beyond the scope of this doctoral study to invent a new methodology, the study could employ a

methodology which provided and analysed both quantitative and qualitative data, to better understand the links between pedagogical leadership and student achievement. For this reason, a mixed methods research design was chosen.

The mixed methods research design utilized the strengths of constructivist activities such as interviews to develop a better understanding of leadership from multiple perspectives and interpretations, and the strengths of positivist activities such as data analysis of statistics to build objectivity, generalizability and replicability into the study (Lincoln & Guba, 1989). The design choices for the study are summarized in Table 3.1. and will be discussed in more detail in following sub-sections of the chapter.

Table 3.1

Overview of the Research Design

Design Feature	Design Feature Choice for this Study	Timeline
Epistemology	Pragmatism	
Methodology	Mixed Methods	
Data Collection	Questionnaire Semi-structured Interview Documents	Phase One, Term 1 2017 Phase Two, Term 2,3 2017 Phase Two, Term 2,3 2017
Data Analysis	Descriptive Statistical Analysis: Central tendency Variability Distribution Inferential Statistical Analysis: Correlation Size effect Reflexive Thematic Analysis: Semantic Inductive Deductive	Jan 2018 Jul 2018 – Dec 2019

Researcher's Perspective

The literature review has shown the construct of educational leadership to be a contested concept and has described the tensions between researchers who have different theoretical conceptions of leadership and differing methodologies for measuring the impact of leadership on student achievement. Due to these differing perspectives and interpretations, it is important for

researchers to clearly present their dominant viewpoint or "lens" to increase the validity and clarity of their studies (Creswell & Miller, 2000, p. 125; Grint, 2005). Just as principals' theories of action impact on their leadership practices and development (Heifetz, 2010), researchers' epistemological approaches impact on their interpretations by "deciding what kinds of knowledge are legitimate and adequate" (Gray, 2014, p. 17).

A researcher's epistemological perspective, or theory of knowledge, explains how researchers go about their research. The perspective is influenced by how they understand the world (paradigm). This understanding of the world is informed by assumptions about the *nature of reality and the nature of things* (ontology). In turn, these ontological understandings influence the ways of and purposes for, enquiring into the nature of reality and the nature of things (epistemology). The researcher's understanding of the world also reflects the values and beliefs s/he holds about what is important or valuable (axiology).

The epistemological approach influences the researcher's decisions about the study's design and interpretation, and subsequently whether various studies can be compared. The epistemological perspective for this study is pragmatism. Mixed methods research is generally situated within a pragmatic paradigm (Creswell & Garrett, 2008; Denscombe, 2008; Onwuegbuzie,. et al., 2009). Within the pragmatic paradigm, knowledge can be gained through observable and measurable data, as well as being constructed through experiences and reflection about those experiences. Therefore, the study values both objective and subjective knowledge (Morgan, 2007) in the exploration of leadership practices. The pragmatic paradigm is an approach that attempts to better understand phenomena to decide which action to take and is therefore strongly rooted in practical applications. This connection between theory and practice is important to the study as the research is intended to inform and be useful to practitioners, as well as contribute to the research community and policy making about effective leadership practices. While "no single leadership theory can hope to capture and explain more than a slice of reality" (Leithwood & Montgomery, 1984, p. 9), the study is intended to offer descriptive and explanatory insights into pedagogical leadership which is validated by evidence and transferable to practice (Heifetz, 2010). The researcher's purpose for the study is to "make a difference" which is a common axiology of pragmatism (Maxwell & Loomis, 2003).

Mixed Methods Research Strategy

Mixed methods approaches to research design gather both quantitative and qualitative data. The two sets of data are integrated and a combined interpretation is made to understand the research question. Creswell (2015) argues that:

> A core assumption of this approach is that when an investigator combines statistical trends (quantitative data) with stories and personal experiences (qualitative data) this collective strength provides a better understanding of the research problem than either form of data alone.
>
> (Creswell, 2015, p. 2)

Mixed methods studies in leadership have used complementary data to assist with triangulation, and enhance, expand, clarify or illustrate phenomena (Bryman, 2006; Bryman et al., 2004) thus strengthening inferences with quantitatively derived questions and qualitatively captured experiences (Teddlie & Tashakkori, 2003). Other strengths of mixed methods design in leadership studies have included the provision of exploratory data for subsequent research (Bryman, 2006) and the comparison of quantitative and qualitative data to challenge the fidelity and appropriateness of methodological instruments (Collins et al., 2006).

The general research process is the same for collecting quantitative and qualitative data: "Identify the problem, determine the research questions, collect the data, analyse the data, and interpret the results" (Creswell, 2015, p. 4). Although the general process is the same, the specific methods by which quantitative and qualitative data are gathered are different, and follow procedures designed for each.

In Phase One of this study, the quantitative data include a range of descriptive data about the sample cohort: their demographics, changes in learning needs of the principals over time, sources of professional development, and the degree to which the principals pursued pedagogical knowledge, skills and dispositions associated with their principals' preparation programme. The quantitative data also provided evidence of measurable parameters (such as the average age for men and women becoming principals), examined relationships between variables, explored

probable cause and effect, and provided insight into the breadth of principals' contexts and experiences.

In Phase Two of this study, qualitative data were gathered to focus on the contexts and experiences of 12 principals. These data contributed to understandings of how the principals developed their leadership practices over ten years and how the principals developed their pedagogical decision making. The qualitative data provided detailed information about the influences of context and emphasized the voices of participants through quotes. Quantitative data were also gathered in Phase Two to show student data collected before and after school initiatives to raise achievement.

Quantitative and Qualitative Data Integration

The purpose of using a mixed methods design is to intentionally integrate the quantitative and qualitative data, to maximize the strengths and minimize the weaknesses of both kinds of data. Integration can occur in three ways: by merging, by connecting or by embedding the data (Creswell et al., 2011). This study uses all three ways to build a comprehensive understanding of a complex concept and to explain results in depth (Sammon, 2010).

Integration by Merging Data. One way that data integration occurs is through the merging of quantitative and qualitative data. In the study, the merging of both kinds of data occurs during the reporting and discussion of results:

- The quantitative statistical results are reported, followed by qualitative quotes which support or refute the quantitative results.
- The qualitative data from Phase One are quantified and compared to quantitative variables.
- Data displays show both quantitative and qualitative results.

Integration by Connecting Data. The second way quantitative and qualitative data are integrated in this study is by connecting the data within and between Phase One and Phase Two. These connections are used to explore or explain the two data sets. For example: responses from the Phase One questionnaire were used to inform the development of the Phase Two interview questions and further explore the quantitative results; themes and quotes developed from Phase Two qualitative data are used to explain or challenge trends in Phase One quantitative data; and

the quantitative student data from Phase Two are used to show possible connections to pedagogically informed decision making revealed in the qualitative interviews.

Integration by Embedding Data. The third kind of integration, embedding data, occurs when a data set of less priority is embedded or nested within the primary data collection method. This has also been described as *intramethod mixing* (Johnson & Turner, 2003). Within this study a number of qualitative questions were embedded in the quantitative questionnaire and enabled supplementary data to be collected. This supplementary data offered possible explanations for quantitative data trends. For example, in Question 6a of the questionnaire principals were asked to rank their learning needs and in 6b the principals were asked to comment on the reasons for changes in learning needs and priorities. The supplementary qualitative data were designed to complement the quantitative data. However, the supplementary data could also reveal a lack of objectivity in the self-reporting of the participants, if quantitative responses and qualitative comments did not align. Flaws could also be highlighted in the instrument design, if participants interpreted the questions in unexpected ways.

Table 3.2

Summary of Data Integration Procedures for the Mixed Methods Study

Point of Integration	**Kind of Integration** (embedding, connecting or merging)	**Example from Study**	**Purpose**
Data collection	embedding	Supplementary qualitative questions in a predominantly quantitative questionnaire	Explanatory Confirmatory
	connecting	Phase Two questions are developed in response to Phase One quantitative trends	Exploratory Explanatory
Data analysis	connecting	Phase Two qualitative data explains or challenges Phase One quantitative data, Phase Two qualitative data explains or challenges Phase Two quantitative data	Explanatory Confirmatory
Data interpretation	merging	Phase One qualitative data quantized and compared to Phase One quantitative data Data displays show qualitative and quantitative results Qualitative quotes support or refute quantitative statistics	Confirmatory Explanatory

Sample Selection

The sampling design employs both quantitative and qualitative protocols (Boyatzis, 1998) as applied to a mixed methods design. Onwuegbuzie and Collins (2007) observe that researchers often associate sample size with particular methods of research. Small sample sizes are often associated with qualitative research and large sample sizes are often associated with quantitative research, because they determine how the researcher makes "statistical and/or analytic generalizations" (p. 287). In this study the main goal was to gain insights into the impact of pedagogical leadership. For this reason a non-random sampling process was used, specifically *purposive multi-stage sampling,* when the researcher purposefully selected individuals, groups, and settings to maximize understanding of the underlying phenomenon (Onwuegbuzie & Collins, 2007). Individuals, groups, and settings are considered for selection if they are "information rich" (Patton, 1990, cited in Onwuegbuzie & Collins, 2007, p. 287).

In Phase One, the sample for this study included all primary school principals who began their principalship in 2007 and who participated in the First-Time Principals' Programme. The cohort was selected by the researcher as the population sample because the New Zealand programme had a pedagogical base for leadership and the principals had had one decade in their roles, and could therefore be deemed information rich. Primary school principals were defined as those principals having responsibility for Year 1-8 children, and therefore included all principals within the 2007 cohort from: Full Primary (Years 1-8), Contributing Primary (Years 1-6), Intermediates (Years 7-8), Kura Kaupapa Maori[5], Area Schools (Years 1-13), and State Integrated Schools.

The 2007 database for the sample was used with permission provided by the First-Time Principals' Programme organizers (Robinson, 2016). However, individuals within the database had to be traced to a current contact address. This was undertaken using sources in the public domain namely, Ministry of Education websites, school web pages, newspapers and word-of-mouth.

Individuals were purposefully excluded from the population sample for the following reasons:

- they did not begin their tenure in 2007,

[5] A New Zealand primary school in which the language of instruction is Maori and Maori values are taught.

- they were secondary principals,
- they were unable to be traced (due to school closure or other reason), and
- they had been censured and de-registered by the Teaching Council of Aotearoa New Zealand.

These exclusions are summarized in Table 3.2 and produced a sample group of 113 possible respondents for Phase One.

Table 3.3

Summary of Sample Database Exclusions

Sample Group	Number
Initial Database	201
Secondary principals	25
Principals who did not begin tenure in 2007	29
Investigated by Teachers' Council	3
Current teacher registrations but unable to be located	24
No longer registered and unable to be located	7
Database for sample	113

Questionnaires were sent to 113 possible respondents. From the possible sample group of 113 there were 32 principals who made no response, two principals had retired, seven principals were on sick leave or study leave, and a further seven principals declined to complete the questionnaire. The data in Phase One were gathered from the 67 principals who completed the questionnaire.

Phase Two of data collection involved selecting a nested sample of at least twelve principals from Phase One who:

- volunteered to participate in face-to-face interviews in Term 2, 2017,
- agreed to provide evidence of pedagogical leadership activities in the form of documents and student data from school pedagogically based initiatives, and
- had the permission of their schools' board of trustees to participate.

In Phase Two of the research, it was important for the sample size to be sufficiently large for *saturation* to occur, where no new information or themes were observed in the data, and sufficiently small to be manageable for the researcher in terms of time and cost. A minimum sample size of 12 was chosen for Phase Two, as this sample size was in line with the recommendations for mixed methods interviews (Creswell, 2015; Guest et al., 2006; Onwuegbuzie & Collins, 2007).

At the end of the Phase One questionnaire, respondents were asked to indicate if they were interested in receiving more information about participating in the interviews in Phase Two. More information was requested by 31 respondents, and from this group, 15 principals volunteered to participate in Phase Two. Subsequently three principals withdrew: one because of busy-ness at school in Term 2, one because of a sabbatical in Term 2, and one could not coordinate a suitable interview time with the researcher. After consent was given by each of the 12 principals to participate in the study, consent was requested from the principals' employers (boards of trustees) for the principals to participate in the study. Consent was given by all 12 principals' boards of trustees. The sample size in Phase Two was therefore 12, with participating principals from the following regions: Northland, Auckland, Bay of Plenty, Hawke's Bay, Wellington, Otago, and Canterbury. Demographics of the principals' sample including the school type, principal's gender, decile of the school, and position in the Education Review Office cycle are shown in Table 3.4.

Table 3.4

Demographics of Phase Two Sample Group (N=12)

Demographic	Descriptor	Number
Gender	Male	8
	Female	4
School Type	Full primary school (Years 1-8)	2
	Contributing school (Years 1-6)	8
	Intermediate (Years 7,8)	2
Education Review Office cycle	3 years	6
	4-5 years	6
Decile Ranking	1	2
	2	1
	3	0
	4	1
	5	1
	6	1
	7	1
	8	2
	9	0
	10	2

Data Collection Methods

This section discusses the data collection methods: the questionnaire, the semi-structured interviews, and the documents. Details are provided regarding the decisions the researcher made in selection, development and implementation of data gathering. The questionnaire provided the method of data collection in Phase One. Semi-structured interviews, and documents, including student data, provided the data collection methods in Phase Two. The sources of data for the study are summarized in Table 3.5.

Three data collection methods (semi-structured interviews, documents, and a questionnaire) were used to provide *inter-method* triangulation (Teddlie & Tashakkori, 2003). The different data collection methods had the effect of reducing bias and increasing validity, as well as clarifying, augmenting and enhancing the results of the data (Tran, 2015).

Table 3.5

Summary of Data as Sources of Qualitative or Quantitative Data

Quantitative Data	**Qualitative Data**
Questionnaire: Questions 1,2,3,4,6,7,8,12,13	Questionnaire: Questions 4b,5,6b,9,10,11
Document: Student data tables	Documents
Quantized qualitative data from questionnaire	Interviews

The data collection methods and the purpose for the data are summarized in Table 3.6.

Table 3.6

Summary of Data Collection Methods

	Data collection method	Sample	Type of data PRIORITY	Purpose
Phase One	Questionnaire	Principals N=67	QUANTITATIVE Qualitative (nested)	Provide demographic data of sample Identify sources of professional development Explore priorities of pedagogical development Identify willingness to be interviewed
Phase Two	Student data	Student data from 12 principals' schools	Quantitative (nested)	Provide evidence of student achievement
	Face-to-face semi-structured interviews	Principals N=12	QUALITATIVE	Develop an understanding of participants' experiences in context Identify themes
	Documents e.g. policies	Documents from 12 principals' schools	Qualitative	Provide evidence of pedagogical leadership activities

Questionnaire

In Phase One of the study, data were collected using a self-administered questionnaire (see Appendix 2) in Term 1, 2017. The questionnaire was designed to collect demographic data about the sample, and explore sources of and priorities for the principal's pedagogical development since completing the First-Time Principals' Programme (2007-2008). The following paragraphs will discuss the question development, the structure of the questionnaire, the trialling of the questionnaire, and the actions taken by the researcher to increase the possible response rate to the questionnaire.

Question Development. The purposive sampling of participants (Onwuegbuzie & Collins, 2007) enabled the survey questions to be developed using language and concepts which were contextual and common to all the principals in the study. In that, all the participants were principals from the 2007 cohort of the First-Time Principals' Programme and had developed their leadership

practices within the New Zealand education system, which emphasized pedagogical leadership as the theory of action. The principals were therefore familiar with the terminology employed in the questionnaire. The researcher considered seeking permission to employ previously developed surveys which explored instructional leadership practices such as the Self-Assessment of Leadership of Teaching and Learning (SALTAL) survey (Robinson, Irving, Eddy & de Fevre, 2012) from the New Zealand context and the Principal Instructional Management Rating Scale (PIMRS) survey (Hallinger, 2011) which has been utilized in a wider international context. Both these surveys measured instructional leadership practices and were tested for validity (Hallinger & Wang, 2015; Brown & Chai, 2012; Robinson, Irving, Eddy & de Fevre, 2012). However, data from these surveys could not be applied to all aspects of the study's three main research questions so the decision was made to develop a bespoke questionnaire. Several iterations of the questionnaire occurred and the questionnaire was refined with feedback obtained from research colleagues and principals, and from supervisors and the ethics committee within the university's doctoral processes.

Questionnaire Structure. The questionnaire collected demographic data as leaders' demographic characteristics have been linked to leadership influence (Yukl, 2008). In educational leadership studies, data such as gender, years of administrative experience, preparation, age and self-efficacy have been linked to differences in practice (Hallinger, 2011; Lominger & Eichinger, 2002; Patuawa et al., 2013). This study collected demographic data which included the ages and genders of the principals, as well as data associated with their positions over the decade such as job title, region, school size, and period of tenure. Participants were also asked to describe their pathway to becoming principals so possible correlations between prior teaching and managerial experiences and their learning needs as first-time principals could be explored.

Other questions focussed on the principals' professional development, to explore their preferences and the support they had as an adult learner, and to explore how they had identified their learning needs and had chosen to develop their practice over time. Data, focussing on the principals' professional development, were gathered both through closed questions to gather quantitative data and through open questions to gather qualitative data.

Three closed questions used a 5-point Likert-scale. One question asked principals to rank how their learning needs had changed during the decade of their principalship in the context of the National Administrative Guidelines[6]. A second question asked principals to identify the importance of various kinds of professional development to their learning. A third question asked whether the principals had pursued further development of the knowledge, skills and dispositions—pedagogically informed decision making; problem-solving; building relational trust; and engaging in learning conversations, which had been emphasized as part of their initial principals' programme.

In the open questions, principals were able to give both their opinions and examples of their actions. Principals were asked how they had developed their leadership practices since completing the First-Time Principals' Programme, and were asked to suggest resources and structures that could support the development of leadership practices.

Trialling of the Questionnaire. The questionnaire was trialled by principals who were known to the researcher but did not participate in the study. The trial was done to increase the reliability of the data gathered from the questionnaire (Lodico et al., 2010), to ensure the questionnaire was easy to use, that the language was unambiguous and that it would have the same meaning to all the participants. It also allowed for the streamlining of the web and hard copy versions so that the formatting was the same and eliminated any unintentional bias generated through the medium. As a result of the trial the following modifications were made:

- Question 3 was modified to include categories (in the dropdown boxes) for principals who now had leadership roles in overseas schools,
- a sixth response "N/A I am no longer a principal" was added to Question 6, and
- comment boxes were expanded to the maximum number of characters allowed by the website.

Increasing the Response Rate of the Questionnaire. Several decisions were made by the researcher to try to deliberately increase the response rate to the questionnaire as previous

[6] The National Administrative Guidelines formed part of the *Education Act 1989* and stated the legislative requirements and priorities for seven aspects of school administration: curriculum, self-review, personnel, finance, health and safety, and legislation.

surveys to New Zealand principals showed a response rate between 22-26% (Bendikson, 2011; Patuawa et al., 2013). Some resistance to participating in questionnaires had been anticipated due to the increasing frequency at which surveys are sent to schools. As one principal commented, “This is the fourth one of these I’ve had this month.” Therefore, decisions were made to establish the credibility and relevance of the questionnaire, and enhance the ease of access to and completion of the questionnaire.

To establish researcher’s credibility, the questionnaire and information sheets were printed on university letterhead paper and sent by postal mail. Mailed surveys can be associated with poor or slow response rates (Greer et al., 2000), as well as being time-consuming for the researcher to manually transcribe data from a hard copy questionnaire to an appropriate statistical analysis tool (Ilieva et al., 2002). However, although all principals have access to the internet, and email contact is low cost and has been shown to offer response rates which are twice as fast at postal mail (Sheehan & McMillan, 1991, cited in Ilieva et al., 2002), principals scan through large quantities of emails on a daily basis and may initially ignore a first contact email from an unknown source or consider it as spam. Thus, it was considered more likely principals would respond to a hard copy letter.

The hard copy questionnaire also allowed the sample group to pre-view the questions and increase their level of comfort as there would be nothing unexpected asked. It also allowed them to prepare or check their responses rather than rely on instant recall. This was designed to increase the accuracy of responses and reduce any effects from the order of the questions (Bowling, 2005). The hard copy also provided reference documentation which the principals in the sample did not have to print out and could read as a whole without the split-screen influences of scrolling through a digital display (Comley, 2000, cited in Ilieva et al., 2002).

As well as credibility, personal relevance was established by personalizing the letter and referring to a programme in which the principal had previously been involved. In this way it might appeal to the principal’s current interests and might be considered relevant to his/her work.

The ease of access to, and completion of, the questionnaire was enhanced by the timing of the questionnaire and by offering a multimodal response strategy. To that end a decision was made not to collect data within the first five weeks of Term 1 when principals were busy with start of

year activities. The postings were also aligned with upcoming board meeting cycles so that if a principal agreed to participate in the Phase Two research, the board of trustees could consider the request at the end of Term 1 board meeting or the beginning of Term 2 board meeting.

Respondents were able to choose to complete the questionnaire by postal mail or online using the survey host, SurveyMonkey, an application supported by the Institute of Education, Massey University.

A follow-up email was sent to principals who had not completed the questionnaire after two weeks. This reminder prompted the principals to complete the survey using one of the multimodal responses. The questionnaire was completed by 51 principals with the initial mailing, and a further 16 completed the survey after the email prompt. Of the 67 respondents, 20 completed the survey by hard copy and return mail, and 47 completed the questionnaire online. If principals did not want to complete the survey, they were asked to return the questionnaire in the pre-paid envelope. Seven principals took this option. The overall response rate was 59%.

Interviews

The major source of qualitative data were provided by face-to-face, semi-structured interviews conducted by the researcher with 12 principals in Phase Two. The interviews took place in Term 2, 2017. The following paragraphs will describe the context of the interviews including the interview setting, the interview structure, trialling to develop the interviews and researcher interview technique, and the production and editing of the interview transcripts.

Interview Settings and Time. To facilitate their comfort and minimize disruptions the principals were asked to select a venue and time of their choice for the interviews. All 12 principals elected to be interviewed at their own schools, during school hours in Term 2. Six principals chose to meet in their own offices, one in the school staffroom, and five in a separate meeting room. The interviews averaged 65 minutes in duration, with a range of 56-101minutes. The interviews were sound recorded on the researcher's android phone.

Interview Structure. The interviews followed the most common style of interview structure (Merriam & Tisdell, 2015), that of the *semi*-structured interview "that is guided by a set of questions and issues to be explored but neither the exact wording nor the order of questions is

predetermined" (p. 137). The sample group received a copy of the guide questions in the Information Sheet Phase Two (see Appendix 4) which focused on goal-setting, building relation trust, analysing and solving complex problems, and the development of principal experience. This was done to orientate the principals to the kinds of questions which might be asked and to provide a focus for the interview. However, the guide questions were not asked per se. The largest part of the interview focussed on student data and the teaching inquiries or interventions which had been undertaken to influence achievement. Questions were asked seeking possible explanations for early themes which had emerged during analysis of the Phase One data. Some of the early qualitative themes which were explored were leadership practices in *prioritizing* and *managing change.* Possible explanations were sought for statistical results which had shown the importance of peers, mentoring and coaching, and Teaching-As-Inquiry. Questions were used to elicit the participants' ideas and opinions, so the participants were able to provide information based on their own points of view about their leadership practices (Burns, 2000; Tuckman, 1978). As the discussion progressed, the interviewer was able to ask questions which clarified ideas or elicited more information, and hence follow-up on emerging themes and areas of interest. In this way the semi-structured interviews allowed flexibility for both the interviewer and the participant.

Trialling the Interview Process. Dexter (1970, cited in Merriam & Tisdell, 2015) explains that the skill and personality of the interviewer can affect the quality of the interactions in an interview and hence the data. As the researcher was relatively inexperienced at conducting interviews for research purposes, she undertook several trial interviews with principals who were local colleagues but not part of the study. From these trials, the researcher learned it was important to do an audio quality check prior to the commencement of each interview. The audio check negated technical issues associated with sound quality. The researcher found that all the trial principals were reflective and articulate about their leadership practice for extended periods of 1½-2 hours but that the researcher required skill to balance the discussions between the principals' agendas of interest and the issues the researcher wanted to explore. The trials developed the researcher's skills in maintaining rapport with the interviewees and the flow of discussions while guiding the discussions' content to explore important issues. From these trial interview experiences, the researcher found that most of the themes she wanted to explore were covered naturally if the discussion focussed on school initiatives to accelerate student achievement. The researcher

developed an interview guide to prompt herself about any issues which had not been explored and associated the issues with time prompts based on 1-1 ½ hour interviews.

Another area of concern for the researcher had been whether she would be able to ask quality clarifying or eliciting questions during the momentum of the interview. However, the researcher's own experience as a principal meant that she was familiar with the vocabulary and practices of the role, and was easily able to prompt the principals for more or deeper explanations of practice.

Researcher Influence in the Interviews. Interviews are a social activity, so both the researcher and interviewee influenced the construction of meaning within the dynamic of the interview. Therefore, the researcher was not a detached observer in the interview process (Kvale & Brinkmann, 2009) and may have introduced unintentional bias through reflexive responses to what the participant was saying that would affect the neutrality of the study. To reduce this possible bias in the semi-structured interviews, the researcher tried to maintain neutrality by speaking very little and by not offering opinions or comments. The researcher also tried to maintain a disciplined response to the content of the interview by balancing the use of probing, clarifying questions in response to what the participant chose to talk about, and guiding the interview to focus on discussion about the student data and the emerging themes from Phase One (if the participant had not yet spoken about leadership practices associated with those themes).

Interview Transcriptions. After the interviews, the sound recordings were uploaded to a transcription service website and were professionally transcribed. The decision was made to use a professional transcriber so that the researcher was able to spend more time on data analysis. The transcriber signed a confidentiality agreement prior to employment (see Appendix 9). The transcriptions were returned to the researcher as Word documents within 3-5 days and were corrected by the researcher for verbatim accuracy against the recordings. Most corrections involved incorrect interpretation of educational jargon especially the use of acronyms as words, for example *CoLs* (Communities of Learners), *ESOL* (English as a Second Language), and *ALLiS* (Asian Language Learning in Schools). The transcripts were then provided electronically to the 12 sample principals to make any additions or clarifications which the principals might have

considered beyond the limited interview time. Three principals made clarifications prior to signing the releases for their transcripts.

Documents

In Phase Two of the study, documents were collected by the researcher to provide evidence of principals' pedagogical activities and evidence of student achievement. The documents included both quantitative and qualitative data. Documentary evidence was obtained from two sources: the public domain and from the principals themselves.

Documents from the Public Domain. The documents obtained from the public domain pertaining to the 12 schools included: school charters and local curriculum documents from the schools' websites, the most recent Education Review Office[7] (ERO) report from the Education Review Office website, and the most recent National Standards annual report available from the Ministry of Education website. Other documents obtained from the public domain included those pertaining more directly to the principal rather than the school such as sabbatical reports and published articles by the principal. The following paragraphs describe the documents and the rationale for the purposeful selection of the documents.

Documents from the Public Domain: ERO Reports. The Education Review Office (ERO) reports were chosen as documentary evidence for two reasons: the evaluation process to create the documents was robust, involving professional auditors and multiple verbal and written reviews of the judgments by the stakeholders; and the evaluation criteria aligned with the pedagogical leadership practices described in this study. The ERO reports were based on an external audit of the school by an ERO team of 2-4 members who gathered data through meetings, observations and documents over a period of 2-3 days. The ERO team evaluated this data against criteria which analysed the processes and activities contributing to the school's performance (Education Review Office, 2016a). One of the six evaluation criteria is *Leadership for equity and excellence,* and is based on the dimensions of leadership practice that have a significant impact on student outcomes including: establishing goals and expectations; resourcing strategically; designing, evaluating and coordinating the curriculum and teaching; leading professional learning; and

[7] The Education Review Office is the New Zealand government's external agency for the evaluation of schools.

ensuring an orderly and supportive environment (Robinson et al., 2009). The data in the ERO reports was triangulated by the ERO auditors and was reviewed for accuracy by the stakeholders (member checking), and so provided robust documentary evidence of planned and implemented leadership practices.

Other documents obtained from the public domain, the school charters and the school's National Standards annual report, were prepared by the schools' management teams (in some cases these documents were solely prepared the principal), and reviewed by the schools' boards of trustees (member checking) and the Ministry of Education (external checking). The charters and National Standards annual report were therefore also deemed robust documentary evidence of planned and implemented leadership practices. The sabbatical reports and other published articles provided further evidence to triangulate the principal's leadership practices.

Documents from the Principals. The other document source were documents provided by the principals as evidence of their pedagogical activities. Each principal was asked to select and provide an example of summative student achievement data, showing student achievement data from before and after a school initiative (intervention, or teaching inquiry) to raise student achievement. Several principals provided un-redacted National Standards data. Principals were also asked to provide copies of curriculum policies and procedures which indicated how the curriculum was 'delivered' within their schools. It was suggested that examples might include: curriculum delivery statements; assessment practices; pedagogical expectations of staff; teacher inquiry processes; or other general curriculum procedures. Most principals provided their annual school improvement plan which summarized targets and actions for student achievement, in either the 2016 or 2017 school year, and evaluations of outcomes from 2016. These annual plans were another robust, accurate source of documentation as they were reviewed by the leadership team (which may just be the principal in small schools), the board of trustees, and the local Ministry of Education office.

Data Analysis

The quantitative and qualitative data were analysed using elements of Onwuegbuzie's and Teddlie's mixed methods data analysis procedures (2003, cited in Onwuegbuzie & Leech, 2006) in which data were reduced, transformed, and integrated. The analyses were supported by the

use of: computer software analysis packages, *Statistical Package for the Social Sciences* (SPSS27) and *NVivo 12;* statistical functions from the online survey provider *SurveyMonkey* and from *Microsoft Excel 2016* software; and manual coding through the creation of tables and notes with *Microsoft Word 2016.*

Data Reduction

The quantitative data were reduced to look for patterns in the sample population using descriptive statistics such as:

- central tendency (e.g. mean),
- variability (e.g. range, frequency, standard deviation), and
- distribution (i.e. skewness, kurtosis),

and for inferential statistics such as:

- correlations, and
- size effects.

Some qualitative data were reduced and transformed by quantization so they could be represented statistically (Guest et al., 2012). However, the majority of qualitative data were analysed using Braun and Clarke's (2006) 6-step framework for reflexive thematic analysis (RTA)—become familiar with the data, generate initial codes, search for themes, review the themes, define and name the themes, and write a report. The purpose of thematic analysis was to identify patterns in the data which address the research questions. The qualitative data were composed of text from interviews, documents and open-ended questions in the questionnaire as per Table 3.5.

Braun and Clarke's framework was chosen because it provided a clear process and core skills in RTA for the researcher, who was inexperienced in the analysis of qualitative data. The 6-step framework also fitted the pragmatic nature of the study as it can be applied to a range of theoretical and epistemological approaches. The framework provided a way of organizing and interpreting the data which acknowledged researcher subjectivity and "[emphasized] contextualized understandings" (Clarke & Braun, 2016, p. 86).

RTA can be conducted using several variations. This study used three of the variations:

- a semantic variation, where data are coded as an interpretation of explicit word content (This was used to code qualitative data from the Phase One questionnaire);
- an inductive variation, where data are coded as an interpretation of ideas described within content (This was used to code qualitative data from the Phase Two interviews); and
- a deductive variation, where data is coded against a pre-existing framework (This was used to code qualitative data from Phase Two interviews and documents).

The nature of RTA is interpretative and so the researcher considered that the application of the three variations, though time-consuming, strengthened the reliability of the research findings. The applications allowed inductive and deductive findings to be compared for similarities and differences. The deductive framework made deliberate connections to and built on Robinson et al.'s (2009) previous New Zealand research. The inductive findings allowed new themes to be constructed which were relevant to the specific sample group and might be applied by other practitioners.

The three variations of RTA were employed consecutively and separated chronologically. First, semantic RTA was used to analyse qualitative data from Questions 4b, 5, 6b, 9, 10, and 11 in the Phase One questionnaire. This allowed themes to be quantized and trends considered within the cohort, as well as highlighting themes to be explored further within the Phase Two interviews.

After the Phase Two interviews were completed, first an inductive RTA and then a deductive RTA were completed on the qualitative interview data. The order of these two analyses was deliberate. The inductive RTA was competed first which allowed themes (patterns) to develop grounded in the data itself. The deductive RTA was completed second and coded leadership practices against "a pre-existing coding frame"(Clarke & Braun, 2006, p. 12) namely Robinson et al.'s Leadership Dimensions (2009). Both inductive and deductive thematic approaches have been previously used to code data in relation to New Zealand doctoral studies in secondary school leadership (Bendikson, 2011; Gibbs, 2017; Highfield, 2012).

The researcher chose to do both inductive and deductive analyses due to the interpretative nature of thematic analysis. In this way, the findings from both the inductive and deductive thematic analyses could be compared, so that both differences and similarities could contribute to the

understanding of leadership practices. The process for the inductive and deductive thematic analyses are described in more detail in the following paragraphs.

Inductive Thematic Analysis

The first step in the inductive RTA was for the researcher to read through the interview transcripts several times to familiarize herself with the content. Next the researcher read through each transcript, line by line, and made notes on chunks of meaning suggested by phrases, sentences or paragraphs. These notes formed the basis for initial codes, and allowed for the data to be organized in a meaningful and systematic way supported by the use of NVivo12. At this stage, there were 51 open codes that informed the research questions. The researcher reviewed these initial codes and reduced the number of codes by organizing them in groups of associated meaning. This process of interpretation occurred several times, whereby the codes were developed, re-grouped and reduced through multiple iterations. An example of how the coding changed over time is shown in Table 3.5. Throughout this continued process of reduction, the researcher recorded memos which assisted with the development of four core themes.

As with all thematic analysis, the codes' development was inherently influenced by the researcher's interpretation. From a positivist perspective this reduces the reliability of a study. However, from an interpretative perspective, reliability is shown through the provision of clearly defined final codes, which when applied by another researcher would consistently group the same data. The reliability of applying the codes within this study was checked firstly by the researcher during the process of re-coding all the interview data to check for consistency within the four themes, and also by provision of coding samples to a fellow researcher for feedback and through the supervision process. The final four themes for the principals' leadership practices were:

- influences of values and beliefs,
- influences of structures and systems,
- influences of vicarious expertise, and
- influences of context and events.

Intra-researcher techniques were used to check for accuracy (validity) and consistency (reliability) of researcher coding, and to validate the theme development within the twelve interviews.

Table 3.7

An Excerpt of Coded Data

Interview Question *Managing change has been another thing that's come up, have you got any strategies, key things that you do?*		
Excerpt from an interview	**Initial coding of excerpt with focus on change**	**Coding within final themes**
A lot of people don't like change, but we're living in a society of continual change really, so I'm sorry that's the way it is, and we get things thrown at us all the time and we just have to deal with them, and I just say to them, open communication I think, and just saying you know this isn't working, so we have to think about it and I invite people to discuss things with me, and give their point of view why do you think that, and it's interesting and our team leaders meetings are good now, because we have a lot of that discussion, and people have ideas. I've changed a few things, when I came in here I didn't change anything straight away, I just sat there and looked and watched, and asked questions probably drove everybody mad, asking why are you doing this, why are you doing that and then just slowly changing things that I thought needed to be changed, and then just slowly we just walked through, and the thing is it's really difficult we've had lots of changing of staff, so therefore some of the things that were in and ticking along throughout the school, we probably need to revisit now but there's new things coming out all the time, so you just have to keep reading, which I find really difficult, the time to read because there's so much to do and write, and keep going.	Change is: Demanding/Uncomfortable Continual Inevitable, little control Co-constructed Progressive/Evolving Cyclical Values	**Systems and structures** are required to manage change as change is demanding and uncomfortable, inevitable, continual and cyclical. **Internal/external contextual influences**. Control over change causes tension between stakeholders. Judgements made using **values and beliefs**. Co-construction is seen as a positive way to change/evolve values and beliefs to progressively embed new pedagogy.

Deductive Reflexive Thematic Analysis

Deductive RTA was used to examine the principal's decision making involving pedagogical problems, and to make connections between decisions, actions and student outcomes. The analysis began by summarizing the pedagogical problem illustrated by an interview excerpt. In practice, the principals typically followed an action research cycle (Kemmis & Taggart, 1988) and would chronologically: identify the problem, plan what action to take, take action and then evaluate the outcomes as shown in Figure 1.

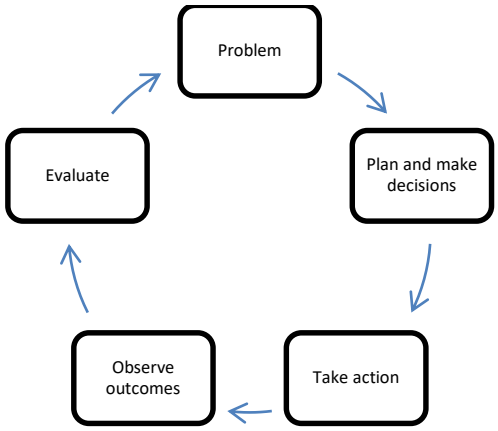

Figure 1. A flow diagram to describe pedagogical decision making process (adapted from Kemmis & Taggart, 1988)

Data from the documents and interviews for that principal were then searched for evidence of leadership practices which were linked to addressing the problem. The practices were coded against Robinson et al.'s (2009) Leadership Dimensions:

- promoting and participating in teacher learning and development,
- establishing goals and expectations,
- planning, coordinating and evaluating teaching and the curriculum,
- resourcing strategically,
- ensuring an orderly and supportive environment,
- creating educationally powerful connections,
- engaging in constructive problem-solving talk, and
- selecting, developing and using smart tools.

A summary of the codes and their meanings are shown in Table 4.16. Some leadership practices were coded in more than one code. For example, "arranging a Teacher Only Day with neighbouring schools to keep the costs down" was coded as (2) resourcing strategically and (4) promoting and participating in teacher learning and development.

During the deductive coding process, a ninth leadership dimension, that of Reflection, was created to accommodate a group of leadership practices which did not adequately reconcile within the existing eight Leadership Dimensions. The original definitions or meanings of some Leadership Dimensions were enhanced to accommodate related leadership practices. These

additions are highlighted in italics. Memos were used to document the researcher's decision making, make links to literature, note emerging themes and record questions that arose.

The process of linking pedagogical problems to leadership practices is shown in Figure 2, while Table 3.8 shows a particular example that links an identified pedagogical problem to leadership practices using deductive RTA and subsequent researcher journalling.

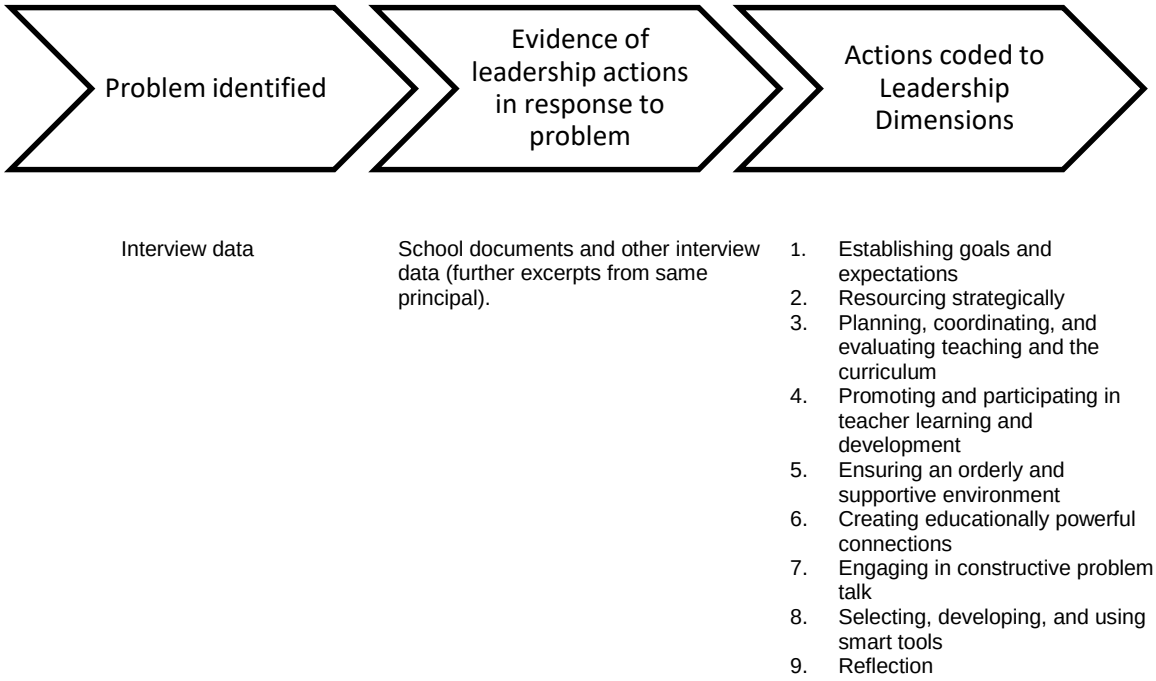

Figure 2. The process for linking pedagogical problems to leadership actions

Example of Deductive Responsive Theme Analysis. Principal D identified a problem with the consistency of staff responses to students' behaviour:

> *We were approached* [to participate in the Positive Behaviour for Learning professional development contract] *and a lot of schools I know in the area have done it. It's not because we thought that our behaviour was wrong. We had lots of good systems in place but this is working really well, and we had 11 values before which were ridiculous, because I could never remember them all, but we've just got the 3Rs, respect, resilience and responsibility, and it's working. It's consistent across the whole school and also because we've got so many new teachers it's worked really well, because they've actually got a system to target.* (Principal D)

Qualitative data from documents from Principal D's school and from the interview provided evidence of the principal's actions. Key phrases from the documents were used to triangulate the principals' statements (see Appendix 12). These actions or practices were then coded against Robinson et al.'s Leadership Dimensions (2009). In the above example, the principal showed evidence of:

- establishing goals and expectations, by reviewing school-wide expectations and procedures, and developing new systems to support these expectations;
- resourcing strategically, by applying for the Ministry of Education contract for Positive Behaviour for Learning (PB4L);
- planning, coordinating, and evaluating teaching and the curriculum, with inquiry goals based on the new PB4L pedagogy;
- promoting and participating in teacher learning and development with staff development based on PB4L programme; and,
- selecting, developing, and using smart tools by creating new systems for recording and monitoring behaviour management.

Table 3.8

Coding Example from Pedagogical Decision making

Example of pedagogical decision making (excerpt from interview)	**Problem**	**Actions—evidence gathered from interview and documents (Leadership Dimension)**	**Journal Memo**
I think you know a good teaching practice in the classrooms, and good relationships with your children, knowing about your children, developing that communication so that they're not fearful, they're not put down, no put downs you know encouraging them, and our motto is you know all student empowered to do their personal best, so not all children are academic, so we've got lots of options for them to shine (Excerpt PD 1701-1772)	Development of student self-efficacy to enhance student achievement	Distributed leadership for choir, music, kapa haka, sport (LD3) Development of school culture (LD 1 & 6) Executive team & team leaders for behavioural support (LD3) Behavioural system to support an orderly, safe environment PB4L programme (LD5) Tertiary study, involvement in research project to raise student achievement, Maori language course (LD4) Reflection with appraiser (LD4) Alignment with school charter, targets, performance management, and teaching inquiry (LD1)	Principal's own professional development focuses on understanding pedagogy and content to develop vision and goals, which occurs ahead of staff so she learns before them. She has areas of personal content expertise. She has areas where the content expert is another staff member, and her focus is on resourcing. How does she monitor the content and pedagogy for this? This also has implication for de-skilling for principals who have been out of the classroom for some time. PD in coaching may be one response She also has new professional development which occurs alongside/with staff so they learn together.
They've been in a single cell, because they can be supported by their mentor teacher, and everyone else around them and then next year hopefully we'll be looking at that for Year 2s, we've got a very experienced team leader and I'm sending her off to an actual PD on modern learning environments, because I don't want it to be just this is the way, I don't want a single cell philosophy being taught in an open environment, because it's totally different, so pedagogy is about how you're going to do things and how that enables you to teach. (Excerpt PD 239-296)	Changing teacher pedagogy	Distributed leadership (LD3) Professional development for staff leaders & staff (LD4) Align with performance management goals (LD3) Classroom observations of teaching (LD3)	Highly trained teacher working with small numbers in a safe and orderly environment. One of the outcomes of using modern (innovative/flexible) learning spaces are the pedagogical changes of working in a triplet. The safe and orderly environment is provided by one teacher roaming and maintaining on task behaviour, while allowing the other teachers to focus on intense, explicit teaching in small groups or with individuals. Use of teacher aide for 'crowd control' in some single cell classrooms. Are TAs trained effectively to do 'crowd control'? Reverse also occurs where TA involved in the explicit teaching for programmes, do they have the knowledge to do this effectively? Teachers often complain of lack of interface between TA and teacher to discuss learning.

Ethical Considerations

The following section describes the ethical considerations for the integrity of the research and respect for persons within the study. The project was reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application SOA 17/03, 3 March 2017. Appendix 1 and Appendices 3-8 include the information sheets for the participants as well as consent letters and forms for the principals and their school boards of trustees.

Research Integrity

Research integrity involves reporting the research in an honest manner and conducting the research within the described design (Walshaw, 2012). Within this study, research integrity is supported by research and ethics processes of the university such as the research proposal and confirmation process for doctoral students, the ethics application process, and the doctoral supervision process. Though supported by these processes, the researcher is responsible for controlling how the data are collected, analysed and reported. Research integrity therefore includes avoiding intentional practices such as excluding, falsifying or manipulating data to suit the researcher's study purposes, but also avoiding unintentional practices such as inaccuracies in calculations, influencing participant responses, or biased interpretations of data.

The steps taken by the researcher to eliminate inaccuracies by checking data, and to reduce unintentional researcher influence or bias are described more fully in previous sections on data collection and data analysis. Other practices to maintain research integrity are associated with practices to increase the quality of the study and included:

- clear positioning of the study within a theoretical lens of pragmatism and pedagogical leadership (Kvale, 1995);
- the purposive selection of an information rich sample which, "enables readers to make decisions about the applicability of the findings to other settings or similar contexts" (Creswell & Miller, 2000, p. 129);
- the use of multiple sources of data from the questionnaire, semi-structured interviews and documents to provide triangulation (Alan Bryman, 2006; Creswell & Miller, 2000); and,
- the design and consistent implementation of mixed methods research procedures for the collection, analysis and integration of quantitative data and qualitative data.

The researcher sought to increase the consistency of the study by involving participants, colleagues and critical others in feedback and critique. Examples of feedback included: the trialling of the questionnaire by principals not involved in the study, practice interviews with principals not involved in the study, a review of process by the Massey University Ethics Committee, a review of the research design, feedback from doctoral supervisors, member checking of the interview content by principals, auditing of coding practices, peer debriefing by presenting and discussing early findings at an educational leadership special interest group conference, and seeking feedback on the analysis of statistics and clarity of writing from associates in university faculties.

An area of weakness within the study may be a lack of "prolonged engagement in the field" (Creswell & Miller, 2000, p. 127) as each interview was only approximately one hour in length. However, attempts were made to off-set this time restriction by careful pre-interview preparation, triangulation of data, post interview member checking of the accuracy of the transcript information, and auditing of the coding process through journalling, note-taking, and external review.

Bias may also be introduced to a study through the subjective development of codes and interpretation of themes. There can be a tendency to look for confirming evidence rather than "disconfirming evidence" as the researcher compares and codes the qualitative data, (Creswell & Miller, 2000, p. 127). The research design involved both triangulation of data and auditing of codes to challenge any possible bias introduced by the researcher and to justify the researcher's interpretations.

As the study sits within a pragmatic paradigm, the application to practice is important to the quality of the study. Owing to the number of the respondents (N= 67) some generalizations can be made about the 2007 cohort of first-time principals from the quantitative data gathered in the questionnaire. However, the intended generalizations of the study are focused on principals who read, interpret, apply or transfer aspects of the findings to their own context and practice.

Respect for Persons

Respect for persons is a major ethical consideration and as such this study followed the guidelines for ethics as set out in *Massey University's Code of Ethical Conduct for Research, Teaching and*

Evaluations Involving Human Participants (2015). The ethical code considers eight ethical principles in relation to research involving human participants: respect for persons; minimization of harm to participants, researchers, institutions and groups; informed and voluntary consent; respect for privacy and confidentiality; the avoidance of unnecessary deception; avoidance of conflict of interest; social and cultural sensitivity to the age, gender, culture, religion, social class of the participants; and justice.

After reading the code, the researcher examined possible ethical issues associated with the study. This consideration was done in discussion with both the course advisor and main supervisor to develop the research proposal. At this stage, as part of the Massey University ethics process, a risk assessment was undertaken using the online portal, to gauge whether the study required a "low risk notification" or a full ethics application. The confirmation committee subsequently recommended in November 2016 that a full ethics application was undertaken as part of the research candidate's professional development, and to increase the validity of research.

When considering the minimization of harm to participants, it is acknowledged that harm is inevitable even if it is just giving up time to participate in the research (Denholm, 2006). Within the study two particular areas were identified in which participants might be harmed:

- when exposed to questions which might have caused them to reflect on their professional capabilities, and
- if the information they revealed was overtly linked to them or their institution in the professional or public arena.

Voluntary Participation and Informed Consent

To minimize possible harm, voluntary participation and informed consent are two measures designed to protect participants. Within the study participants could refuse to answer any question, and had the right to withdraw or refuse to take part in the research. Care was taken to receive informed and voluntary consent by ensuring all the documentation used to explain the research was in clear, common language (see Appendices 1, 3-8). Consent was obtained at several times during the research, in which:

- respondents were informed that completion of the questionnaire implied consent to use the information,
- information for Phase Two was or was not requested by principals at the end of the questionnaire,
- principals gave signed consent to participating in the research prior to the researcher contacting their boards of trustees,
- interview participants controlled their transcripts through a process of editing and signed release,
- permission was sought and obtained from each principal's board of trustees to carry out the interviews during work hours (see Appendices 6 and 7); and,
- the participants were encouraged to clarify their understanding by asking questions of the doctoral supervisors or researcher at any stage of the research.

Anonymity

The researcher was committed to keeping the identity of participants and their institutions confidential by the use of a code number/letters to identify data, and by maintaining the participant/code links in a separate database, known only to the researcher. In reporting the findings, the identity of the schools and the principals are anonymous, and links between school decile, region, and size have been deliberately with-held as such connections may allow some schools to be inadvertently identified.

Summary

This study was designed to collect both quantitative and qualitative data in a two-phased, mixed methods approach. In Phase One, a survey was used to explore how 67 principals from the 2007 First-Time Principals' Programme (FTPP) cohort developed their leadership practices. In Phase Two, interviews and documents were used to investigate how 12 of these principals implemented their theories of action to improve student achievement within their schools.

Quantitative data were analysed using descriptive statistics (such as central tendency, variability, and distribution) and inferential statistics (such as correlations and size effects). Qualitative data were analysed using reflexive thematic analysis (Clarke & Braun, 2016). The qualitative data were analysed twice with the support of NVivo12 software, first with inductive coding and then with

deductive coding. In the first analysis, qualitative data were coded inductively to preserve the principals' voice and themes from the interview data. This inductive analysis was intended to remove the possible bias generated by comparing text to the pre-existing codes of a deductive framework and subsequently allowed both analyses to be compared for insights into leadership practices. In the second analysis, the interview material was deductively coded against Robinson et al.'s eight Leadership Dimensions (2009). The leadership practices were triangulated by document data.

This chapter has described the research design in detail. The research was positioned in a pragmatic paradigm and utilized mixed methods to gather both quantitative and qualitative data, which informed the complex phenomenon of the impact of leadership on student achievement. The final section of this chapter summarized the steps taken to ensure the quality of the study by discussing triangulation, ethical considerations, generalizations and some limitations of the study. It concluded by re-expressing the importance of the connection of theory and practice, and the intention of the study to inform and be useful to practitioners, as well as contribute to the research community and policy making. The next chapter will show the results from Phase One and Phase Two of the research.

Chapter Four—Findings

This chapter presents the findings from Phase One and Phase Two of the research.

Phase One employed a questionnaire to collect:

- demographic data about the primary principals in the 2007 First-Time Principals' cohort,
- data regarding the principals' changing learning needs over a decade,
- sources of professional development, and
- principals' perceptions of the resources and structures, which developed their leadership practices and which might assist in developing future principals' leadership practices.

The findings from Phase One of the study are presented in the first section of this chapter as a summary of responses from each question in the questionnaire. The analysis was undertaken with the support of the computer software package SPSS27 and Microsoft Excel. Some excerpts from the Phase Two principals' interviews and Phase One principals' comments are used to illustrate the central tendency or variability of the Phase One quantitative data. This integration of data suggests possible explanations and context for the quantitative data. To maintain the principals' anonymity, each of the Phase One principals is identified by a number. Principals who volunteered to participate in Phase Two were identified by number (in the Phase One questionnaire) and by letter (in the Phase Two interviews). Further links are described between the quantitative and qualitative data in the discussion chapter.

Phase Two employed both interviews and the collection of documents. Semi-structured interviews with 12 principals from the 2007 First-Time Principals' Programme cohort were used to develop an understanding of participants' experiences in context and to identify themes around pedagogical leadership practices. The documents, including student achievement data, provided evidence which triangulated principals' explanations about their pedagogical leadership activities and about learning interventions within their schools. Students' national achievement data also enabled schools to be identified which were performing above New Zealand decile means in reading, writing and mathematics.

Data from Phase Two of the study are presented as findings from the inductive and deductive thematic analyses. As previously explained in the methodology chapter, the qualitative data from the interviews were analysed twice: first inductively to preserve the integrity of responses from the sample group and next deductively against Robinson et al.'s (2009) eight Leadership Dimensions to increase validity. Both analyses were undertaken with the support of NVivo12 software and Microsoft Excel. The inductive analysis was consolidated as four themes which showed influences of and influences on leadership practice. These four themes were: context and events, values and beliefs, systems and structures, and vicarious expertise. The deductive analysis resulted in the description of additional behaviours within Robinson et al.'s (2009) existing eight Leadership Dimensions and led to the development of a ninth dimension. The ninth dimension, Reflective Practice, was created as an additional dimension of leadership behaviours. These themes and Leadership Dimensions were then compared for differences in practice between schools with higher and lower achievement of students. The 12 sample schools represented a population of 4892 students.

Phase One Findings: Questionnaire

In Phase One of the research, the survey questionnaire was completed by 67 respondents. As previously described in Chapter 3, the questionnaire comprised seven closed questions and four open questions (see Appendix 2). Two closed questions allowed an open comment to be added. In the closed questions, the participant selected from pre-assigned options. Table 4.1 summarizes the response rate for each question. Not all respondents answered every question. The numbers of non-response remained low (1-2%) for the quantitative questions and were unlikely to introduce non-response bias. Non-response for the qualitative questions ranged from 1 - 58%. The highest incidences of non-response were for optional questions such as Question 6b (27% non-response) which asked respondents to comment on their reasons for Question 6a, and Question 11 (58% non-response) which asked if the respondent had any further comments s/he would like to make.

Table 4.1

Response Rate to Questions in Study Questionnaire (N=67)

Question	Subject	Number of Responses (percentage)	Omitted	Additional comment
1	Age	66 (99%)	1	closed
2	Gender	67 (100%)	0	closed
3	Tenure	67 (100%)	0	closed
4a	Sabbatical	67 (100%)	0	closed
4b	Sabbatical topic	27/27 (100%)	0	open
5	Describe	66 (99%)	1	open
6a	Likert scale	66 (99%)	1	closed
6b	Comment	49 (73%)	18	open
7	Likert scale	66 (99%)	1	closed
8	Likert scale	64 (96%)	3	closed
9	Comment	65 (97%)	2	open
10	Comment	62 (93%)	5	open
11	Other comments	28 (42%)	39	open
12	Participation	67 (100%)	0	closed
13	Code	67 (100%)	0	closed

Question 1: "At what age did you first become a principal?"

Respondents were asked to state at what age they first became a principal. The age range for obtaining a first principal's position was 28-55 years of age. The interquartile range, in which 50% of the teachers became principals, was 35-44 years of age. The mean age for males becoming a principal was 33 years and the mean age for females was 41 years.

Question 2: Gender

Principals were asked to identify their current gender with 31 identifying as "female" (46%), 35 as "male" (52%), and one as "other" (1%). The 2007 database identified 31 as female and 36 as male.

Question 3: **Tenure During the Last Decade**

Principals were asked to record information about their tenures during the decade. This information included the year the principal began the position, the job's title, the provincial region in which the job was held, the period of tenure measured in school terms, and the size of the school. Table 4.2 shows the sample as described by gender and school size for the principals' first positions in 2007.

Table 4.2

Gender and School Size of Sample Population 2007 (N=67)

U-Grade*	Roll Size	Number of Principals	Female	Male
U1	1-50	16	10	6
U2	51-100	17	4	13
U3	101-150	7	2	5
U4	151-300	7	1	6
U5	301-500	14	10	4
U6	501-675	5	4	1
U7	676-850	1	0	1
Total		67	31	36

*New Zealand principals' base salaries are determined by the student roll of the school at 1 March each year. This is applied within a system of roll size ranges known as U-grades.

During the decade, 2007 to 2017, 26 principals (39%) remained in the same school in which they first obtained principalship. Thirty-two principals (48%) moved to a larger school and five principals moved to a school of the same size. Four principals were leading overseas schools, and four were no longer principals but remained in the field of education, by 2017. More than half (56%) of the principals, who moved between schools, remained in the same provincial region in which they began their principalship.

Question 4: "Have you undertaken a sabbatical in the last ten years?"

Principals were asked if they had undertaken a sabbatical during the previous ten years. Forty per cent of principals had taken sabbatical leave during the decade. The 27 principals who took a sabbatical were asked to describe the focus of their leave. The distribution of foci for the sabbaticals is shown as four categories in Table 4.3: student achievement, leadership, community, and qualifications. Four sabbaticals involved the completion of doctoral, masters, or

other qualifications. Two of the qualifications involved research which focused on student achievement. Topics for these two qualifications and the 16 other sabbaticals, which focused on student achievement, included: transitions to high school, behaviour management, technology, teacher pedagogy, literacy and numeracy, special needs, and student agency. Nine of the twelve principals who participated in the Phase Two interviews had undertaken sabbatical leave.

Table 4.3

Foci for Principals' Sabbaticals (N=27)

Theme of Sabbatical Topic	Number
Student achievement	16
Leadership	4
Community focus	3
Formal Qualification	4
Total number of sabbaticals in sample group	27

Question 5: "Describe your pathway to becoming a principal"

Respondents were asked to describe their pathway to becoming a principal. As shown in Table 4.4, most principals (62%) had been either a deputy principal or an assistant principal prior to taking their first principals' positions. The mean number of years' experience as a classroom teacher before becoming a principal was 9.1 years, with a range of 1-25 years' teaching experience. The mean number of years' experience as a deputy, associate or acting principal before becoming a principal was 3.7 years' experience, with a range of 0-25 years' experience in these senior management positions.

Fourteen principals had only classroom teaching experience prior to accepting a principal's position. These 14 principals had an average of 7 years' teaching experience, and a range of <2-16 years' full-time teaching experience. Most of these principals took up roles in small rural schools, with seven teachers becoming principals of U1 schools and four becoming principals of U2 schools. The other three teachers became principals of larger schools, two became principals of U3 schools and one became a principal at a U4 school.

Table 4.4

Position Held Before Becoming a Principal (N=66)

Position prior to principalship	Number
Deputy or associate principal	41
Scale A teacher	14
Syndicate leader, head of department or senior teacher	5
Education advisor	5
Resource Teacher of Learning and Behaviour	1
(No response)	(1)

Questions 6a: "How have your learning needs as a principal changed in relation to the National Administrative Guidelines, from 2007/8 to 2016/17?" and 6b: "Please comment on the reasons for the changes in learning needs and priorities."

Respondents were asked how their learning needs as a principal had changed in relation to the National Administrative Guidelines (NAGs) from 2007/8 to 2016/17. The guidelines were introduced when the New Zealand education system was reformed in 1989 and had remained largely unchanged by 2007 when the principals began their tenure. The NAGs formed part of the *Education Act 1989* and stated the legislative requirements and priorities for seven aspects of school administration: curriculum, self-review, personnel, finance, health and safety, and legislation. At the time of writing, this act has subsequently been replaced by the *Education and Training Act 2020.*

Question 6a used a Likert-scale which was converted to a numeric value for analysis with 5 being the most confident and 1 being an area where the respondent recognized s/he had "lots to learn". As this question was designed to measure changes in confidence and learning needs over time, only paired responses from those who were principals in 2007 and were still principals in 2017 were analysed (N=61). The results are shown as measures of central tendency and variability in Table 4. 5.

In Question 6b, respondents were asked to explain why they believed their learning needs and priorities had changed in relation to the National Administration Guidelines during the decade.

This question was designed to produce an initial understanding of how principals develop their leadership skills, knowledge and dispositions. Forty-nine principals made additional comments.

The standard deviations (see Table 4.5) showed the principals identified a wider range of professional learning needs to administer the NAGs earlier in their principalship. This spread narrowed during the principals' decade of tenure for all aspects of the NAGs except legislation in which the standard deviation increased between 2007 and 2017.

Table 4.5

Principals' Learning Needs in Relation to the National Administrative Guidelines 2007 to 2017

National Administrative Guideline	Number of responses	Range		Mean		Standard Deviation	
Year		2007	2017	2007	2017	2007	2017
Curriculum	61	1-5	2-5	3.67	4.10	1.03	0.84
Self-review	61	1-5	1-5	3.26	4.06	1.07	0.85
Personnel	61	1-5	1-5	3.10	4.03	0.95	0.79
Finance	61	1-5	1-5	2.70	3.90	1.06	0.84
Property	61	1-5	1-5	2.69	4.10	1.11	0.80
Health and Safety	61	1-5	1-5	2.82	3.64	1.06	1.01
Legislation	60	1-4	1-5	2.55	3.68	1.01	1.02

The principals' changes in their self-perceived professional learning needs were compared to aspects of the sample demographics using Pearson r. There was a small, insignificant correlation between principals' changes in learning needs and school size (r = .140, p =.285), and principals' changes in learning needs and the age at which they became principals (r = .149, p = .261). There was a low correlation between learning needs and previous years of experience in senior management as a deputy principal, associate principal or acting principal (r = .018, p = .890). A low negative correlation was shown between region and learning needs (r = -.170, p = .210). Principals in isolated South Island regions ranked themselves as least confident (1), while principals in large cities such as Auckland ranked themselves most confident (5).

Effect sizes for principals' gains in perceived learning needs during the decade were calculated using Cohen's d and interpreted using Cohen's (1988) and Sawilowsky's (2009) descriptors of magnitude: 0.01 very small, 0.2 small, 0.5 medium, 0.8 large, 1.2 very large, and 2.0 huge (see Table 4.6).

Table 4.6

Mean Gain and Effect Size of Learning in National Administrative Guidelines from 2007 to 2017

National Administrative Guideline	Mean Gain	Effect Size	Descriptor of Magnitude
Curriculum	0.43	0.5	medium
Self-review	0.80	0.8	large
Personnel	0.93	0.8	large
Finance	1.20	1.3	very large
Property	1.41	1.5	very large
Health and Safety	0.82	0.8	large
Legislation	1.13	1.1	large

Principals' learning needs concerning finance and property changed the most during the decade of their tenure with the size effect described as "very large". Qualitative data from both the interviews and survey showed that principals linked these "very large" learning needs to inadequate principal preparation in finance and property. For example:

> *That whole emphasis when we were doing First-Time Principals was that you're the leader of learning, but for most of us we'd come from a deputy principal job where we did lead the learning, that we did present the data to the board, that we did get involved in the professional development for the teachers, that wasn't the hard bit, it was all that other stuff that was the hard bit, and I hadn't been mentored very well into it in retrospect, so you know the Novopay, the payroll stuff, the finance, the audit oh my god the audit, even now that stresses me. The property stuff, the 5YA, that was the stuff that was really hard, we were leaders of learning… because we were teachers and then DPs.*
>
> (Principal K)
>
> *Some DP experiences gave me an insight into finance and property, but a huge learning curve as a first-time principal. I still maintain these two are the missing components in principals' training programmes.* (Principal 62)

Principals also linked "very large" learning needs in property and finance to changes in legislation during the principals' tenure and the context within which they worked. Many of these principals had to manage property issues with regard to weather-tightness failure between 2009-2012 which

affected 1456 schools at a rate of 1.2 buildings per school (Hampton Jones Property Consultancy, 2012). For example:

> *I think it depends on your circumstances and your situation. Both schools that I have been principals of have had to be rebuilt so this is not my first rodeo with rebuilding a school. But at [name of school] it was definitely easier to prioritize and to compartmentalise things and to get things done, whereas here, [it is] just because of the severity that things slip. So, lots of things have been passed onto the DP so I can pretty much focus on property.* (Principal D)

Other NAGs, such as self-review, personnel, health and safety, and legislation, showed "large" size effects. Qualitative data from both the interviews and surveys explained principals mostly linked these "large" learning needs to understanding and implementing changes to legislation such as the *Health and Safety at Work Act 2015,* the *Vulnerable Children Act 2014,* and to the implementation of large scale system changes such the web-based payroll, *Novopay.*

> [The reason for changes in learning needs and priorities are] *…changes to policies. Probably a lot more information to learn especially related to legislation requirements and new regulations for health and safety since the new Act.* (Principal 17)

> *Policies and legislation continue to change and therefore new learning is needed. Property depends on what is happening - the school I'm in has been rebuilt in the last 3-4 years, so that was a huge learning curve, though to be honest even negotiating the 5YA/10YPP was hard for me to grapple with prior to that. FTPP didn't cover financial, property, policies, health and safety, legislation as much as would have been helpful at the time.* (Principal 52)

Changes to legislation increased principals' work intensity and this increase in work intensity was most noticeable in smaller schools. Most principals believed changes to legislation were accompanied by inadequate or no central resourcing for the interpretation and implementation of the new legislation.

I was at a principals' meeting last week…and there was a whole workshop about health and safety, and I listened to the gentleman who obviously was a clever principal, and someone who had prepared well for this workshop that he took, but the amount of work that he talked about that could come out of the health and safety regulations, it made me think, "God! I need another day in my week just to be worried about that stuff", the number of meetings and things that he was having in his school, well it might be ok if you're a larger school with some additional staff to do this. I said before I feel kind of privileged that I'm not a teaching principal normally, but even so all those other principals, all those other jobs are with me, so I don't actually need any more jobs, I'm already working 6 days a week, from 8am to 6pm. (Principal B)

The impact of changes to legislation on principals' learning was visible even in the national administrative guideline of curriculum (NAG 2), in which principals traditionally have the lowest learning needs due to their previous experience and training as teachers. This aspect still showed a "medium" size effect, which principals explained as their responses to new legislation in curriculum. The Education Act 1989 was amended for curriculum legislation seven times during the principals' tenure 2007- 2017. One change to the legislation was a simple wording amendment (New Zealand Gazette, 12 November 2009) and two amendments implemented "healthy eating" requirements (New Zealand Gazette, 31 May 2007; New Zealand Gazette, 2 February 2009) in response to national concerns regarding growing child obesity (Ministry of Health, 2004). However, four amendments during the principals' tenure significantly changed the pre-existing NAGs. These amendments, NAGs 2A and 2B, (2009, 2013, 2017) occurred after elections when the government's mixed-member proportional representation moved from a centre left representation to centre right representation, and involved the implementation of assessment and reporting against National Standards in reading, writing and mathematics for students in Year 1-8. These National Standards were subsequently revoked in 2017 by the return to a centre left government. Most principals did not equate legislative changes to NAG 2 with improvements in student achievement. For example:

Two years after we got into the job and the government brings in National Standards at almost a click of the fingers and all of a sudden these charters take on a whole new radical importance. I got a little miffed by that to be honest because I thought

if it was so important, why was it not important two years ago because nothing has changed. (Principal G)

Some principals believed that the introduction of National Standards in NAGs 2A and 2B narrowed the implementation of the New Zealand Curriculum (2007), in Years 1–8, to students' achievement in reading, writing and mathematics.

T*he Ministry are doing their darnedest to save the cost of professional development, and to restrict it into areas that are related to National Standards, and you have to really battle away for professional development outside those core areas.* (Principal 51)

Comments showed that, the principals believed levels of support for their leadership development increased during their tenure as they developed collegial, personal and information networks. These networks provided both vicarious expertise and emotional support, and were influenced by the schools' geographical and social context.

The context of leadership plays a large part of determining the needs. That is what are the demands of the role at a given point in time. In fact, this would be one of the main factors. (Principal 51)

Experience in the job has facilitated the need to learn! Knowing who to contact for help is very beneficial. All principals need good friends and colleagues to turn to! (Principal 60)

Property is an area that can be extremely time consuming and I found myself quite dependent on both the expertise of the board of trustees and project managers. Finance and personnel became very challenging with the advent of Novopay. (Principal 55)

Changes to the professional learning needs of principals were both specific and general. The changes reflected both the principals' prior experiences and their current contexts. For example:

[My] l*earning needs are variable, sometimes specific e.g. dealing with new legislation, sometimes personal development e.g. communication skills, time management. I value opportunities to meet positive colleagues.* (Principal 12)

I was fortunate to work under principals who mentored me into principalship and gave me a great deal of responsibility so I came into the position with a lot of experience and

> *confidence that I was prepared to do the job,* [however] *the changes in Health and Safety legislation mean that I am still needing PD in this area.* (Principal 10)

> *Experience and experiences have given me confidence as I go along. There are some things that no amount of PD can prepare you for and it is "in the moment" learning that happens. Not all schools are equal and the experiences along the way vary. One minute you can be going along fine and the next you get thrown a curve ball with something you have never dealt with before. Being prepared with good policy and procedure helps, but not all can be foreseen*. (Principal 14)

Changes to learning needs were continuous and were spoken of both positively and negatively. In positive terms, continual change was linked with improvements to learning. In negative terms, continual change was linked to a lack of time, support and resourcing during implementation.

> [Our] *real focus on holistic education and the development of the whole child and that has remained strong. Obviously, where we have grown and extended our thinking and view of that, has been through how that might be represented in practice and how we take opportunities of things, like the national standards or the revised curriculum and things such as that.* (Principal E)

> *I wouldn't thank anyone for wanting to take on this role of principal now in this time of change. The lack of real and ongoing personal and professional support in the system for the role of principalship is terrible. I am wondering if it is worth the personal cost any more.* (Principal 7)

Phase One results indicated that, principals understood they would make mistakes and that this was part of their learning. The principals used their own experiences and sought the vicarious experience of others (such as colleagues, mentors, project managers, and advisors) to scaffold their development. For example:

> *People and networks are the most powerful mechanisms of support and growth I have experienced.* (Principal 19)

> [In] *2007 I was learning the ropes. I had learnt some things from the principals I was working with and by being the board of trustees' representative at several of the schools I was at.* [Now, I] *have a better idea of what to look out for, how to get further information, who can help, etc. than I did in 2007.* (Principal 34)

Principals from U1-U3 schools, who had both a teaching and leadership component to their practice, appeared to experience disproportionate resourcing issues when compared to colleagues in larger, less isolated schools. Time was a major concern in smaller schools with fewer staff to share the work intensity.

> *The major factor relating to areas of need is time, there never seems to be enough time I have been a teaching principal throughout my career and as a result with the commitment from both jobs is that you feel neither is being done well. The system doesn't allow for enough release time, or it should be set up where the principal is walking, so the sole job, is to focus on improved outcomes for students and you have the time to actually deliver.* (Principal 36)

> *That's the economies of scale…with the bigger school we can play around with things like that and we can make it work.* (Principal 45)

> *The reality of the job kicked in pretty quickly. I remember quite vividly being in a hall at the First-Time Principals' course and, people standing at the front saying remember your job is around ensuring achievement of our children, and about leading learning, those words were quite evident throughout the program, and I agreed with that and I kind of hoped that that would be the case, but I recall coming back to school after the First-Time Principals' course, the caretaker was sick and somebody had put some poo on the toilet wall and I had to do that, and my job, I'm always conscious of the focus in terms of pedagogy and in terms of learning, but the job has so many other requirements that at times I really despair that my true focus is diluted.* (Principal B)

Most small school principals spoke of prioritizing tasks according to their values, such as engaging in tasks that benefitted the students ahead of administration. For example:

My priorities are more often based on the learning needs of students and not personal or departmental requirements. (Principal 12)

Difficulties expressed by principals of small schools included budgeting for and accessing off-site, face-to-face professional development such as courses, principal association meetings, or cluster meetings. Though the First-Time Principals' Programme was funded directly by the Ministry of Education, subsequent professional development was funded through the school's operational grant. The smaller schools had a smaller budget, so the costs associated with principal professional development had a bigger impact on the over-all resourcing of the school. Attendance at a conference was balanced against other resourcing such as buying reading books.

I haven't been on much PD because I want the money to go back into the school, money is tight, [I] *don't want to be seen as, "Oh the principal is never there".* (Principal 44)

Smaller schools were often more isolated and found it difficult to obtain a reliever for teaching, or the burden of dealing with students' behavioural needs fell to the few remaining teaching staff. In larger schools a deputy principal or associate principal, with no classroom teaching duties, was able to attend to behavioural needs, and there were no associated relieving costs with the principal's absence to attend a meeting.

When I became a principal of a U1 / 2 teacher school, I had very little idea of what was required of me from a leadership perspective… Support was minimal, and aspects of the community were difficult. As I've gone to bigger schools and in a non-teaching role, I've had more time to learn about what needs to be done and have been able to delegate more. (Principal 41)

You have to be pretty motivated to actually go on a course and get away from here because it will cost you a lot of money to put in a reliever for the day, it will cost you a lot of money and time to go onto a course and go back so you do a lot of reading.

(Principal 48)

Principals explained how their focus was able to shift back to pedagogical leadership as they developed competency across the NAGs during the decade of their tenure.

> *When you first start out running a school, all you are doing is getting swamped under by Ministry requirements for this, that and the other. And you find that the learning comes second fiddle to that, but the more you do it, the more it becomes a lot easier. So now for me it is all in the classroom and anything else I take on after... at the end of the day it is the learning in the classroom for me that is 100% priority.* (Principal J)

Principals of larger schools believed they were able to focus on pedagogical leadership as they were able to lessen their work intensity by distributing tasks to others.

> [We are a big school. I've got a personal assistant, a bursar, two walking deputy principals, senior leaders, all doing] *a lot of the admin part that some principals in smaller schools have to do…so…it leaves me free to work at the vision level and not get bogged down in the day-to-day stuff that can take you away from the core job, so I am really lucky.* (Principal I)

Question 7: "This question identifies some sources of professional development you may have used. What importance are these to you?"

In Question 7, principals were able to select sources of professional development from 11 categories of principals' professional development identified from the literature (Bush et al., 1996; Campbell et al., 2019; Cardno & Youngs, 2013; Darling-Hammond & McLaughlin, 1995; Huber & Muijs, 2010; Jones, 2015; Kedian et al., 2016; Knowles et al., 2012; Macpherson, 2010; Malcolm, 2012; Morales, 2016; Parylo, 2012; Pillinger et al., 2019; Retna, 2015; Robertson & Strachan, 1997; Scott & Scott, 2013; Service et al., 2018; Timperley, 2011; Webster-Wright, 2009; Youngs & King, 2002). These sources included: courses, training programmes, and workshops; research from journals and texts; official Ministry of Education publications and on-line sites; inquiry learning within school, investigation and experimentation; visits to other schools; peer networking and discussion; higher qualifications; critical reflection of experiences such as journalling; policies; mentor; and appraisal.

Principals considered the most valued professional development they had undertaken involved peer discussion and networking (as seen in Table 4.7 and Figure 3). Most principals were involved in peer discussion and networking regularly (94%), with 79% of principals setting aside planned

time to do these activities, and 39% of principals using peer discussion and networking to consciously modify and develop their leadership practice.

Table 4.7

Various Kinds of Professional Development and a Measure of Their Perceived Importance to Developing Principals' Practice

	Peer discussion and networking	Inquiry learning within school, investigation and experimentation	Appraisal	Courses, training programme, workshops	Mentor	Visits to other schools	Official Ministry publications and on-line sites e.g. TKI	Critical reflection of experiences e.g. journaling	Research from journals and texts	Policies	Higher qualifications
No response	0	0	0	2	0	0	0	1	1	1	1
Rarely contributes to my professional learning	2	1	5	0	8	3	6	8	0	10	21
Irregularly do this but use it when I have a specific learning	1	1	6	15	15	19	19	15	18	20	16
Part of my regular routine, I do this because I need to keep up-to-date	10	18	22	16	12	13	23	18	25	23	10
Part of my regular routine, I set aside time to do this and find it valuable	27	26	15	23	17	25	14	12	15	10	10
Consistently use this to modify and develop my thinking and actions	26	20	18	10	14	6	4	12	7	2	8
Mean	4.1	4.0	3.5	3.4	3.2	3.2	3.2	3.1	2.9	2.6	2.5

Within-school inquiries also formed a regular part of most principals' practice (96%) however less than one third (30%) of principals used this activity to develop their own practice.

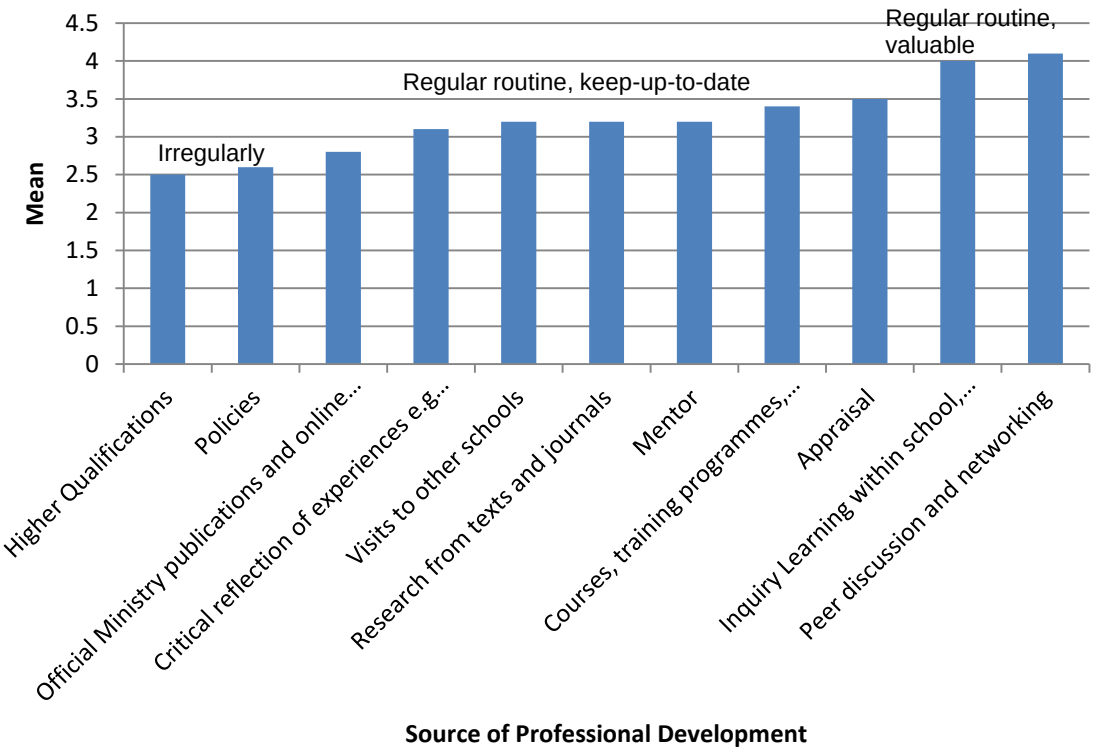

Figure 3. Principals' perceived importance and regularity of use for sources of professional development

Peers and mentors formed an important part of the principals' information and support networks (which was also reflected in responses to Question 9). Peer networks provided personal support, problem-solving, information, experience, shared resources, critical friendships, confidence-building, discussion of developments, evaluation of knowledge and gap identification, as well as documentation of progress. The networking took place in a variety of forms such as: informal contact with local colleagues, professional learning groups, school clusters, Communities of Learning[8], principal associations, focus groups, mentor groups, on-line networks, funding groups, professional organizations (e.g. NZEALs), professional development contracts (e.g. Experienced Principals, Springboard Trust), and multidisciplinary leadership groups. The leader's professional development was not necessarily the primary focus of a network. The network might meet for a

[8] Communities of Learning or Kāhui Ako are schools who have contracted to work together for the benefit of students within geographical proximity. The government placed a moratorium on the formation and funding of new Communities of Learning from June 2019.

purpose such as raising achievement in literacy across a group of schools, but the principal's professional development occurred as a by-product of the inquiry process. Some valued features of the networks included being: autonomous, practitioner-orientated, largely informal, and freedom to cross organizational or geographical boundaries.

Obtaining higher qualifications was a lower priority as a source of professional development for principals with 56% of principals perceiving qualifications contributed rarely or irregularly to the development of their professional practice. Only 12% of principals used higher qualifications to consistently modify and develop their thinking. This relatively low importance of academic qualifications to principals as a group appeared to be consistent with 16% of principals suggesting there could be a minimum qualification for principals (in Question 10). However, more than a quarter of principals (28%) identified they had developed their leadership practice by obtaining tertiary qualifications such as completing masters' degrees, postgraduate diplomas, or postgraduate certificates in leadership or administration (management) in Question 9.

Gender differences were indicated in the value placed on kinds of professional development. For example, women were equally likely to identify higher academic qualifications as being either *important* or *not important* to them, whereas males were more likely to identify higher academic qualifications as unimportant sources of professional development (see Figure 3). Though all genders ranked Teaching-As-Inquiry projects within school as an important source of professional development, the mean for females (4.3) was higher than the mean for males (3.9).

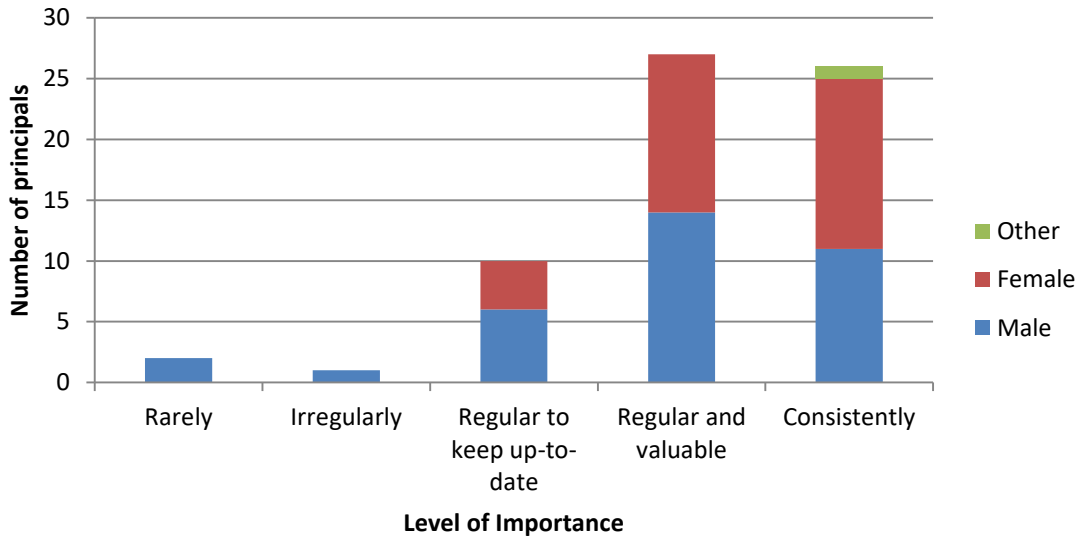

Figure 4: Importance placed on Teaching-As-Inquiry as a source of professional development by gender

Two male principals ranked Teaching-As-Inquiry projects as rarely or irregularly contributing to their professional development. These same two male principals did not rank any source of professional development higher than three (part of my regular routine, I do this because I need to keep up-to-date). Whereas, no female principal ranked Teaching-As-Inquiry projects below a ranking of three points.

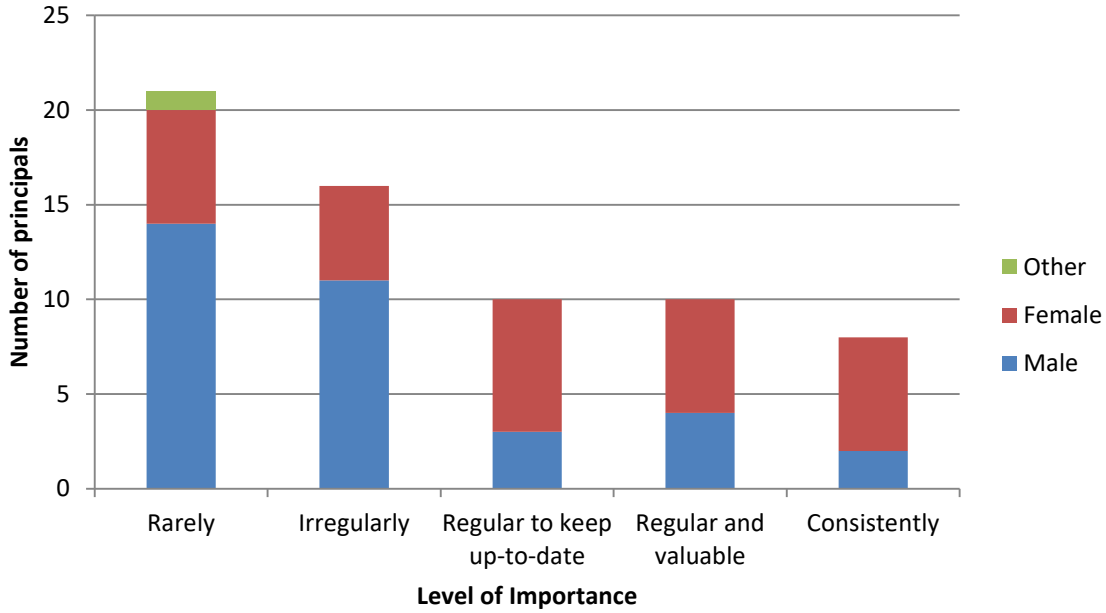

Figure 5: Importance placed on higher qualifications as a source of professional development by gender

Question 8: This question investigates your pursuit of knowledge, skills and dispositions associated with pedagogical leadership. Which option best describes your learning?

As part of the *Best Evidence Synthesis Project,* Robinson et al. (2009) identified eight Leadership Dimensions which were linked to positive student outcomes. Underpinning these dimensions were four areas of leadership knowledge, skills and dispositions:

- ensure administrative decisions are informed by knowledge about effective pedagogy,
- analyse and solve complex problems,
- build relational trust, and
- engage in open learning conversations.

Question 8 investigated whether the use of these knowledge, skills, and dispositions, which were strongly emphasized in the pedagogical base of the First-Time Principals' Programme, had

continued to be developed by the cohort principals during the decade 2007-2017. The principals were asked to describe their level of engagement with the four categories using a Likert-scale. The scale was designed to reflect an increasing level of professional engagement and importance to the principal, as each point required more resourcing (time, financial) and a higher level of accountability or critique with other professionals or external organizations. The results are summarized in Table 4.8 and show that problem solving was mostly developed through critical reflection with peers.

Table 4.8

Development After First-Time Principals' Programme of: Pedagogically Informed Decision Making, Problem Solving, Building Relational Trust, and Engaging in Learning Conversations (N=64)

Description	Pedagogically informed decision making	Problem solving	Building relational trust	Engaging in learning conversations
No response	0	1	0	0
I did this during the FTPP but have not done anything since in this area.	1	1	2	1
I did this during FTPP and it has come up again in discussions with colleagues	3	5	1	4
I critically reflect on this area with peers and inform myself with free professional material	19	33	24	21
I have undertaken paid courses and/or bought books to continue my learning in this area	24	15	21	22
I have actively pursued professional development in this area with research and qualifications	17	9	16	16
Mean	3.8	3.4	3.8	3.7
Median	4	3	4	4

Most respondents (80%) had a range of 0-1 Likert-points across the four categories of pedagogical theory, and 20% of respondents had a range of 2 Likert points. Only one respondent

considered that he had not developed any of the four categories of theory since his participation in the First-Time Principals' Programme. In comparison, six respondents (4 females and 2 males) had actively pursued professional development in each of the four categories with research and qualifications.

Question 9: How have you developed your leadership practices since completing the First-Time Principals' Programme?

While Question 7 identified a selection of sources of principals' professional development based on the literature, Question 9 required principals to recall their professional development without selection prompts. In this way, Question 9 provided supplementary, qualitative data for Question 7 from the principals' "voices" but also permitted a comparison of the data obtained from open (Question 9) and closed (Question 7) methods of self-reporting. A comparison of similarities and differences between the responses assisted with the interpretation of findings and hence the reliability of the study.

Most principals agreed that the development of their professional leadership practices after completing the First-Time Principals' Programme was largely unstructured and in response to personal and contextual needs. Most principals (62%) reported that they had developed their leadership practices through discussions with other principals as peers. These discussions occurred within a variety of forms: from particular critical friends, networks, clusters, professional learning groups, Communities of Learning, principal associations and professional associations. The partnerships served a range of informal and formal functions and were often associated with practice-based professional learning such as described for professional learning communities (Senge, 1990) which are designed to promote: a shared vision and values, collective responsibility, reflective professional inquiry, collaboration, group and individual learning, mutual trust, respect and support. Some examples of the functions of peer discussions included: providing advice or vicarious expertise for day-to-day management issues, forums of peers to critique shared readings and explore applications to practice, inquiries into problems of educational practice, interpret legislation requirements and undertake collaborative projects.

> *At the moment I'm doing a course through [name of provider] as well, but that doesn't have any qualifications it just gives you a certificate at the end, but we spend 9 days*

working with them, and [name of overseas university]*, they are sort of putting their philosophy into the program, and we meet with other principals, mainly from [name of city] but there's a few from [name of adjacent region], and some that were first-time principals with me, so it's good lots of principals from around the area, one principal just up the road and I do it together and that's great.* [We are discussing] *leadership and different ways in which to raise achievement…* [we use Teaching-As-Inquiry, action research] *and they've got a website where you can go and lots of reading, we read things and then we discuss it, it's good.* (Principal D)

Almost a third of principals (34%) identified mentors, advisors, coaches, facilitators, experienced principals or supervisors had developed their leadership practice by critically scaffolding reflective practice and problem-solving. Principals spoke of relational benefits in selecting their own mentors. Mentors also appeared to reduce principals' feelings of isolation in their role. Some principals' appraisers also took on a mentorship role.

[My advice to a first-time principal starting out] …*would be to get yourself a really good coach, a really good coach and not necessarily the one that is appointed to you as a first-time principals' mentor. I'm not denigrating or anything because I know… there are some good people on there, but find a really good coach who can really challenge you. Challenge the shit out of you and expand your leadership thinking – that is really, really important.* (Principal I)

I strongly believe that professional supervision for reflective practice around your leadership has been best for me. It has been regular, positive and hugely supportive at a time when leadership can be so varied and isolated. I had a mentor in the early years, and this was helpful too. (Principal 13)

I do have a mentor in that I have an outside appraiser, and that outside appraiser also I'm in a PLG with four other principals with her, so that's hugely valuable, and so yes, she is my mentor. That outside appraiser has been the making of me I think, in terms of my principalship because I've really grown under that. I didn't have that at first. Just because she's so challenging, so she asks the hard questions and you always feel like if you haven't got the right answer, that you're letting her down you know so, yeah she's been

a great thing, but she's also very supportive, she doesn't rest, she's a hard task master and she doesn't rest on her laurels, and when she does appraisals she does a 360, so she's getting feedback from everybody. (Principal K)

Having a mentor that you can trust who has a relatable style to your own helps.

(Principal 33)

Approximately one third of principals (30%) identified they had developed their leadership practice through professional reading. Examples of reading material included: research, policies, online material in areas of interest, popular leadership books, readings from course work and professional learning groups, and curriculum material.

Principals (45%) described a range of specific courses, workshops and seminars as well as general conferences that developed their leadership practice. Five principals specifically mentioned Springboard Trust Leadership programmes as a source of leadership development and two principals mentioned the development of their local Communities of Learning.

Seven principals, five males and two females, reported their leadership practices had been developed through day-to-day experiences.

While principals reported using a range of sources to develop their leadership practice, this range was influenced by their personal preferences as an adult learner and by both financial and geographical accessibility to professional development. Principals engaged in a range of formal and informal professional development with most principals valuing peer networks and mentors as a source of learning and support. The importance of peers and mentors to principals is highlighted again, in principals' responses to the subsequent question, Question 10 (see Table 4.9).

Question 10: "What resources and structures do you think support or would support the development of leadership practices?"

In Question 10, principals were asked to recommend resources and structures they believed would support the development of leadership practices. This question was responded to by 93% of principals who completed the questionnaire. The qualitative data of Question 10 were analysed using semantic thematic analysis. The results are shown in Table 4.9. The most recommended supports for the development of leadership practices by the principals were participation in

professional learning communities and working with mentors, supervisors, advisors, coaches, or facilitators.

Table 4.9

Summary of Recommended Structures and Resources for Principals' Professional Development

Activity	Number of comments
Professional learning communities	27
Mentors, coaches, advisors, facilitators, experienced principals	22
Resourcing concerns (time, equity of access, limitations due to funding source)	15
Specific and general skill development through a variety of opportunities including workshops, courses, online modules, and reading	14
Minimum qualifications for principals	8
Professional, effective appraisal process	3
Pre-principal development	2

The principals described multiple successful experiences of and opportunities to belong to more than one professional learning community which developed their practice. Principals valued professional learning communities as a means to support the development of leadership practices through emotional support, the discussion of practice and the dissemination of new ideas. These peer networks or communities served different functions in the principals' leadership development and varied in size and purpose.

However, the recommendations regarding mentorship were more aspirational, with principals describing single, valued experiences of mentorship. Though all the principals were assigned a mentor for the 18 months of the First-Time Principals' Programme, any subsequent mentorship had to be contracted to private providers and paid for by the principals' schools. Schools regularly paid for appraisers as part of the performance management process but not mentors. The principals believed there were barriers to accessing a skilled pool of leadership mentors due to a lack of centrally structured funding. Some principals recommended that an experienced principal with additional coaching or mentoring training was the ideal mentor, while others described benefits from having leadership mentors "outside" education.

The facilitator is an ex-principal who was a very successful principal and who is definitely still up with the play in terms of what is current. She keeps herself very current and she has done training and mentoring so she has some skills there that are really good for that situation. (Principal 46)

[Name] has got a background in coaching and mentoring and helping organizations move forward and develop leadership. So yes, he comes in and does the compliance stuff but he also comes in and coaches me and asks me some pretty searching questions, so that causes you to reflect and think. (Principal 52)

I've talked to (now) multiple principals that have been involved with [Springboard Trust] *…and people have had so much out of it that they, just strategically and having mentorship and those cluster groups, with their six principals that have to meet fortnightly as part of the planning, and the mentor from outside education has really honed their thinking, that they talk about nothing but superlatives.* (Principal 40)

Principals suggested that centrally funded principals' professional development would reduce inequities of access and resourcing, produced by principals' schools' contexts, particularly for those principals of small schools and geographically isolated schools.

Principals also suggested that access to a pool of centrally funded, accredited professional mentors could be available for both first-time principals and experienced principals. A significant source of mentors could be recently retired principals who undertake further mentorship or coaching qualifications.

Work intensity, in the daily management of the school, was a significant factor in the development of leadership practices for teaching-principals. The low numbers of personnel in small schools made delegation of tasks difficult and thus limited time for reflection. Teaching-principals were most often in more isolated rural areas with less ready access to face-to-face professional development and support than their urban peers. Principals suggested that a balanced network of professional support coming to the school, rather than requiring the principal to travel away from the school, as well as access to high-speed fibre (or satellite) internet connections would

support development of their leadership practices. Teaching-principals also wanted a supply of relief teachers to cover their teaching role.

Principals suggested that a continuous structure to support principals' professional development across their careers would be beneficial and that preparation programmes currently lacked adequate professional development in managing finances and property.

The refining and consistency of Ministry of Education processes associated with resourcing applications was considered important as many of these processes were judged by principals to be complicated, time-consuming and changeable. Particularly mentioned were, applications for special needs students, professional learning development for staff, building projects, and staffing (Novopay). Partnership with local Ministry of Education offices and local principals' associations was considered a possible process for the better communication and resourcing of legislative changes to be interpreted and implemented in schools. However, concerns were expressed by principals in all regions, except Canterbury, regarding poor relational trust with and a perceived lack of support from the Ministry of Education at local and national levels. While these results concur with other recent principal surveys (Wylie & Hodgen, 2020), in this study, principals linked a lack of support from the Ministry of Education to low principal well-being, and to a poor alignment between policy and support structures.

> *Until the Ministry works out whether it is a competitive or a collaborative model of education, then we are going nowhere fast in NZ… I feel as though the Ministry has lost the human side of our profession*. (Wellington Principal)

> *Trust between the Ministry of Education and school leaders* [is] *sadly lacking. Protecting my staff and students from bullshit is becoming increasingly difficult and affecting my mental health. Legislative changes (especially the Education Amendment Act and Health and Safety) coupled with budget freezes mean that my job now revolves around damage limitation and game playing, not kids or curriculum.* (Southland Principal)

> *You can be very isolated out here. The Ministry just really just pass through, have a cup of tea, use the toilet and go on. Because we are so small we don't have that identity for them. They are more interested in the bigger problems, the bigger issues that they see.*

(Hawke's Bay Principal)

In contrast, Canterbury principals (all of whom had led schools through the 7.1 earthquake of 4 September, 2010 and the 6.3 earthquake of 22 February 2011) made no negative comments regarding the Ministry of Education.

Question 11: "Are there any other comments you would like to make?"

In relation to this question, 28 principals responded and six principals commented about participation in the First-Time Principals' Programme during 2007.

> *The FTPP seems a long time ago now, but one of the strengths of the programme was the networking it allowed. For a couple of years, we met as a group and it was a great opportunity to compare notes and share solutions to challenges. At the time, I know I appreciated being exposed to high quality speakers and hearing a high level message about how important leading learning is, in the role of principal.* (Principal 58)

In contrast, three principals stated they had learnt very little from participation in the programme and found more value from on-the-job experience.

In Question 11, three principals explained they would be resigning as principals and cited work intensity combined with disillusionment as their reasons. All three intended to remain in the field of education. Other comments reinforced ideas which had previously been mentioned in Question 10 about resourcing, time, and the need for continual learning in response to contextual changes.

In Question 12, as previously explained in the chapter on methodology, 31 principals requested more information about participating in Phase Two of the research.

Summary of Phase One Data

In summary, the results of this research show that the professional development activities of these primary principals attend to three core aspects of successful school leadership in New Zealand, as previously described by Notman (2011): pedagogical leadership, the heuristic blending of personal and professional development through on-going learning, and responding to context.

Phase One findings also showed that professional development of principals in the New Zealand context is mostly unstructured. There is no qualification system for principals, which produces gaps in pre-requisite knowledge especially in finance and property management. This lack of national structure means that most professional development throughout the principals' careers is at their own discretion. The professional development is heuristic in nature but also ad hoc. A lack of centralized structure and resourcing means principals' contexts unduly influence their access to professional development and produce inequities, especially for principals of small schools.

Principals perceived peer networking and mentorship as most valuable sources for their leadership development. All the principals, except those with a financial background prior to becoming teachers, perceived that principal preparation programmes were inadequate in the areas of finance and property management. Principals considered the interpretation and implementation phases of legislative change were under-resourced by central government. This under-resourcing placed unplanned demands on schools' local resources, including time and finances. Unsupported legislative changes, and changing or complicated resourcing processes, increased the principals' work intensity and reduced their focus on pedagogical leadership. Competing demands on time and resources, and higher levels of work intensity were more often described by principals of smaller schools. Prioritizing time and resources within these competing demands appeared linked to the principals' values and beliefs, and linked to a context which allowed for the planned development of supportive structures within the principals' schools. Access to professional advice in the form of vicarious expertise supported the principals' leadership practices. Local, vicarious expertise appeared particularly important early in the principals' career, prior to the establishment of robust peer and information networks.

While Phase One of the study provided data regarding how primary principals develop their knowledge, skills and dispositions for leadership, Phase Two of the study was designed to explore how these leadership practices were implemented in the principals' schools and the influence of these leadership practices on student achievement.

Findings of Phase Two Interviews and Document Analysis

In Phase Two, interviews were conducted with 12 principals to explore how these principals developed their leadership practice and used their pedagogical knowledge to influence student achievement. As previously explained in the methodology chapter, both the collection and analysis of the data were informed by the roles of the researcher as both a researcher and a practitioner. Some interpretations arise from the researcher's own knowledge and experience as a member of the 2007 First-Time Principals' cohort and as a primary principal.

The Phase Two findings begin with a description of the demographics of the interviewed principals. The demographics are situated in comparison with the demographics for the population of all New Zealand primary school principals. The demographic description is followed by reports of the qualitative data.

Qualitative data analyses were completed with the support of NVivo12 and Microsoft Excel software packages. Interview data were triangulated against documents which provided evidence of the principals' practices. The qualitative data were analysed for influences on, and influences by, leadership practice. Four main themes were summarized from the qualitative data.

Leadership practices were examined for differences, if any, between principals of high-achieving and low-achieving schools. Qualitative data for the principals' leadership practices were compared to student data within their schools as high, average or low-achieving in relation to the decile means for 2016 National Standards in Reading, Writing and Mathematics (Ministry of Education, 2017). The schools' student achievement data for the year of 2016 were used as that data provided the basis for the principals' actions in 2017. The student achievement data for school deciles were used to compare schools with similar socio-economic student populations (Bamburg & Andrews, 1991).

Demographic Features of Phase Two Principals

As previously described in the methodology chapter, 12 principals provided Phase Two data. These principals were a sub-group from the Phase One sample who met the criteria that: they volunteered to be interviewed, they would provide student achievement data from pedagogical initiatives within their schools, and their school boards had given permission for the interviews to

take place and school documents to be shared for the purposes of the research. The principals who volunteered to be interviewed covered the full range of New Zealand, English-medium primary school types (see Table 4.10) and school deciles from 1 to 10 (see Table 3.4). All the principals had ten years' experience as principals. The principals' sample did not include principals whose schools were involved in any kinds of statutory intervention, as none of the principals' schools were involved in non-statutory nor statutory interventions by the Ministry of Education[9]. All the principals' schools took part in a three-year cycle or more of review from the Education Review Office. The data within this section are presented so that links cannot be made to identify particular schools or principals.

Table 4.10

Gender, School Type, and Education Review Cycle for Phase Two Principals

Demographic Feature	Number	Percentage
Male	8	67%
Female	4	33%
Full primary school (Years 1-8)	2	17%
Contributing school (Years 1-6)	8	67%
Intermediate (Years 7,8)	2	17%
ERO Review 3 year cycle	6	50%
ERO Review 4-5 year cycle	6	50%

In 2017 there were 1945 primary schools in New Zealand, of which 1064 (55%) were full primary schools[10], 764 contributing schools (39%), and 117 intermediates (6%). Therefore, the Phase Two sample is not proportionally representative of primary school types but does include all types of primary schools.

[9] A statutory intervention by the Ministry of Education occurs under the Education and Training Act (2020) if a school is deemed at operational risk, there is a risk to student welfare or a risk to educational performance of the school's students. The school is returned to self-governance once the objectives of the intervention are met.
[10] In New Zealand, children may attend primary school from the age of 5-years old. Five year olds are designated as Year 1. Full primary schools have students from Years 1-8, contributing schools from Years 1-6, and intermediate schools from Years 7&8. Secondary school begins at Year 9.

When the Phase Two principals began their principalship in 2007, 43% of all New Zealand principals were female and 57% of all principals were male. In 2017, more than half (52%) of New Zealand principals were female and less than half (48%) of principals were male ("Principals in state and state integrated schools in New Zealand", Ministry of Education, 2017). Within the Phase Two sample, two thirds (67%) of principals identified as male and one third (33%) as female. Therefore, the Phase Two sample is not proportionally representative of gender in the New Zealand primary principals' total population in 2017.

During 2017, 73% of all primary schools were in a 3 years' cycle for Education Review Office evaluation, 11% in a 1-2 years' cycle, 15% in a 4-5 years' cycle and 1% required other evaluation (Education Review Office, 2017). The Education Review Office (2017) describes: the 1-2 years' cycle as those schools where the Education Review Office is supporting the schools to develop their self-review capacity so that they can develop strategies to focus on and improve student achievement; the 3 years' cycle as those schools that have established effective processes for student engagement, progress and achievement; and the 4-5 years' cycle as those schools who can consistently demonstrate sustained student engagement, progress and achievement. Within the Phase Two sample, 50% of principals' schools were in a 3 years' cycle for evaluation and 50% were in a 4-5 years' cycle for evaluation. Therefore, in this measure the Phase Two sample principals' schools showed a higher level of achievement than representative of the New Zealand primary schools' population in 2017.

Eleven of the twelve principals provided documents which showed student achievement data before and after teaching and learning interventions. The twelfth principal provided student achievement data from after the intervention, from which gains could be inferred as "Below National Standards" to "At National Standards". All the interventions had been supported by external providers. All the interventions were based in curriculum areas within the National Standards' foci of reading, writing and mathematics. All 12 principals were able to provide analysis of variance data but statistical analysis was rare, with most principals only counting student numbers and calculating simple percentages. While all 12 principals were able to provide student achievement data from interventions which indicated achievement gains, the numbers of students involved in the interventions was low. There was wide variation within school data collection and reporting methods which made comparing the data difficult for effect sizes. For these reasons,

documents with unredacted (whole of school) National Standards data for 2016 was gathered from each school to describe student achievement.

Within this study, high-achieving schools are described as those schools which had a mean achievement above that of the 2016 National Standards means in Reading, Writing and Mathematics by decile (Ministry of Education, 2017). The decile means were used rather than the single New Zealand mean for the National Standard (in reading, writing or mathematics) to account for differences in achievement influenced by socioeconomic status. One school, School B, appeared exceptional in that this low decile school, achieved above the 2016 National Standards for both its comparative decile mean and the New Zealand mean.

Table 4.11

School Codes, Decile Groupings and Descriptions of Achievement

Decile	Low achievement	Average achievement	High achievement
Low 1-3	School A		School B School C
Medium 4-7		School D School H School J	School E
High 8-10	School G	School I School F	School K School L

Qualitative Data Analyses and Four Main Themes

As explained previously in methodology chapter, the qualitative data from the interviews were analysed twice. First, the interviews were analysed using an inductive reflexive thematic analysis, from which four themes emerged. This analysis was followed by a second, deductive reflexive thematic analysis. In the deductive RTA, the principals' leadership practices were analysed against a modified framework of Robinson et al.'s Leadership Dimensions (2009). The protocol (see Figure 2) linked a problem or issue, identified by the principal, to the codes provided by the Leadership Dimensions. The principal's practices were then triangulated using evidence of his/her actions from both the documents and the interviews. All 12 principals showed all nine Leadership Dimensions during the enactment of their practice. However, the consistency and conscious implementation of the dimensions appeared to vary across the 12 principals.

The qualitative data analyses were integrated as four themes which are summarized in Table 4.12 and include: the influences of the principals' values and beliefs on their practices, the

influences of vicarious expertise on the development and distribution of leadership practices, the influences of systems and structures in pedagogical development and monitoring, and the influences of events and context as constraints and affordances within leadership practice.

Table 4.12

Four Influences on Principals' Leadership Practices

Influence	Influences within principal's practice
Values and beliefs	Principals' priorities • Daily decision making • Long term strategic goals • Challenged by work intensity Principals' interactions with others Development of school culture and knowledge Examined through the creation of dissonance: • Planned dissonance e.g. professional development, systems and structures • Unplanned dissonance e.g. event such as flood or fire
Vicarious expertise	Apprenticeship of the principal Task and role distribution by the principal
Structures and systems	Supported alignment of teaching and learning within educational theory and the school's vision, policies, culture and strategic goals Provision of reciprocal learning opportunities (principal/teacher, external expert/teachers and principal, teacher/teacher, teacher/student, principal/student, principal/other stakeholders) Monitoring of teaching and learning Contextual influences influenced by systematic resourcing
Context and events	Constrained or afforded by resourcing: • Access to professional development • Access to vicarious expertise • Students' physiological and psychological needs • Acceleration of goals Opportunity for reflection and re-alignment of common goals with values and beliefs Pastoral care of school community within the midst of shared adversity

The following sections of the results chapter will describe individually, the four main themes from the analyses. Excerpts from the principals' interviews are linked to the subthemes to illustrate the principals' contexts and to provide particular examples that may relevant to practitioners.

Theme One: The Influence of the Principal's Values and Beliefs

Qualitative data from the interviews showed all 12 primary school principals' leadership was influenced by their values and beliefs about education and people. The principals' values and beliefs affected what they thought, what they did, and how they did it. Interview data showed that these values and beliefs developed and were modified throughout the principal's lifetime.

The results showed that influences on principals' beliefs and values typically included: the principals' families and up-bringing, professional development, and role models. An example of the principals' values and beliefs being influenced by their experiences and learning of childhood is shown in this excerpt from Principal A's interview:

> *You know history and connection is important to me, and sharing people's stories and hearing it and making that connection is vital… The four aspects of talanoa, respect, love, mafana is like warmth you've got to feel like it's nice, and malie memorable or funny, or like you know like a good spirit behind it you know, and that's what I base a lot of my leadership on, so when I go in to engage with parents, staff, community, children this is how I was brought up… when I lead it, I model this, I use the word love constantly. I'm not afraid to use it when I'm talking to a family or staff or students, one of my mantras is or my beliefs is that in order for us to teach children you must first love them, and then there's that duty of care, that emotional connectedness to not only your job but to the data, and to the family and to the kid*. (Principal A)

Eleven principals spoke of the influences of educationalists which they were exposed to during teacher training and principal preparation programmes. From these educationalists, the principals developed beliefs about teaching and learning which informed their actions and hence influenced their personal learning and practices, such as described by Principal J:

> *In the old days when I was at uni' I plugged away at sociology so I had a bit of an idea about systems and things like that, the education system and how obviously it was delivered in my day into the classroom. So not really no, it hasn't changed too much. I have always been a bit liberal in my thinking around education…. every child is an individual person with an individual learning need and the language around their learning is very, very strong. That is how children learn, through the relationship of the learning*

and yourself and for children going to enter into a relationship firstly with yourself and the school, and then with the learning. (Principal J)

Eleven principals also showed they were influenced by their role models. Some of the role models included past principals whom they had experienced earlier in their teaching careers. An example of the influence of role models was shown by Principal L who had been mentored into principalship by her former principal:

My old principal, who was a great mentor to me in my deputy principalship for 5 years, and she was the one who encouraged me to do our Masters together, and then encouraged me to apply for a principal's job. Five years prior I wouldn't have even thought that would have been on my radar at all, but in five years she took me from being a syndicate leader, to becoming you know DP at a high decile school, doing our Masters and you know applying for the principal's job here…I think it's all about being inclusive, and having very much a distributed leadership style, where you're encouraging others to step up and lead different curriculum areas, different activities within the school and if I, feel I'm successful as a leader it would be because I've encouraged others to step up to leadership, and I guess that perhaps in the beginning as a new principal, and sometimes I think I might have felt a bit defensive because if I didn't know stuff, I didn't want to sort of reveal that I didn't know stuff necessarily, so therefore you kept it all a bit closer to your chest, whereas now I think we can work as a team to say hey we don't know what's happening, or what the future holds let's all work together to sort of work out a plan, and I think I've developed in that skill more over the time. (Principal L)

In particular, the 12 principals' personal values and beliefs (described in the interviews) appeared to influence the development of collective vision and culture, and the dominant theory of action used within their schools (shown within schools' documents). Nine principals' theories of action were based within cognitivist, behaviourist, and constructivist educational theories, while three principals' beliefs were particularly influenced by business models for organizations.

For example, Principal B described how he based his theory of action, on the concept of *The Educultural Wheel* (Macfarlane, 2004), after a presentation at one of the First-Time Principals' Programmes' residential courses:

What Angus said kind of resonated with me, and so I read his books, and I brought them to a staff meeting. We all read his books, and one rainy day I sat down and developed a strategy for Maori achievement, using Angus's work, based around his Educultural Wheel, and about those 5 key concepts…that strategy had at its core the relationships side of things, which kind of fitted in with what my ideals were, and what I wanted to make, what I knew was the answer. (Principal B)

In contrast, Principal I based his theory of action on the Total Quality Management concept of mental models after a presentation (Edwards & Martin, 2007) during the First-Time Principals' Programme, then subsequent reading (Kim, 2001; Senge, 1990) and professional development (Martin & Edwards, 2016):

There are mental models which are values, beliefs and assumptions and then there is your vision. And the idea is that as a leader, the idea of your vision is to change people's mental models. So the values and beliefs are assumptions about teaching. And then you have the system, you build the systemic structure to support that and if you get that right you will get the right patterns and behaviours and events at your school. So I try to work at the vision mental models level all the time. (Principal I)

All 12 principals considered their role demanding (*challenging, involved*) with a high work intensity (*massive, huge, always more, continual, swamped, late nights, never complete, constantly, burn out, never had a holiday, long hours*) and with a high level of decision making involving dilemmas, associated with competing demands for resourcing and tensions created by school stakeholders' differing agendas. The principals believed that alignment of their values and beliefs to their practices assisted their personal resilience (8), decision making (10), ability to prioritize (7) and focus (12).

I think first and foremost is having a good reasoning and understanding of why you are taking on the role… the reason I am a principal or have put myself forward to be in this role is because these are the things that I want to see happen… I think that we are all getting into principalship because again the heart and the vision for what it is we are trying to achieve but sometimes it can be easy to be bogged down with other things and to be taken away from that core. (Principal E)

Principals described instances of stress when they felt their values and beliefs were compromised. In their previous roles as teachers or senior management, all 12 principals believed their focus had been on teaching and learning. However, in the role of principal, all 12 interviewees described examples of how their focus on teaching and learning was compromised at times due to the intensity of new learning or other work. Some reasons why principals believed their focus on teaching and learning was reduced are summarized as subthemes in Table 4.13.

Table 4.13

Principals' Reasons for a Reduction in Focus on Pedagogy

Subthemes Influence to reduction in focus on teaching and learning	**Examples from interviews**
Changes to legislation	New Zealand Curriculum (2007) Health and Safety at Work Act 2015 Vulnerable Children Act 2014 Education Act amendments (2009, 2013, 2017)
Management of building projects	New school development Modernisation e.g. Flexible learning spaces Replacement or repair of building due to flood, earthquake, weather tightness or fire.
Intensity of early career learning	Learning to manage school finances Learning to manage school property Learning to prioritize Confidence to distribute tasks Development of information networks Learning Ministry of Education administrative procedures and requirements
Ministry of Education procedures	Resourcing of special needs Applications for professional learning and development (PLD) Web-based payroll system (Novopay, 2012) Changes to self-review systems Web-based education sector resourcing
Resourcing	School fundraising projects Applications to charities Provision of student basic needs (food, housing, clothing, safety)
Understanding of principal role	Belief that the principal manages adults who lead teaching and learning

Stress, associated with work intensity, was described as particularly high early in the principals' careers when the principals had to learn how to complete new tasks. An example of this was described by a teaching principal who believed his focus on teaching and learning was compromised by learning administrative tasks:

When you first start out running a school, all you are doing is getting swamped under by Ministry requirements for this, that and the other. And you find that the [children's] *learning comes second fiddle to that, but the more you do it, the more it becomes a lot easier.* (Principal J)

Principal C also felt initial tensions between the roles and duties of a new principal and her previous expertise as a classroom teacher. While she valued teaching and learning, she felt she did not have enough time to do both roles well:

I probably wasn't quite as discerning [when I was a first-time principal] *and I really … I did struggle for a start of wanting to still be in the classroom a lot. You know, I like to go into the classrooms now but I haven't got that same desire to sort of want to go and take over or anything like that. I'll try and relieve for the day and then someone is sick and I am trying to help them out and that sort of thing – but then that's when the balance starts to tip… you know I actually still have to do some principal stuff so, yeah that was probably the thing of a first timer. And that was advice that people just sort of said – you know, don't spread yourself too thin and I learnt that pretty quickly.* (Principal C)

The principal's values and beliefs about what was important, appeared to influence daily decision making, long-term strategic goals, and allocation of focus and time commitments. This was articulated by Principal G in the form of a metaphor which he had developed from his professional reading:

There's a quote I found a couple of months back from Winston Churchill which says something like, you will never get to your destination if you keep looking at all the barking dogs [You will never reach your destination if you stop and throw stones at every dog that barks] …w*e started talking about it and asking what are some of those barking dogs and I began to think about it in my own work and my own day. Are there some things that come in the email or come in the phone that get asked of me that actually is a distraction to what we are trying to achieve? …if I give it attention, I am taking my attention off something else that is ultimately more beneficial for our vision to be realised. So sometimes you will hear me say, this is just a barking dog.* (Principal G)

Principals believed their focus on teaching and learning was less likely to be compromised if they were efficient in a task through prior experience (4), or gained proficiency through experience on-the-job (11), professional development (11), and assistance from an expert (12).

All twelve principals worked more than 52 hours per week and provided examples of altruistic values, where the principals sacrificed personal activities to attend to tasks which prioritized the well-being and achievement of students, and completed management tasks for the benefit of the school. The findings showed vocational self-sacrifice reduced after: physical or mental burn-out, if the principal perceived their extra effort was not valued, if someone helped them re-interpret having a work/life balance as reducing the amount of short-term tasks achieved but improving the principal's long term effectiveness, or by changing the context such as moving to a larger school with more staff and therefore more opportunities for delegation.

Theme Two: The Influence of Vicarious Expertise

Results from the qualitative data showed that principals supported their developing practice with vicarious expertise. In the context of this research, vicarious expertise is defined as when the principals utilized the knowledge or actions of an expert to replace their own lack of knowledge and their inexperience. Vicarious expertise was utilized in two main ways: as a form of apprenticeship when the principal learned from the expert and was able to eventually assume the knowledge, skill or disposition themselves; and, as distributed leadership, when the principal permanently delegated achievement of a task to an expert and did not learn how to accomplish the task or practice him/herself, or only retained oversight of a task to the degree that it was completed by the expert. Principals identified a range of experts to support their practices, examples of which are shown in Table 4.14.

Table 4.14

Examples of Vicarious Expertise

Type of vicarious expertise	Expert	Examples
Apprenticeship	Mentor	Exclusion of student[11] Strategic goals Decision making (*sounding board*) Relationship issue (*with trustee*)
	School Trustees Association Advisor	Legal knowledge for personnel issue
	Colleague	Use of assessment tools Recommendations for ICT networks, development and hardware purchases Curriculum development Health and safety legislation Fundraising application Ministry of Education processes
	Supervisor, coach	Critical reflection on decision making Relationship issues (*with teacher*) Self-awareness development
	Experienced principal	Reading and understanding of the *Staff Usage and Expenditure* (SUE) report Policy development Ministry of Education processes Decision making (*sounding board*)
	Project manager	Building development
	School board trustee (accountant)	Preparing school budget Managing school budget Accounting processes Audit
Distribution	Deputy principal	Moderation of writing with teachers Classroom observations of teachers Behaviour management
	External provider	Curriculum development in mathematics Curriculum development in writing Curriculum development in student agency Pedagogical development in Teaching-As-Inquiry Health and safety legislation
	Administration staff	Maintaining the school payroll Contacting relieving teachers Accounting processes
	Parent teacher association	Fundraising

Results from Phase One showed principals had very large effect sizes for principal learning in finance (d = 1.2) and property (d = 1.4) between the time of initial principalship and their practice

[11] A New Zealand Ministry of Education process for the formal removal of a student from the school due to the student's behaviour. The removal may be temporary (stand-down, suspension, exclusion) or permanent (expulsion).

a decade later. Results from Phase Two showed possible explanations for these large effect sizes. For example, the interview data showed the range of professional development and on-the-job experiences the principals had received prior to taking up their first principals' position affected *how frequently* and *for what* the principals sought vicarious expertise. One explanation is shown by Principal F who believed his experiences as a deputy principal in a large primary school had developed his knowledge of property and finances:

> *I had been a deputy principal at a* [large] *school… and the principal was away a heck of a lot, so I was hands-on in a school that size, so when I became a principal… I had a good background of a lot of that management stuff, I had a good grasp on property and had a good grasp on personnel and a good grasp on payroll and SUE reports and a good grasp on all that sort of stuff.* (Principal F)

Principal B also believed his finance career, prior to his teaching career, meant that he already had expertise in personnel, finance and property:

> *I was lucky that I had a previous career and so, things like personnel, things like the finances, yeah they didn't really worry me, property doesn't really worry me. I kind of feel comfortable about all those other areas, which I think people coming through the teaching kind of pathway, to principalship might find it a challenge.* (Principal B)

While these two principals believed their pre-principal learning in finance and property had been adequate, other first-time principals showed they initially relied on others' expertise in these areas. For example, Principal K believed she had focussed on pedagogical leadership as a deputy principal and was confident with curriculum as a first-time principal but required mentoring support with property and finances:

> *We'd come from a deputy principal's job where we did lead the learning, that we did present the data to the board, we did get involved in the professional development for the teachers, that wasn't the hard bit, it was all that other stuff that was the hard bit, and I hadn't been mentored very well into it in retrospect, so you know—the Novopay, the payroll stuff, the finance, the audit, the property stuff, the 5YA— that was the stuff that was really hard, we were leaders of learning, so we'd been you know, because we were teachers and then* [deputy principal]*s.* (Principal K)

Principal D believed neither prior on-the-job experience nor the principal preparation programme had prepared her for managing school property and finances in her first-time principal's position, and as a result she had to seek expert support, early in her career:

> *When I was a first time principal, to be honest a lot of the programme that I did, didn't actually support me. When you're in a school, a lot of theory but… lots of workshops which would have been more practical for us at that time…you're thrown in at property, finance takes up a huge amount of time, and then you've got to know the curriculum.*
>
> (Principal D)

Principals D, K and H, all described learning about schools' finance and property as particularly intense at the beginning of their principalship. Each principal individually located experts to support their learning and practice. Most of the time, but not always, first-time principal mentors, who were usually experienced principals or ex-principals were able to provide support and expertise, such as described by Principal H:

> *Going into the principalship I knew budgets so that was okay and used school finances enough to get by. Staffing was a mystery. All I had been running prior to becoming a principal was teacher aides in my DP type role, so that was a big learning curve. The running of staffing budgets and that sort of stuff was definitely learnt through the First-time Principal stuff and through having the mentor* …[budgets have] *been learnt on the job. Best thing in all of those is that I have had good boards that have had expertise in finance so I have learnt from them and… an outside provider running all of our accounts so I learnt through them and they were really good in terms of I had a lot of meetings with them to get my head around stuff and budgeting.* (Principal H)

Mentors were allocated to each principal as part of the First-Time Principals' Programme. However, while most of these mentors provided expertise and support for the principals, not all principals felt compatible with their allocated mentor. These principals did not experience the level of understanding and support they expected in the relationship, as shown by comments from Principals F, A and I:

> *I had a principal mentor through the First-Time Principals' Programme. We were not on the same wavelength to be honest.* (Principal F)

> W*e were given our mentor. We didn't have a choice, and it was someone from the lock and stock of whatever they had for their area, and I didn't connect at all.* (Principal A)

> [As a first-time principal, I would recommend that you]… *get yourself a really good coach, a really good coach and not necessarily the one that is appointed to you as a first-time principals' mentor. I'm not denigrating or anything because I know* [name of provider] *is running that now and there are some good people on there, but find a really good coach who can really challenge you. Challenge the shit out of you and expand your leadership thinking – that is really, really important.* (Principal I)

At the end of the 18 months' period of Ministry of Education funded mentorship (as part of the First-Time Principals' Programme), some principals chose to continue to develop their practice with the help of a mentor (*coach, supervisor, appraiser*). Mentors were described variously as providing support and/or challenge. In some cases, the mentorship was informal with "the principal down the road", an ex-principal, or a group of respected colleagues, as described by Principal F:

> *I was beginning to develop my own sense of leadership through the work with the* [Best Evidence Synthesis]*… since then I have found that what is important for me is talking to like minds and really developing myself in my leadership practices as opposed to my management practices as much as I could. But also getting a good group of people around me who I consider my mentors. I don't have one person. You know I have about four or five that I can go to and get help. Your go-to people and I am just doing some stuff around that but all around leadership.* (Principal F)

In other cases, the mentorship was formal, as part of an education contract or paid for by the school's board of trustees as part of the principal's professional development or performance management. The mentors came from within the education sector or from other sectors, and worked with principals either individually or in small groups of principals.

I do have a mentor in that I have an outside appraiser, and…I'm in a [professional learning group] *with four other principals with her, so that's hugely valuable, and so yes, she is my mentor. That outside appraiser has been the making of me I think, in terms of my principalship because I've really grown under that. I didn't have that at first*. (Principal K)

While not all principals had formal mentors, all 12 principals regularly engaged vicarious expertise in the form of external providers, who engaged teachers with content and pedagogy development. This pedagogical development was often in a particular subject domain such as mathematics or literacy, and involved the development of Teaching-As-Inquiry.

The principals most often resourced this professional development through Ministry of Education funded curriculum initiatives (which were contracted to universities or consultants) which included: the implementation of the New Zealand Curriculum 2007, Accelerated Learning in Mathematics (ALiM), Accelerated Learning in Literacy (ALL), Positive Behaviour for Learning (PB4L) and Incredible Years programme, Asian Language Learning in Schools (ALLiS), National Standards, electronic-learning and digital technology, science, assessment for learning, Progress and Consistency Tool (PACT), Learning Progression Framework (LPF), Electronic Assessment Tools for Teaching and Learning (e-AsTTLe) and Teaching-As-Inquiry. Though the contracts were available within a narrow range of government priority areas of learning, the principals considered the Ministry contracts as an additional source of funding for their schools. Some principals expressed moral concern that the narrow range of contracts promoted a political rather than educational agenda. For example:

There should be some broad policy settings, but the whole idea of self-governing schools was that schools would adapt and work with their own particular communities, if there's too much policy coming from the top down, then it makes it difficult to do that, and in my opinion you have to resist it. (Principal B)

Three principals, from rural schools explained it was often difficult to access quality professional development providers for their schools due to their location and the travel time involved.

Seven principals believed it was important for the principal to participate in teachers' professional development. These seven principals described developing this belief from educational research

presented during the First-Time Principals' Programme and from the Best Evidence Synthesis research project. The principals believed participation in teachers' professional development was important for the implementation of teaching and learning in their schools, and for their role as a pedagogical leader. For example:

> *Being involved in professional learning is important and looking at the resourcing around how it should be implemented across the school. Providing those lead teachers with opportunities in terms of release and support and professional conversations was really important and then providing the opportunity for observations and feedback…when I started my first principalship and of course that coincided with the introduction of* [the New Zealand Curriculum, 2007] *which was quite a neat document to have in terms of leverage, to have an opportunity to rethink things and look at how we learnt and how we taught in our school. So those things were really important.* (Principal F)

While all 12 principals were involved in resourcing teachers' professional development, some principals did not attend or only occasionally attended teachers' professional development. These principals delegated leadership of the professional development to the external provider or other management (deputy principal, associate principal, team or syndicate leaders) and their pedagogical decision making was based on indirect reports rather than direct pedagogical engagement in classroom practice.

The principals of high-achieving schools retained their role as leaders of teaching and learning, even when they distributed tasks or roles to others, such as when an external expert provided content leadership or when a teacher was apprenticed into a leadership role. All 12 principals described that their confidence to distribute tasks to others increased over the decade of their tenure. For example, Principal E described how he retained his leadership oversight while distributing pedagogical leadership roles and administration tasks to others:

> *So there are things that can take you further away from some of that work you would like to be doing…early on in the piece my leadership approach and style was that of trying to be more sort of "all things to all people" and trying to solve lots of problems and have everything so smooth. But again, it is not my responsibility to be making sure or having everyone happy with different things – my job is to oversee that pedagogical leadership,*

the leadership for learning for our kids and within that there are different things that other people will take on. Just because I am not directly involved with it [doesn't meant that] *I don't have oversight or don't treat it as important, but having that deliberate step back to just having that shared responsibility and that is actually a leadership strength and not a leadership weakness.* (Principal E)

Findings showed that vicarious expertise influenced both the development and distribution of the principal's practices. Vicarious expertise also showed links to the third theme, in which leadership practices influenced the systems and structures within the principal's school.

Theme Three: The Influence of Structures and Systems

Principals influenced the development of systems and structures within their schools. Systems and structures can be described as, learning infrastructures, which are, "a process through which the assumptions of an organization are continually surfaced, challenged, and (if necessary) changed" (Kim, 2001, p. 43). The systems and structures were both abstract, such as ways of knowing, and concrete, such as practical ways of achieving tasks.

Systems and structures that were associated with high-achieving schools were:

- promoting reflective teaching practice,
- self-improving and responsive,
- aligned with educational research-based theories of action,
- purposeful, and
- consistently implemented.

Results showed that a clear, understood purpose was important so that the activity associated with the structure was effective. An example of purposeful structures is described by Principal E when his school restructured, from teaching teams within the same students' year levels, to teaching teams with a teacher representing each student's year level:

[When we changed to vertical teams, we] *spent two days together talking and unpacking again the purposes and the reasons and the research around what we are doing. The different principles that would look like and then how we would work in practice. We had one day that was our own time facilitated collaboratively together and then we had*

> *another day where we had some outside expertise* [on adult learning practices] …*So she came and spent the day with us so from there we had great dialogue and established the big structural side of things and the practice was leaning towards our vision.* (Principal E)

Effective structures appeared to require time to develop, evolve and embed. Results showed principals from high-achieving schools had all worked at their schools for at least ten years, while principals who showed similar pedagogical practices but had been at their schools for five years or less were associated with medium student achievement (achievement which was on or about the mean for their schools' deciles). The pedagogical practices associated with high-achieving schools included creating a collective vision for the school where core beliefs about education were consistent and aligned to practices for teaching and learning.

All principals showed that the development of systems and structures was initially based on their own values and beliefs about teaching and learning. However, self-improving systems modified over time as teachers developed collective responsibility for outcomes in teaching and learning. For example, Principal I implemented a TQM model within his school based on Kim's (1993, 2001) and Senge's (1994) learning organizations. Principal I structured the development of teacher pedagogy as "the continuous testing of experience, and the transformation of that experience into knowledge – accessible to the whole organization, and relevant to its core purpose" (Senge, 1994 p. 49), which he believed resulted in: teachers feeling personally empowered, teachers having a shared clarity of purpose with processes being aligned, a collective culture, improved quality of communication, and both personal and shared accountability.

While principals usually delegated the role of content expert to expert teachers or external providers, the principals of high-achieving schools retained their pedagogical leadership role. These principals provided systems and structures to align, implement and embed practices, established practices around critical conversations, checked for the engagement of staff, and ensured goals were not diffused by associations with other activities.

Only two principals referred to theoretical understandings of research which promoted adult learning. Both principals believed understanding how adults learn influenced how teachers worked together within inquiry teams and influenced the structure of professional development for teachers as adult learners. However, another eight principals implemented a variety of

coaching models within their schools to support critical reflection about teaching and learning. All ten principals resourced professional learning for themselves or their leadership team from external providers and then applied the learning within their school contexts. Most principals described financial constraints as part of their decision making process as to *if, who* or *how many* senior management teachers attended professional learning in coaching.

All 12 principals had participated in explicit teaching about *learning conversations* during the First-Time Principals' Programme (Robinson, 2007b). Learning conversations promoted teacher learning when the principal engaged with the teacher in explorative dialogue which balanced concern for the relationship and concern for the issue or problem being discussed (Argyris, 1990; Robinson & Lai, 2006; Stone et al., 2000). Principals in high-achieving schools, developed formal systems and structures to promote learning conversations between teachers. Mostly, these learning conversations were based within Teaching-As-Inquiry projects. The teachers were expected to be able to participate effectively in pairs or small groups based on their individual level of social skills or established group or coaching protocols. Eleven principals described mentoring as a structure for teachers' pedagogical learning and, as previously mentioned, eight principals engaged vicarious expertise to promote professional development in coaching for themselves and/or senior management.

Principals in high-achieving schools engaged in both formal and informal learning conversations throughout the school. Shared professional development and student achievement data often formed the basis of these learning conversations.

Principals of high-achieving schools appeared to purposefully align structures to their school's vision for teaching and learning. An example of this is shown by Principal E from a high-achieving school, who designed a structure (vertical learning teams) to influence teacher pedagogy through learning conversations:

> *One particular driver was to increase the depth and focus of learning conversation that was happening and would happen within teams. Previously we had been horizontal or junior— a Year Two team, a Year Three/Four team, a Year Five/Six team and what we had found with having the team structured in that way was that over a period of time, conversations had been more in and around stuff or items that had become sort of*

traditional of this is what you do at this level. And also we wanted to connect more and have discussions about principles of learning that apply from Year One through and beyond to use each other's expertise and experience and knowledge of learners at different stages… from a pedagogical leadership point of view…it was a vehicle for us to be increasing the pedagogical leadership at all levels of the leadership structure. And it has been really successful…increasing [student achievement and developing] *our Teaching-As-Inquiry processes.* (Principal E)

The development of systems and structures to embed pedagogy appeared to require time, and context appeared to influence the principal's initial practice. An example of the influence of context is shown by the use of learning conversations after a principal moved to a new school:

Where I was in [name of school] I didn't realise how blessed I was with the staff I had and their drive to better themselves was just ingrained and they did it naturally and it required very little steering from me. We had great conversations and people challenged me all the time but we were going in a common direction. Here, it is the reverse and when I first came here and the conversations I had, a number of people thought they were really good and knew a lot and there was a lot of, "It's the families' fault" or "The child's fault" around … so here it has been very much about trying to challenge, promote and extend teacher, to start implementing and improving teacher's capability. (Principal H)

As previously mentioned, two *small*, low decile schools showed as high-achieving schools. In both schools, the principals had developed collective visions associated with the schools' values and which were consistently linked to the schools' theories of action. Both principals exhibited a strong moral code of care and sought to influence the context of students by structured resourcing of the students' physiological and psychological needs. This influence to context was not apparent in the *large*, low decile school.

Theme Four: The Influence of Context and Events

Results indicated that context strongly influenced principals' professional development, students' achievement and principals' pedagogical practices. The contextual influences on principals'

practice, found within this research, are summarized in Table 4.15. All twelve principals believed resourcing was able to influence inequities produced by context.

Table 4.15

Contextual Influences on Principals' Practices

Context	Influence on Principals' Practices
Geographical location of school	Access to professional development Access to vicarious expertise Access to quality teaching staff Local curriculum development
Size of school	Resourcing proportional demands on operational budget Opportunities for distributed leadership
Student population demographics	Professional skill set of board of trustees Students' physiological needs Students' language needs Students' neurodevelopmental needs Family values and beliefs
Education system	Access to professional development Access to vicarious expertise Access to quality teaching staff Resourcing National educational priorities Legislation
Personal	Pedagogical knowledge Relational skills Organizational skills Support networks Alignment of beliefs and values (to school community, to education system)
Teachers	Pedagogical knowledge Capacity for change

The influence of context (size of school, isolation, rural/urban, region) was shown to produce inequitable outcomes with regard to access to professional development and access to vicarious expertise for principals. All 12 principals considered that central resourcing for principals' professional development was a major factor in producing equitable outcomes. The principals believed that the development of internet infrastructure, between 2007 and 2017, provided easier, quicker access to information and support for most principals, except for those principals in some isolated, rural areas.

Context was seen by principals as an influence on their work intensity including the opportunity to delegate tasks. Examples of this have been previously described in links to Phase One results.

While principals considered their schools' contexts (such as the socio-economic status of the student population) to be a factor that was reasonably consistent, all of the principals' practices were influenced by unpredicted events during their tenure. Some of the events included: "*one in one hundred year flooding",* the Canterbury earthquakes of 2010 and 2011, arson, and leaky buildings. Most principals indicated the unexpected event provided an opportunity to re-evaluate values and pedagogical beliefs that were important to them and their communities. When the event involved losses of buildings, these losses were subsequently followed by additional central government resourcing, which allowed principals to accelerate strategic goals.

Integration of Analysis One and Student Achievement Data

All 12 principals' leadership practices were influenced by their values and beliefs, vicarious expertise, systems and structures, and context and events. Though these influences were common to the 12 principals' leadership practice, the way in which the influences were enacted and combined by the principals of high-achieving schools showed the following commonalities:

- All the principals of high-achieving schools retained a strong pedagogical vision.
- All principals of high-achieving schools had been at the same school for ten years.
- All principals of high-achieving schools developed and implemented systems and structures which aligned with their school's vision for teaching and learning. The systems and structures were designed so that pedagogy was embedded but continually reviewed and improved.
- All principals of high-achieving schools distributed leadership tasks, but remained strongly aware of the enacted pedagogy throughout their schools. The principals were visible within the school and created opportunities to communicate their expectations and engage in pedagogical (and other) conversations with students, staff, the school community, and professional development providers.
- All principals of high-achieving schools were "pedagogically aware" of what occurred in their schools and continued to develop their curriculum content and pedagogical knowledge alongside teachers through professional development provided by vicarious experts. This awareness appeared to strengthen their decision making, target their resourcing, and enhance their questioning about pedagogy.

- All principals of high-achieving, *small,* low-decile schools effectively used resources to influence contextual barriers to learning.

After completing the inductive reflexive thematic analysis, the qualitative data from the 12 interviews and the documents were analysed using a deductive reflexive thematic analysis (Clarke & Braun, 2006, 2016). Results from the deductive analysis will be described in the following section.

Findings from the Deductive Responsive Thematic Analysis

The deductive RTA analysed the principals' leadership practices in response to complex problems, with evidence of the leadership actions triangulated by school documents. An example of the range of complex problems identified within the interviews is shown by Principal E who was attending to the following problems or issues within her school: inconsistency of staff responses to student behaviour, resourcing students with special needs, development of student self-efficacy to enhance student achievement, raising teacher expectations of student achievement, development of home and school relationships to enhance transition to school, building leadership capacity, analysis of data and development of strategic goals, development of problem-solving skills, teacher implementation of inquiry to raise student achievement, changing teachers' assessment practices, raising student achievement for English language learners, changing teacher practice to raise student achievement in literacy, changing staff pedagogy to enhance professional learning conversations, influencing socio-cultural and socio-economic factors which affect student attendance and reduce equity of access (transience, immigration, home-schooling, violence in home, lack of money for raincoats/uniforms/food/ school trips), fundraising to supplement government grants, raising student achievement for students with low levels of oral language, loss of pedagogical knowledge from staff turn-over, and dealing with competition for students between local schools.

Documents provided triangulated evidence of the principal's practice. For example, Principal E, in response to the problem of raising student achievement for students with low levels of oral English strategically resourced an intervention involving the use of teacher aides within classrooms. The evidence showed Principal E: resourced the intervention, established expectations of how the teacher aides worked with teachers within the classrooms, distributed

day-to-day leadership of the teacher aide to the classroom teacher, and monitored the use of the teachers' aides to align with priority teaching goals.

All 12 principals showed evidence of using each of the eight Leadership Dimensions (Robinson et al., 2009) within their leadership practice. A ninth practice, that of Reflection, was added to account for leadership practices which could not be coded within the existing framework. The leadership practices identified in the deductive reflexive analysis are shown in Table 4.16.

Table 4.16

Summary of Leadership Practices from Deductive Reflexive Thematic Analysis

Leadership Dimension		**Meaning of dimension**
1	Establishing goals and expectations	Includes setting, communicating, and monitoring ***a personal and collective vision,*** learning goals, standards, and expectations and the involvement of staff and others in the process so that there is clarity and consensus about goals.
2	Resourcing strategically	Involves aligning resource selection and allocation to priority teaching goals. Includes provision of appropriate expertise through staff recruitment.
3	Planning, coordinating, and evaluating teaching and the curriculum	Direct involvement in the support and evaluation of teaching through regular classroom visits and provision of formative and summative feedback to teachers. Direct oversight of curriculum through school-wide coordination across the classes and year levels and alignment to school goals.
4	Promoting and participating in teacher learning and development	Leadership that not only promotes but directly participates with teachers in formal or informal professional learning, which focuses on the relationship between teaching and learning, and promotes collective responsibility for student achievement and well-being. ***Understands and engages in best practice for adult learners (Knowles, 2012). Develops systems and relationships to enhance a professional community of learning (Darling-Hammond et al., 2017, Lave & Wenger, 1991). Distributes practice (Leithwood et al., 2007).***
5	Ensuring an orderly and supportive environment	Protecting time for teaching and learning by reducing external pressures and interruptions and establishing an orderly and supportive environment both inside and outside the classrooms.
6	Creating educationally powerful connections	Establish continuities between student identity and school practices, ***to create a fostering school culture***, and coherence in across teaching programmes, ensuring effective transitions between educational settings. ***Manages conflict and team-building, delegates, consults and networks (Yukl, 2008). Fosters home-school relationships.***
7	Engaging in constructive problem talk	Being able to name, describe and analyse theories of action, which link what teachers do, to their beliefs and values, and the intended or unintended consequences of their actions.
8	Selecting, developing, and using smart tools	Develop the use of tools including policies, procedures, reports and assessments which align to their intended purpose, and make clear connections to teaching and learning goals.
9	***Reflection***	***Develop and evaluate own beliefs & values, theories of action and their impact on people and tasks; development of moral, philosophical, and global awareness, and impact of actions within and beyond the organization (Bottery, 2004).***

Note: Adapted from Robinson, Hohepa and Lloyd (2009, p.95). Italics and bold font indicate additional criteria and links to supporting research.

The findings from the inductive analysis and the deductive analysis are integrated in Table 4.17. Structural and system *alignment* was shown as an influence in five of the Leadership Dimensions: establishing goals and expectations; planning, coordinating, and evaluating teaching and the curriculum; ensuring an orderly and supportive environment; creating educationally powerful connections; and, selecting, developing, and using smart tools.

Table 4.17

Integration of Findings from Analysis One and Analysis Two

Leadership Dimension from Analysis Two	**Themes from Analysis One**
Establishing goals and expectations	Principal's personal beliefs and values influenced the basis of the collective vision Importance of alignment to teaching and learning activities Pedagogical theory of action for principal's educational beliefs associated with high-achieving schools
. Resourcing strategically	Resourcing affected by school context Beliefs that equality is addressed by resourcing Focus on resourcing appears to diminish pedagogical focus
. Planning, coordinating, and evaluating teaching and the curriculum	Importance of alignment of vision to teaching and learning activities
. Promoting and participating in teacher learning and development	Principals with strong pedagogical knowledge and who participated in teachers' professional development associated with high achieving schools Cyclical, self-improving systems associated with high-achieving schools
. Ensuring an orderly and supportive environment	Priority at beginning of tenure Importance of alignment of vision to teaching and learning activities through cyclical, self-improving systems and structures
. Creating educationally powerful connections	Importance of alignment of vision to teaching and learning activities Adverse events opportunities for building shared culture and reinforce what is valued
. Engaging in constructive problem talk	Associated with principal engagement in teachers' professional development Planned opportunities for talk provided by systems and structures Principals' engagement in constructive problem talk associated with high achieving schools
. Selecting, developing, and using smart tools	Importance of alignment of vision to teaching and learning activities
. Reflection	Reduced by work intensity Informal reflection with peer networks Formal reflection with mentor/supervisor/coach Appeared to become more moral, philosophical, global during tenure

Integration and Summary of Phase Two Analyses

The Phase Two inductive results showed that all 12 principals' practices influenced or were influenced by: values and beliefs, context and events, vicarious expertise, and systems and structures leadership practices. However, some specific practices which were linked to principals of high-achieving schools. These principals:

- had worked at the same school for at least ten years,
- consistently attended teachers' professional development,
- consistently engaged in formal and informal learning conversations,
- developed self-improving structures and systems to embed and monitor pedagogy, and
- had well-developed and updated pedagogical content knowledge.

The Phase Two deductive RTA findings showed that all 12 principals engaged in practices from Leadership Dimensions which had formed part of the theory for their principal preparation programme. The emphasis placed on particular Leadership Dimensions within the principals' practice appeared linked to their values and beliefs. Considerations regarding resourcing were involved in most decisions. Work intensity affected leadership practices and was particularly associated with new learning in early career, changes to legislation and to personal and school contexts.

The following chapter discusses the findings in relation to existing literature and provides insight into how New Zealand primary school principals develop their leadership practice and how those leadership practices might influence students' achievement gains within their schools.

Chapter Five— Discussion

The aim of this study was to investigate how New Zealand primary school principals influence teaching and learning within their schools, and how the principals develop their leadership practices. The study employed a mixed methods research design and took place in two phases. In Phase One, a questionnaire was used to explore how 67 principals who completed the First-Time Principals' Programme in 2007 had developed their practices in the decade to 2017. In Phase Two, twelve of these principals participated in interviews. The interviews were analysed twice using Reflexive Thematic Analysis (Clarke & Braun, 2016). The first analysis of the interviews utilized inductive RTA, in which data were coded as an interpretation of ideas described within the content of the interviews. The second analysis utilized deductive RTA, in which principals' actions in response to pedagogical problems were coded against Robinson et al.'s pre-existing framework of Leadership Dimensions (2009). Documents triangulated interview data by providing evidence of principals' actions. These analyses were integrated as four major themes that explored the principals' leadership practice in the contexts of their schools and the influence of those leadership practices on students' achievement.

This chapter discusses the combined results from the two phases in relation to the published literature. The discussion is organized in two sections.

The first section discusses the findings in relation to pedagogical leadership and its influence within leadership practice and student achievement in New Zealand primary schools. Principals are shown to both directly and indirectly influence student achievement through:

- their values and beliefs,
- the systems and structures they develop within their schools,
- the vicarious expertise engaged to develop their own and teachers' pedagogical content knowledge and practice, and
- attending to the constraints and affordances of context and events.

Reciprocal influences are also shown between the four themes such as the influence of principals' values and beliefs on the systems and structures they develop within their schools, and the

influence of context on the development of the principals' values and beliefs. While the discussion is organized according to the findings, the first section of the discussion implicitly focuses on two of the research questions:

1. What do New Zealand primary school principals do to ensure decisions are informed by knowledge about effective pedagogy?
2. What evidence is there of pedagogical leadership influencing student achievement in the New Zealand primary school context?

This section summarizes particular leadership practices which were associated with high achieving schools from the study and concludes by emphasizing the importance of pedagogical leadership to student achievement.

The second section of this chapter discusses the study findings in relation to principals' professional learning and thus implicitly focuses on the third research question:

3. How do New Zealand primary principals develop their knowledge, skills, and dispositions for leadership?

The second section identifies constraints and affordances to principals' professional learning from structures within the New Zealand education system. The findings showed that values and beliefs, structures and systems, vicarious expertise and context influenced the development of principals' professional learning. These influences could be personal, school and community based, or influences from the larger system in which the principals practised. The influences showed reciprocal connections. The second section of the discussion is organized to reflect the interconnectedness of these influences in which principals' professional learning is shown to be influenced by:

- the heuristic nature of the New Zealand education system which is structured to support principals' individual choice and be responsive to individual contexts;
- knowledge of pedagogy and curriculum, adult learning and communities of learning processes;
- disparities in access to professional learning;

- work intensity; and
- vicarious expertise in the form of peer-networks and mentors.

The implications of these constraints and affordances to principals' professional learning are discussed and will be linked to subsequent recommendations in the concluding chapter.

Part One: Influence of Principals' Leadership Practices on Student Achievement

Influence of Values and Beliefs

Similar to Notman's case study findings (2005), the findings from this mixed methods study showed all 12 primary school principals' leadership was influenced by their values and beliefs about education and people. The study showed that each principal assumed their first principalship with strong personal beliefs and values about teaching and learning, as well as a vision for education within their schools. The principals' values and beliefs also influenced their relational interactions with others.

Principals' Epistemological Influence. The principals' hierarchal positions and their roles as leaders of learning enabled the principals' personal values and beliefs to strongly influence the development of a collective vision and culture, and the dominant theories of action used within their schools (Hallinger et al., 2018). Hence, the principals' values and beliefs influenced what was considered important knowledge within the school for both students and teachers—how they learned and what they thought was important to learn. Principals' values and beliefs influenced the principals' focus on teaching and learning, and their decision making.

Time to Influence. While all 12 principals had strong values and beliefs about education, these values and beliefs alone were not sufficient to increase student achievement. Both the types of values and beliefs the principals held and the principal's length of tenure at the school, together, appeared to influence student achievement outcomes. The study showed that all five high-achieving schools were led by principals with strong pedagogical beliefs and who had been at their school for at least ten years. In comparison, principals with a non-pedagogical paradigm led medium-achieving or low-achieving schools, and principals with strong pedagogical beliefs, who had been employed in their current school for five years or less, led low-achieving or medium-achieving schools. While not attempting to generalize the findings given the small sample number

of principals, the influence on student achievement of a principal who focuses on teaching and learning is well-supported by literature in the field (Alieg-Mielcarek & Hoy, 2005; Hallinger & Heck, 1985; Hallinger & Wang, 2015; Robinson et al., 2009; Shatzer et al., 2014). The findings suggest, that to influence student achievement, principals require both a focus on teaching and learning, and time to influence practices within their schools.

This assertion is further supported by the study's findings which showed an important leadership practice was to align learning and teaching activities to goals and expectations, including theories of action. This bespoke development of pedagogy required time as it involved shifting others' similar and dissimilar values and beliefs toward the principal's vision. Time within shared activities was required—for exposure to and interpretation of new ideas, experimentation, local adoption and evaluation—to establish a shared, collective core of knowledge and pedagogy (Cardno & Young, 2013; Earl & Timperley, 2008; Lai & McNaughton, 2010; Mulford & Silins, 2011; Notman, 2012; Robertson, 2016).

Pedagogical Content Knowledge. Raising student achievement was more effective for principals who based their theories of action on strong pedagogical content knowledge. For example, Principal K, who led a high-achieving school, implemented *Flexible/Modern/Innovative Learning Environments*[12] as a theory of action which would enhance student achievement by encouraging students' self-directed learning and opportunities for explicit teaching. From attending teachers' and principals' professional development, as well as her own professional reading, Principal K understood that teachers' collaborative discussion about their practice was an antecedent for effective student achievement gains in the FLE. This principal visited classrooms daily and talked with teachers about her informal, learning observations. Principal K noticed that when teachers worked in pairs, one teacher often dominated discussions. In response to this observation and to research, the principal reorganized the FLE so teachers worked as triplets. This re-organization restructured the teachers' talk so that it was distributed more evenly between the group members. Principal K also noticed that some teaching teams had decided to distribute their workload with each teacher taking responsibility for teaching different

[12] (FLE) Flexible learning environments consist of multiple spaces for many types of individual and group-based teaching and learning activities, in which pedagogy focuses on student-centred learning and collaborative teaching practices (Wall, 2016). In New Zealand, FLE are also known as modern or innovative learning environments.

aspects of the curriculum (e.g., one teacher taught reading, another teacher taught mathematics). This distribution reduced the teachers' collective, pedagogical discussions as the teachers planned, assessed and taught separate subject areas. Subsequently, Principal K adjusted the system to require teachers to work together to teach all of the curriculum (e.g., all three teachers taught reading groups). This adjustment increased the teachers' work intensity as they required more time to coordinate their teaching practice and develop responses to students' learning needs. However, Principal K attributed this daily feedback between colleagues as one reason for increased student achievement within her school.

Principal K's leadership practices show that she was pedagogically informed, aware of implemented teaching practice within the school and engaged in multiple opportunities to discuss pedagogy with teachers. These practices are consistent with effective leadership practices where the principal maintains high visibility (Andrews & Soder, 1987; Cotton, 2003; Marzano et al., 2005) and is an instructional resource (Ash & Hodge, 2016; Hallinger, 2011; Leithwood & Sun, 2012; Robinson et al., 2009). In comparison, a principal of a low-achieving school who had an organizational theory of action, agreed with FLE teachers that it was more efficient for each teacher to assume responsibility for a particular aspect of the curriculum so that time was not "wasted" duplicating planning and assessment, and with implementing explicit teaching goals. This organizational decision reduced opportunities for shared, pedagogical discussions between the teachers. This principal and two other principals, whose leadership practices emphasized TQM organizational models, delegated the roles of promoting and participating in teacher learning and development. These three principals also delegated engaging in problem-solving talk with teachers to other senior management or external curriculum providers, while the principals focused on developing transformative goals for the organization and resourcing these goals.

Though both examples provide evidence of the influence of principals' values and beliefs on the development of systems and structures within schools, the examples also provide a contrast in outcomes for student achievement between the educational beliefs of the two principals. Both schools were the same decile and therefore had similar student populations, but the schools' student achievement contrasted. This contrast may support the argument that principals require a strong pedagogical base reflected in their decision making to influence student achievement (Robinson et al., 2009), as the high-achieving school's principal had a strong pedagogical base

to decision making while the low-achieving principal had an organizational base to decision making.

A strong pedagogical leadership focus and the continual development of pedagogical content knowledge was shown by the principals of all five high-achieving schools and provided evidence as to the importance of the influence of the principals' pedagogical content knowledge to the achievement of students within their schools.

Participation in Teachers' Professional Development. One way that principals continued to develop their pedagogical content knowledge was through participation in teachers' professional development. However, not all principals participated in teachers' professional learning. Previous professional learning, during the First-Time Principals' Programme, had emphasized the importance of principals' participation during teachers' professional development as influencing students' achievement (Alig-Mielcarek & Hoy, 2005; Blasé & Blasé, 2000; Hallinger & Heck, 1998; Robinson et al., 2009). So why did some principals choose not to participate in teachers' professional development?

Further evidence from this study indicated that non-attendance by principals during teachers' professional development was linked to the principals' values and beliefs. For example, principals who emphasized organizational rather than pedagogical approaches to leadership of teaching and learning were less likely to attend teachers' professional development and more likely to delegate attendance to other senior management. These principals believed they had de-skilled from the classroom and their role was to manage the teachers through resourcing the teachers' professional development and through the establishment of school goals and expectations.

Principals' values and beliefs influenced the development of common goals and expectations, the building of the school culture, and the management of teaching and learning. Time was required to influence pedagogical values, beliefs and knowledge held within the school community. Structures and systems were an important process for the development of this alignment and shared understanding.

Influence of Structures and Systems

The principal's influence on structures and systems is important, as it is through structures and systems that knowledge about teaching and learning is assimilated and accommodated within the learning community. Principals' influence involved both participation in the learning community and enhancement of the structures and systems (or processes) for learning within the community.

Alignment. The leadership practice of establishing systems and structures appeared to influence the alignment of learning and teaching activities to goals and expectations. Some systems and structures were more effective than others, and showed they were responsive to context. Two important features of the systems and structures appeared to be that the structures provide opportunities for the regular sharing of ideas related to practice and that the systems were designed in such a way as to allow for system-improvement over time. Systems and structures influenced abstract ways of knowing and practical ways of achieving tasks in a wide variety of examples. Some examples included: whether principals based staff meetings on professional development or administrative matters; how teaching teams were organized in vertical or horizontal year groups; processes for the implementation and monitoring of action-research projects; ways of assessing and reporting student achievement; the organization and emphases for curriculum delivery within schools; facilitation and integration of teachers' professional development; and, social mores for participation in teacher discussions and interacting with others.

In all 12 schools, the principals' values and beliefs formed the basis for their theories of action and hence the development of structures for reflective practice (such as action research or Teaching-As-Inquiry projects) within their schools. The findings appeared to show that reflective practice models of the high-achieving schools had, over time, developed structures which were:

- purposeful, cyclical, self-improving, aligned to goals and expectations for teaching and learning;
- linked to monitoring and reporting;
- based on problem-solving talk and actions;
- had visible involvement of the principal; and

- utilized external experts in the development and facilitation of processes and pedagogical content.

Coherent and Self-Improving Structures. This study, which involved primary principals, showed similar findings to previous New Zealand secondary school studies (Bendikson, 2011; Gibbs, 2017; Highfield, 2012) in that the development of systems and structures by the leader, supported and contributed to organizational coherence, and created and maintained a culture of improvement. The systems and structures provided a transformational, distributive and pedagogical mechanism by which principals influenced teaching practice through the establishment of school culture (Marzano et al. 2003; Waters & Cameron, 2007) and the provision of a collaborative forum in which to discuss and improve practice (Cotton, 2003; Leithwood & Sun 2012; Robinson et al., 2007). The principal's influence on the development of systems and structures to improve student achievement is consistent with school effectiveness research (Aldridge & Fraser, 2018; Andrews & Soder, 1987; Bellibas & Liu, 2018, Goddard et al., 2010; May et al., 2012; Mulford & Silins, 2003; Timperley & Parr, 2010; Vescio et al., 2008) and communities of practice research (Lantz-Andersson et al., 2018; Spillane et al., 2004; Wenger & Lave, 1991).

Collaborative Talk. The structures and systems that promoted pedagogical discussions between principals and teachers, between teachers and other teachers, and between vicarious experts and teachers, were of particular importance to principals of the high-achieving schools. Within their schools, the promotion of pedagogical discussions was supported by systems and structures that distributed talk within communities of practice and was often stimulated by teachers' professional development or teachers' reflection about teaching and learning practices. The principal's attendance during teachers' professional development appeared to communicate additional importance to the activity for teachers, developed relationships through engagement in a common activity, encouraged collective responsibility for problem-solving and provided opportunities to develop a shared understanding of theoretical pedagogy. This shared understanding of pedagogical content allowed principals to make stronger connections to teaching practice in subsequent, formal and informal discussions with teachers and is consistent with other New Zealand literature regarding learning conversations (Earl & Timperley, 2008; Le Fevre et al. 2015; Robinson, 2017).

Managed Dissonance. Through the establishment of professional learning communities within the school, principals were able to distribute and develop collective responsibility for learning conversations, through which teachers critically examined and improved their practice. Teacher-talk about teaching and learning was initiated in response to dissonance. Dissonance is a period of disequilibrium in which the learner reorganizes or reconceptualizes previous ideas or concepts in response to new information (Wadsworth, 1979). If the new information compares favourably with existing ideas, the information is assimilated or accommodated, enlarging the idea's cognitive reference. If the new information compares unfavourably it is rejected. Within this Piagetian theory, dialogue facilitates the learner's exposure to new information causing individuals to clarify, develop, expand and elaborate their thinking in defence of particular ideas. Within the professional learning community, dissonance usually occurred through exposure to new curriculum content and pedagogy (professional development), and through exploring problems of practice associated with classroom achievement.

An example of a structure which created managed dissonance to enable new learning in School E was vertical learning teams. Principal E, who led a high-achieving school, implemented vertical learning teams as a theory of action which would enhance student achievement. This vertical learning was not streaming students of similar ability and different ages to work together. Instead, teachers, who represented one student year level, were grouped in teams with other teachers who taught at different student year levels (e.g., each team had a Year 1 classroom teacher, a Year 2 classroom teacher, a Year 3 classroom teacher and so on). The collaborative teaching teams met regularly to talk and explore problems of teaching practice represented within their students' age range of Years' 1-6. Traditionally in larger New Zealand schools, teachers plan, assess and reflect on teaching and learning with other teachers who teach students at the same year level or immediately adjacent year levels, for example, all teachers of Year 1 students work as a team. From professional development and reading, Principal E understood dialogue between teachers of different year groups would develop teachers' curriculum knowledge, and enhance learning continuity and achievement expectations. Over time, Principal E considered that the vertical structure of teachers' groups had increased student achievement, developed the effectiveness of teachers' reflection for teaching and learning, and increased pedagogical leadership throughout the school.

The implementation of vertical learning teams is a particular example of principals' decision making being informed by pedagogical purposes and highlights the importance of principals continuing to develop both pedagogical content knowledge and knowledge of processes which enhance adult communities of learning.

Principals with a pedagogical focus believed they attended teachers' professional development both as learners, alongside teachers, and as leaders, to influence the integration of knowledge into practice. New learning required time and could negate the principals' and teachers' involvement in other tasks. In this way, structures designed to promote new learning could unintentionally impede student achievement. For example, an increase in teachers' attendance at multiple professional development or administration meetings decreased the amount of time available for daily classroom teaching preparation.

Influence of Context and Events

The study showed that context influenced the principals' focus on teaching and learning. Context influenced the:

- values and beliefs of the learning community,
- development of systems and structures within schools,
- physical, emotional and social wellbeing of students and hence their readiness to learn,
- school and community resourcing,
- principals' work intensities, and
- opportunities to distribute tasks or roles.

Contextual constraints and affordances which influenced the principals' practice could be relatively stable (such as challenges associated with the socio-economic population of the school students) or unexpected (such as changes to national educational priorities when a centre left government replaced a centre right government in 2008). Unexpected contextual change also occurred as the result of other unplanned events (such as an earthquake, fire or flood). These unexpected events provided a period of dissonance in which the principal and school community reflected on what they considered were important values and re-aligned learning goals against these values.

As in previous research which demonstrated the influence of context on principals' practices (Clarke & Wildy, 2013; Southworth, 2003), the findings from this study showed the process of establishing the systems and structures required time in the context of a particular school to affect relational trust, modify cultural mores and adapt teaching and learning practices. This time-requirement to influence change was highlighted in the study by examples of principals who changed schools and could not immediately establish systems which had been effective at their previous schools.

The process of establishing the systems and structures was influenced by context and group members. For example, findings from this study indicated the early establishment of systems and structures involved creating a safe and orderly environment. Without a safe and orderly environment, other pedagogical foci could not be implemented. This indication is consistent with the literature (Day, 2009; Day & Sammons, 2013; Jacobson, 2011, Klar & Brewer, 2013; May et al., 2012) and, as with other studies, was shown to be particularly challenging in the context of low socio-economic student populations (Day et al., 2016; Notman, 2015; Seashore-Louis et al., 2010).

Resourcing to Influence Context. Leadership is both embedded in, and influenced by, context such as school size, organizational culture, community characteristics and geographical location, resourcing and political climate (Bredeson et al., 2011). Bredeson et al.'s study described how some principals showed context-responsive leadership, that is, the principals knew "when, where, why, and how to push back or reshape elements of context in order to provide a more favourable environment for achieving priorities and goals" (p. 20). Within this study, some principals showed context-responsive leadership and, in particular, two principals appeared to influence student achievement by influencing their students' contexts. Two principals, who established safe and orderly environments with low socio-economic student populations, influenced their school contexts by resourcing the basic needs of students through their schools and other agencies. The two principals developed systems to increase students' physical, emotional and social wellbeing by providing food, housing, clothing, safety and a sense of belonging for students as precursors to learning. It was noted that both these principals were employed at small schools and had been at their schools for at least ten years, so they had more direct contact, and hence influence, within the school community, as well as time to implement interventions. In contrast, other principals, of

schools with low socio-economic populations and low student achievement, had been employed for five years or less, so possibly had less time to establish systems and relationships. These principals of lower-achieving schools also had large school populations, and therefore a greater level of needs to influence and were less likely to have direct contact with all school community members.

While these examples of low socio-economic schools demonstrate contrasting student outcomes, both types of examples show that external contextual variables influenced the principals' leadership practice and hence student achievement. The two principals, who successfully influenced their contexts, did so by resourcing and by building an alternative cultural narrative for the community, as a base on which to build teaching and learning. While these examples may be interpreted through transformational leadership approaches and school effectiveness literature as examples of *heroic* principals (Branch et al. 2005; Leithwood & Sun, 2012; Marzano et al., 2005), pragmatically the examples indicate that resourcing influences student achievement. Mitigating the contextual influences on student achievement of low socio-economic populations would appear to be more than the responsibility of individual principals and may be better served, as suggested by Fullan (2013), through systemic policies such as resourcing policies.

Resourcing accelerates the achievement of planned goals. This assertion was further evidenced within the study when schools received extra funding after unexpected events such as earthquake, fire and flood. The principals were able to enact pedagogical goals sooner than planned.

Work Intensity Reduces Pedagogical Focus. The study showed context influenced principals' focus on teaching and learning, particularly by influencing principals' work intensity. This finding is consistent with other studies which showed a high administrative work intensity diminished principal's pedagogical focus (Burgon, 2012; Dempster, 2011; OECD, 2019). The impact of a high administrative workload on principal wellbeing and capacity to schedule time for educational leadership, has been a recognized problem in national New Zealand principal surveys (New Zealand Education Institute, 2019b; Wylie et al., 2018; Wylie & Hodgen, 2020). However, this study provides evidence which shows how New Zealand's self-managing school system actually reduces principals' focus on teaching and learning particularly with changes in legislation,

resourcing procedures, management of building projects, and the intensity of early career learning. Principals, in the study, used a range of solutions to minimize administrative work intensity such as: working longer hours, seeking vicarious expertise in managing or distributing tasks, and prioritizing values-informed activities.

Contextual Influences on Small Schools. Principals of smaller schools showed the greatest work intensities. These principals maintained a strong pedagogical focus and they directly influenced student achievement. The study showed the influence of values and beliefs through the principals' decision making, in that these principals chose to prioritize teaching and learning before administrative tasks. Teaching-principals were less likely to have time to develop systems and structures to support the improvement of learning as they were responding to immediate needs. However, the development of formal systems and structures to influence teaching and learning might be less important in the context of small schools. In small schools, there are only two or three teachers with whom to directly communicate and thus information is more rapidly disseminated and embedded. The study showed that in small schools, professional learning provided by external contractors immediately affected teaching and learning, and influenced student achievement gains. This example suggests that pedagogical content knowledge is important when influencing student achievement gains, rather than relying solely on shared norms and shared responsibility. When the principal directly participated in teachers' professional learning, s/he promoted the development of collective norms (which is emphasized in transformative leadership approaches) and shared responsibility for learning within the professional community (which is emphasized within distributive leadership approaches). However, the small schools example, where principals have a direct influence on teaching, showed that student achievement gains occurred after the development of the principals' pedagogical content knowledge.

Increases to principals' pedagogical content knowledge directly influenced student achievement in smaller schools where principals had a direct teaching component. However, pedagogical content knowledge also influenced student achievement in larger schools when principals employed their pedagogical knowledge in conversations with teachers and in the development of systems and structures to enhance adult learning, in particular, the number and quality of teaching and learning conversations within their schools.

Influence of Vicarious Expertise

Though the concept of vicarious expertise is more fully discussed in relation to principal's professional learning, vicarious expertise is mentioned as relevant to the influences of pedagogical leadership to student achievement. As previously stated, a single principal cannot embody the required expertise within the multiplicity of his or her roles for leadership of a school (Huber & Muijs, 2010). The knowledge, skills and dispositions a principal brings to the role are influenced by both personal and other contextual variables (Hallinger, Bickman, & Davis, 1996). The principal may require a vicarious expert, someone with more expertise, to temporarily fulfil a role or undertake particular tasks while the principal assumes the role of apprentice until s/he acquires competency in the task or role.

Effects of Delegation. Sometimes the principal permanently delegated a role or task to others such as a deputy principal or administrator which allowed the principal to focus on other priorities. However, this study indicated that student achievement was lower when the principal's focus on teaching and learning was reduced. Principals reduced their focus on teaching and learning when their work intensity increased, and pedagogical leadership was delegated to others. This delegation reduced the principals' participation in teachers' professional development and involvement in learning conversations which appeared to influence student achievement.

The study showed principals' non-attendance during teachers' professional development was linked to work intensity (as well as to the principals' values and beliefs). Most principals distributed leadership based on workload rather than a plan to systematically identify and build leadership capacity

Findings showed that, strong pedagogical leadership from other senior management or a contracted facilitator did not result in high student achievement when the principal chose to delegate the role of leader-of-teaching-and-learning. However, principals who delegated aspects of tasks and roles to others, but remained involved in teacher learning and development appeared in the high achieving schools' data. Together these findings appear to show that delegation per se may not negate student achievement but that principal visibility or presence is important in the development and maintenance of the community of practice. The finding also suggests that the influence of positional authority may be enhanced by participation.

As leaders of teaching and learning within the school (Ministry of Education, 2008), principals are not expected to be experts in all areas of the curriculum (Robinson, 2017). However, findings showed that to better influence student achievement, principals continued to develop their own pedagogical content knowledge and that of teachers through resourcing external contractors. These external contractors acted as vicarious experts and were an important source of new ideas concerning pedagogy and curriculum content within the learning community. While external expertise has been previously criticized as "typically necessary but not sufficient" (Timperley et al., 2007, p. xxvii) to impact student achievement, this study showed student achievement was enhanced when research and practices promoted by external expertise were accommodated or assimilated (Wadsworth, 1979) through established processes within the structures and systems of the professional learning community of the school.

Within the autonomy of the New Zealand education system, not all the principals underpinned their practice with a focus on teaching and learning. This lack of focus on pedagogical leadership was contrary to research emphasized within the First-Time Principals' Programme which had been completed by all the principals from this study. The following section seeks to explain this variation by summarizing the development of the New Zealand primary principals' knowledge, skills and dispositions within the study.

Part Two: Principals' Development of Knowledge, Skills and Dispositions for Leadership

This study sought to describe how New Zealand primary school principals developed their leadership practice during a ten-year period since their participation in a national, principal preparation programme in 2007. This section of the discussion chapter describes the principals' professional learning in relation to the literature. While the previous section of the discussion emphasized the importance of principals' pedagogical content knowledge in influencing student achievement, this section considers how principals developed that knowledge.

In New Zealand, there is a wide range of choice for individual principals to develop their practice. Given the heuristic nature of professional learning, is the development of pedagogical content knowledge likely to form part of the principals' professional learning? Also, given the autonomy of

the New Zealand education system, what structures, if any, give school leaders the "time, capacity and support to focus on the practices most likely to improve student learning" (Pont et al., 2008, p. 10)?

Heuristic Professional Learning

The principals in this study developed their knowledge, skills and dispositions for leadership throughout their lives. This is in keeping with Malcolm's previous findings (2012) in that, New Zealand primary school principals engage in a range of professional development from contextually-based informal learning to formal learning programmes and tertiary qualifications. The current study showed the range of influences on this development began with the formation of values and beliefs in childhood and continued with early schooling experiences, teacher training and experiences, role models, professional courses and programmes, on-the-job experiences, performance management, professional reading and professional learning groups.

In this current study, personal and external contexts were shown to influence the development of the principals' leadership practices. While professional learning was stimulated by personal beliefs and interests, system requirements, organizational problem solving, and participation in communities of practice, professional learning could be limited by contextual factors such as resourcing and accessibility. These limitations included: inequities of access to professional learning groups and vicarious expertise due to the geographical location of the school and inequities of resourcing for smaller schools. Other contextual factors also influenced professional learning such as student population demographics, national education system priorities, and regional sources of vicarious expertise.

The principals in this study had preferred sources of learning. These learning preferences might be linked to principals' preferences for processing information, as research has shown adult learners are more likely to prefer modes of learning that support their preferred approaches to processing information (Sadler-Smith et al., 2000). The heuristic structure of professional learning for primary school principals in New Zealand accommodates individuals pursuing their own learning goals and preferred modes of learning. However, if particular learning is not presented as one of the principal's preferred modes of learning, does the principal more easily ignore or choose not to access that learning? Further to the study, support for this consideration is shown

by the Best Evidence Synthesis (BES) Project which aimed to strategically use research to "improve education at a system level" (Alton-Lee, 2012, p. 5). The BES findings consolidated ideas about best education practice and were delivered to principals as comprehensive (approximately 300 page) documents at the time in which the principals from this study began their principalship. Effort was made to utilize professional rather than research language. However, without further discussions and support in trialling practical applications of the findings within all schools, the BES research remained relatively extant from principals' professional learning and therefore, unimplemented. In contrast, the Experienced Principals' Development Programme was designed to develop principals' professional learning and implementation of Teaching-As-Inquiry projects (Ministry of Education, 2007). The programme brought principals and researchers together to develop an understanding of the action research model of Teaching-As-Inquiry in the principals' own schools to raise student achievement. Some principals from the current study participated in this programme, however, the programme ended after only 18 months in 2010. This was due to reallocation of resources to implement the new, centre-right government's priorities for national standards. Subsequently, understandings of the Teaching-As-Inquiry model became largely reliant on the limited number of principals who had postgraduate qualifications involving action research. This unsupported implementation may be one reason that Teaching-As-Inquiry was poorly implemented within schools (Education Review Office, 2011; Timperley & Parr, 2010), though later professional learning contracts for schools attempted to address this disparity (Timperley et al., 2014). Both these examples and the study findings highlight the need for support structures which provide opportunities for principals to consider and implement best practice research.

Principals' values and beliefs were demonstrated by a moral and philosophical awareness of the influences of their practices in tasks and with people within the school community. Early in the principals' careers this consideration of influence appeared to focus on the principals' local context. During the decade, as the principals became more experienced in their roles, the principals appeared to consider wider contextual influences on education such as national and global contexts. For example, principals became involved in leading leadership groups and sharing presentations for others' professional development outside their own schools. While these

activities benefitted other principals and teachers, the activities also initiated reflection, in the summarizing and refinement of ideas, precipitating evaluation and new learning for the principal.

Principals' Knowledge of Adult Learning

As with a recent Australian report (Australian Institute for Teaching and School Leadership, 2015), findings showed that most of the principals' pedagogical content knowledge was developed while they were classroom teachers and formed the foundation for principals' pedagogical leadership. Furthermore, this current study demonstrated that principals continued to develop their pedagogical content knowledge with the support of curriculum and pedagogy experts when the principals participated in teachers' professional development.

Qualitative data suggested that strong classroom practitioners had become strong pedagogical leaders. However, further research would need to be undertaken to ascertain if there is a correlation between the quality of principals' previous classroom teaching practice and the quality of principals' subsequent pedagogical leadership as principals, as measures of principals' classroom practice were not collected within this study.

The study suggested it was important for principals to maintain current teaching content knowledge alongside teachers as part of their professional development, but also highlighted the need for principals to concurrently develop knowledge and skills to enhance relationships and processes which influenced adult professional learning in the schools' communities of practice.

Few principals articulated a theoretical understanding of adult learning principles which informed their decision making when developing processes to support the development of collaborative learning by and with teachers. Mostly, facilitation of adult learning was supported by external professional development providers or alternatively, the implementation of coaching or mentoring models. This lack of understanding of adult learning principles suggests a gap in principals' pedagogical content knowledge. Principals appeared to have developed most curriculum content and pedagogical understandings during their time as teachers. However, the study suggests that principals' pedagogical content knowledge might be further improved by understanding processes which support collaborative, adult learning. In this way, principals are responsible for learning current best-practice content alongside teachers but are also responsible for enhancing the

processes of the community of practice (Darling-Hammond et al., 2017; Lantz-Andersson, Lundin & Selwyn, 2018; Lave & Wenger, 1991). These processes influence the implementation and embedding of teaching and learning within the school community. An enhanced understanding of adult learning processes by principals (such as change management, action research, learning conversations, facilitation or social skills in small groups) may assist principals to establish learning structures within the professional learning community and better support teachers to develop their practice.

Disparities in Access to Professional Learning

Since completing the 18 month First-Time Principals' Programme at the beginning of their principalship, the principals' professional development had been largely unstructured and heuristic in response to personal and contextual needs. Approximately one quarter of the 67 principals had continued to pursue professional development with research and qualifications in pedagogically informed decision making, building relational trust and engaging in learning conversations. These particular professional learning foci revealed a regional disparity in which some courses and professional learning groups could only feasibly be accessed by principals who worked in New Zealand's largest city, Auckland.

Regional access to opportunities for principal professional development was shown to be inequitable. This inequity has particular implications for those principals who remain in the same province throughout their careers. Findings showed that more than half of principals who moved to larger schools during their tenure, remained in the same province. Therefore, some principals might only have access to particular kinds of professional learning for the duration of their career, especially with regard to face-to-face learning opportunities. In contrast, the principals' preparation programme (FTPP) funded travel and accommodation costs to bring all the principals to Auckland for three residential workshops during the 18 months of the principals' first tenure. This funding allowed all the principals to access the preparation programme and shows that contextual inequities such as those produced by geography can be reduced by structures within the education system, and therefore suggests inequities require a systemic (rather than self-managing or school by school) response.

However, whole system solutions (Fullan, 2013) would need to address broader issues of whether principals' professional learning is a competitive or a collaborative endeavour. Most professional development is undertaken by accredited providers within a competitive market. Therefore, many providers sustain their businesses in larger cities such as Auckland but not in other regions, which reduces principals' access to particular face-to-face professional learning and exposure to new ideas, and increases reliance on wider peer networks and online platforms. In addition, building consistency and expertise within the accredited providers' organization is weakened by the limitations of yearly contracts from the Ministry of Education. Hence, competitiveness would appear to produce these systemic inequities. Changes to policies may address these inequities.

Work Intensity

Study findings showed new learning increased the principals' work intensity and subsequently reduced principals' focus on teaching and learning. Some increases to work intensity were created by a lack of support structures within the New Zealand education system. For example, increases to work intensity were occasioned by unstructured approaches to pre-principal preparation and unsupported implementation of changes to legislation.

Unstructured Pre-Principal Preparation. The unstructured approach to pre-principal preparation appeared to intensify the new-learning and workload of early career principals. While principals felt confident with curriculum matters, most principals believed they were ill-prepared to manage school finances and property. This work intensity subsequently reduced the principals' focus on teaching and learning. Previous recommendations for creating a pool of credentialled principals, from which boards can select an appointee (Brooking, 2008; Malcolm, 2012; Thew, 2002), have been ignored. A pool might provide structured professional development opportunities prior to principals obtaining their first positions and has been shown to increase principals' organizational problem-solving and improve student outcomes (DiGaudio & Bickmore, 2019). Credentialling of principals may reduce some work intensity associated with new learning and enable early career principals to retain their focus on teaching and learning.

Changes to Legislation. Changes to legislation increased principals work intensity as principals re-wrote school policies to implement the legislation and established new procedures within each school. This heightened work intensity is a reflection of New Zealand's self-managing school

system. Therefore, opportunities to reduce principals' work intensity, caused by changes to legislation, could be addressed systemically. Support for structures to reduce the administrative workload of updating school documentation, is evidenced by the 1367 New Zealand principals (54% of New Zealand schools) who currently employ a commercial firm to provide and review school policies (SchoolDocs, n.d.). The implementation of support needs to be well-considered as not all government-provided support decreases principals' work intensity. For example, findings showed changes to implement a web-based payroll system (Novopay) in 2012 increased the principals' workload.

Overall, these findings suggest that changes to support structures within the education system may be able to reduce some aspects of a high workload. Just as a principal ensures an orderly and supportive environment for teachers and students to influence achievement (Robinson et al., 2009), do policy makers have the responsibility to protect time for principals' professional teaching and learning by reducing external pressures and interruptions, and establishing an orderly and supportive environment both inside and outside the school?

Influences to Work Intensity. Early in the principals' careers, principals' vocational self-sacrifice appeared high, as principals deferred personal relaxation and non-work commitments to complete work tasks. This vocational self-sacrifice was often associated with new learning as the principals implemented their personal vision and learned the job. Though the work intensity reduced to a sustainable level over time, it could be disrupted again by context or events. For example, the Canterbury earthquakes of 2011 increased principals' work intensity. During this event, principals additionally attended to the physical and emotional wellbeing of students, staff and their communities, resourced schools amidst a transient student population, and attended to property matters associated with relocation, rebuilding and, in some cases, permanently closing schools. Some other examples from within the study which showed increased principals' work intensity included: weather events such as flooding to school buildings or those events associated with human factors such as fire damage to school buildings as a result of arson; the enrolment of students with special needs; students' families involved in drug dealing and prostitution in the school community; students with social welfare notifications; unexpected death within the school population; change of board of trustees members; and personnel grievances or competency issues or parent complaints.

Work intensity could be increased by context or events at any stage during their career. However, over time principals described increased confidence and competency in their management of the dissonance as decreasing work intensity. This increased confidence was attributed by principals to on-the-job experience, the development and implementation of structures (such as policies, processes, planning), and the development of emotional support and vicarious expertise networks. Therefore, though dissonance precipitated new learning, the level of dissonance needed to be manageable and able to be accommodated within principals' contexts and values and beliefs. As leader of teaching and learning within the school, the principal assumed direct oversight and managed the quantity of dissonance in the promotion of teachers' new learning. Principals managed teachers' dissonance by ensuring an orderly and supportive environment and collaboratively developing structures which integrated teachers' new learning into practice. In comparison, the New Zealand education system provides insufficient structures that ensure a measured, consecutive approach to principals' new learning. This lack of structure intensifies periods of new learning for principals, particularly during their early careers, and reduces their focus on other matters, such as a focus on teaching and learning.

The principals' values and beliefs affected their expenditure on their professional learning. Within the competing demands for time, produced by the principal's work intensity, principals often considered their professional development as personally beneficial to them as individuals rather than directly beneficial to the school. Subsequently, these strong beliefs in altruism meant principals' personal, professional development was less likely to be prioritized or resourced in light of other demands to the school's operational budget, particularly for principals of smaller schools.

The Influence of Vicarious Expertise to Principals' Professional Learning

The findings indicated vicarious expertise, particularly in the form of peer-networks and mentors provided a valued role in support of principals' professional and personal wellbeing, and the development of their leadership practice.

Peer Networks. Principals' peer networks were less well-developed during principals' early careers. Most peer networks were initiated during shared professional learning events such as the principals' 18-month preparatory programme. These findings confirmed recent studies in

which principals' informal peer networks appeared to assume importance in professional learning for daily organizational problem solving, through providing vicarious expertise and/or emotional support (Rodriguez-Gomez et al., 2020; Ringling et al., 2020; Veleen et al., 2017). Developments in technology infrastructure during the ten-year period of the principals' practice, had increased most principals' accessibility to peer-networks and mentors through virtual platforms. However, principals of small rural schools often lacked access to this support due to their geographical isolation and less developed technological infrastructure.

The study showed that principals developed their professional learning particularly in their knowledge of day-to-day practice from other principals. These other principals who provided vicarious expertise included:

- local principals with particular expertise (such payroll management),
- role models who were often former principals from whom they could seek advice,
- mentor principals with whom they had a sustained relationship,
- principals with whom they regularly networked, and
- principals with whom they held a common curriculum interest (e.g., digital technology, formative assessment, or visible learning).

This professional learning suggests that spaces where principals interact collaboratively are where knowledge, skills and dispositions are often developed. These spaces included virtual platforms, professional learning groups, conferences, workshops, principal association meetings and informal "chats over coffee".

Mentors. In contrast to the vicarious expertise provided by peers for daily problem solving, mentors provided formal challenge and critique regarding the principals' leadership practice. Mentors supported principals to reflect on their practice, to develop and evaluate their beliefs and values, theories of action, and their influence on people and tasks. The mentor's role was usually extant from the hierarchy of the organization and provided a mechanism for accountability based on the principal's professional learning goals. In contrast, professional peer-learning groups provided a low level of accountability and relied on the principal's self-critique. However, the findings are consistent with Rodriguez-Gomez et al.'s previous results (2020) that showed the importance of informal learning strategies in promoting innovation.

All the principals in the study experienced mentors as part of the First-Time Principals' Programme and almost two-thirds of principals continued to regularly utilize this type of professional learning. Principals believed mentorship was influenced by: the mentors' compatibility with the principal, the mentors' understanding of principalship, the mentors' reflective skills, and the willingness of a school's board of trustees to resource mentorship. A particular advantage of professional mentorship was that critical reflection on leadership practice was a regularly timetabled commitment.

The study showed that as principals progressed in their career and professional learning, the principals chose mentorship which focussed on professional supervision models, rather than managerial aspects of their role. These models were not evaluative for the purposes of organizational accountability, nor was the professional supervision counselling or therapy. Rather, this kind of professional supervision, as described by Davys and Beddoe (2021), focussed on reflection about influences of and on the practitioner's practice. The purpose for the mentorship would appear to be important and structured differently dependent upon the stage of the principal's career and his/her professional learning needs. The study suggests that after a principal's first two years in the principal's role, mentorship might be based on professional supervision models which focus on the professional development of the practitioner or, as in the case of some models, linked to school interventions and student achievement outcomes (Davis & Darling-Hammond, 2012).

Summary

The following paragraphs provide a summary of the study's discussion. In the first section of the discussion, principals' pedagogical leadership was shown to influence student achievement, through the principals' values and beliefs, by the systems and structures principals developed within their schools, the vicarious expertise engaged to develop their own and teachers' pedagogical content knowledge and practice, and by principals attending to the constraints and affordances of context and events.

The study builds on current knowledge of successful leaders in different contexts (Spillane, 2011) and suggests that to influence student achievement principals need to influence:

- purposeful, collective direction through establishing goals and expectations;
- the development of communities of practice; and
- the integration of pedagogical content knowledge into practice.

While confirming previous studies, this study explicitly contributes to the field by linking the *what* of leadership practice to the *how* of leadership practice. Though all the 12 principals were influenced by values and beliefs, systems and structures, vicarious expertise, and contexts and events, there were differences observed between the practices of principals from high, average and low-achieving schools. The principals from the high-achieving schools:

- remained *pedagogically connected* to a theory of action and its implementation throughout their schools;
- implemented, over time, aligned, cyclical, self-improving systems and structures to support communities of practice; and
- minimized contextual constraints through system resourcing.

The second section of the discussion chapter examined how New Zealand primary school principals developed their knowledge, skills and leadership dispositions within a system which has few structures to support principals' preparation and on-going professional learning. The discussion identified that within the New Zealand education system, principals' professional learning is heuristic, so that both principals' values and beliefs, and their context particularly influence their professional development. The study showed that principals' learning needs changed during their career from managerial, financial and property concerns to a greater emphasis on leading teachers' pedagogical professional learning and practice. Principals' professional learning was influenced by their work intensity as well as their development of vicarious expertise networks. The study showed that principals particularly valued the role of peer networks and mentors in professional learning, and that these networks influenced both formal and informal learning.

The final chapter of this thesis concludes by summarizing and reflecting on the key findings and contributions of the research to understanding the influences of New Zealand primary school principals on student achievement. The chapter also addresses the study's limitations and

suggests possibilities for future research. A stated aim of this study was for the research to be transferable to practice (Heifetz, 2010) and to “make a difference” (Maxwell & Loomis, 2003). Therefore, the final chapter will include with recommendations for policy and practice.

Chapter Six—Conclusion

This concluding chapter summarizes the study's findings and contributions to understandings about leaderships' influences on student achievement. The chapter reflects on the research process, including the importance of the mixed methods design in the investigation of the complex phenomenon of leadership. The chapter considers the limitations of the study and highlights the complexity of measuring the relationship between leadership and student achievement. The concluding chapter also suggests possibilities for future research.

A feature of the study's pragmatic epistemology is the connection between theory and practice so that the purpose for better understanding the phenomenon of leadership is embedded in practical applications. The research is intended to inform and be useful to practitioners as well as contribute to the research community and policy making about effective leadership practices. Therefore, the concluding chapter recommends actions that may enhance student achievement and principals' professional practice and offers considerations for future research and policy makers. These actions include suggestions for the development of structures in which practitioners, researchers and policy makers meet to advance collaborative solutions for problems of educational practice.

Summary of Themes

Four major themes were identified that showed reciprocal influences across leadership practices. Principals' leadership practice was influenced by and showed influence on values and beliefs, systems and structures within schools and the wider education setting, vicarious experts who developed the principals' leadership practices and pedagogical content knowledge, and attention to the constraints and affordances of context and events.

Values and Beliefs. Values and beliefs influenced student achievement. Both the principals' values and beliefs and the values and beliefs of the school community and wider education system in which the principals practiced, influenced the knowledge, pedagogies and artefacts which were considered important within schools.

Time and the kinds of values and beliefs held by the principals were important to the influence of leadership on student achievement. As heads of schools, principals had positional authority by which they were able to influence the theories of action within their schools. However, more than positional influence was required to influence the values and beliefs of the school community, particularly the values and beliefs of teachers. Principals' values and beliefs were reciprocally influenced by the values and beliefs of the wider education system, the community, and the teachers of the school in which principals worked. The study showed principals required time, more than five years, to influence their communities of practice. In this time, principals worked to influence others' values and beliefs, developed consistency within school culture, aligned goals and expectations with systems and structures for teaching and learning, and influenced contexts and events through resourcing.

The principals' values and beliefs influenced their decision making, including the theories of action or epistemologies they promoted within their schools. Pedagogical leadership enhanced student achievement. Not all principals adopted a pedagogical leadership approach despite the approach's emphasis within the New Zealand education system and the principals' preparation programme. The principals who participated in the study and who brought a managerial rather than pedagogical focus to their leadership practice, exhibited low or average student achievement when compared to other New Zealand schools in their decile (see Appendix 10, Ministry of Education, 2017).

The principals' values and beliefs influenced their participation in professional learning. The study confirmed the importance of principals' participation in teachers' professional development as influencing student achievement. An effect of principals' participation in teachers' professional development was to enrich the principals' subject content knowledge and understanding of current pedagogy. This knowledge and understanding enabled principals to better engage in learning conversations with teachers, be an instructional resource and assess the implementation of pedagogy. Therefore, the study suggests it is important for principals to maintain the pedagogical knowledge they developed as teachers and to continue to enhance their pedagogical knowledge with current, evidence based research.

Principals' values and beliefs influenced their preferred approaches to processing information. Therefore, the process or structure by which professional learning is shared with principals, matters. The study suggests researchers consider how they communicate research with practitioners and how policy makers resource implementation of best practice.

The study showed that principals' values and beliefs, and principals' contexts strongly influenced their selection of professional learning activities within a heuristic system. Principals valued mentorship. Therefore, mentoring in the form of professional supervision is recommended as a possible opportunity for incorporating feedback and self-reflection into principals' professional learning and practice. Professional supervision might also support the identification of new areas of professional learning for the principal for which the principal can seek vicarious expertise, coaching, models of practice, reading or particular courses. The study showed reflective practices were reduced by principals' work intensities, so commitments to professional supervision might strengthen principals' personal accountability for their professional learning while still retaining discretion for the principals' learning choices.

Structures and Systems. One way that principals influenced student achievement was through the development of structures and systems within their schools. The systems and structures provided a mechanism by which values and beliefs about teaching and learning, goals and expectations, and theories and practices were aligned within the schools. Effective systems and structures were self-improving and provided opportunities for members to clarify, question, justify and advance problems of practice

Structures could be informal, such as how the principal received and listened to others, and which influenced school culture by modelling how people might treat each other. Structures could be formal, such as staff meetings for professional development, in which principals influenced new learning and reflective teaching practice.

Initial structures, designed to influence the culture and context of schools, such as developing a positive and orderly environment and attending to the physical and psychological needs of students, appeared important prior to establishing structures which more directly emphasized classroom teaching and learning. Principals who established and strengthened structures which resourced the health and well-being of low socio-economic student populations, and exhibited

strong pedagogical leadership practices, were better able to mitigate contextual influences on student achievement within their schools.

The demands of new learning often reduced teachers' and principals' focus on teaching and learning within their schools. The development of structures and systems which were self-improving managed the dissonance of new learning, enhanced dialogue, and supported the integration of new learning within schools. Structures could enhance or constrain student achievement and therefore required principals to make pedagogical decisions regarding a structures' purpose and efficacy. For example, structures such as meetings about teaching and learning influenced teachers' work intensity and reduced time spent in classroom preparation for teaching and learning. However, meetings were structured opportunities for dialogue between teachers and teachers, and teachers and experts, which could enhance teachers' content knowledge and pedagogy.

Participation in teachers' professional learning enabled principals to better manage adult learning within communities of practice. Through this participation, principals developed a better awareness of teachers' professional learning needs concerning curriculum content and pedagogy development. The principals could better facilitate learning opportunities for teachers, model themselves as learners and encourage reflective practices. This participation in teachers' professional development enabled principals to evaluate changes to pedagogy and the current level of common understanding within the community of practice. Principals were then better able to embed teaching and learning practices into school systems and structures. Principals of high achieving schools developed structures to manage dissonance when introducing new learning and to increase dialogue about teaching and learning. Therefore, the study suggests principals' knowledge of processes which enhance adult learning are therefore important to the function of communities of practice and student achievement.

Vicarious Expertise. Principals influenced their own and others' learning through the engagement of vicarious expertise to develop knowledge and skills.

Vicarious experts performed two functions in the development of new learning for principals. One function was to temporarily apprentice principals in the development of new knowledge and skills

until the principals were competent to assume responsibility for that aspect of their roles. Mentors and peer networks were important to this apprenticeship.

The second function that vicarious experts performed was to permanently fulfil a particular role or task in which the principal lacked knowledge or skill. In this way, the principal maintained oversight for the task's completion but did not develop the knowledge or skills to complete the task independently. The principal delegated the task to the expert. Access to vicarious expertise could be constrained by contextual influences such as the geographical location of the school (school size, rural or urban, socio-economic status of community).

Principals resourced vicarious experts to provide curriculum and pedagogical development for teachers. These experts, resourced from within the school or through external contracts, provided two important functions when introducing new professional learning to the school. One function was to provide dissonance through which new learning could occur. The second function was to bridge gaps between the research and practitioner communities, by distilling research insights into practical knowledge and applications for classroom teaching and learning. The study suggested that in order to enhance student achievement, principals needed to participate in teachers' professional learning and lead the processes which integrated the new learning within the community of practice. In this way, principals retained their roles as leaders of teaching and learning even when they delegated the role of curriculum content expert to those with vicarious expertise.

The study suggested that the New Zealand education system, while providing autonomy for principals, relies on a high level of unfunded, informal support from vicarious experts such as experienced principals, school community members or other personal contacts to apprentice the principal in a proportion of the knowledge, skills and dispositions required to fulfil the principal's role. While the degree of unfunded support belies a weakness in the education system for the professional learning of principals, professionals developing other professionals could be recognized and strengthened as a formal response to principals' professional learning. Some recognition of such support is currently emerging where early career principals are being mentored in-context by contracted, experienced principals.

Context and Events. Context and events influenced principals' leadership practice as both affordances and constraints. The context of the self-managing system meant principals duplicated individual responses to changes in education policy.

Any new learning, by necessity decreases the individual learner's focus and time to attend to other matters. The study showed that new administrative learning increased principals' work intensity and reduced principals' focus on teaching and learning. For example, understanding and implementing changes to legislation, becoming familiar with resourcing procedures for the special needs of students and managing property such as new builds due to roll growth or leaky building repairs were administrative tasks shown, within the study, to decrease principals' foci on teaching and learning.

The current model of professional development for principals in New Zealand is unstructured and allows principals wide discretion in their professional learning. The lack of formal preparation for the principal role increased the intensity of early career learning, particularly in property and finance, and reduced the principals' focus on teaching and learning.

The study showed principals' reflection and focus on teaching and learning was reduced by their work intensity and that a benefit of mentorship was the legitimization of regularly scheduled time for principals to reflect on their leadership practice. The development of a professional supervision model may provide further career opportunities for experienced principals. However, it would require time to develop a base of qualified mentors from which principals could select professional supervisors as compatibility has been shown to be an issue (Bush et al., 1996). Studies from other fields have indicated that some principals might reject the concept of professional supervision as they consider professional supervision infers incompetence regarding their leadership (Kane, cited in Davys & Beddoe, 2021, p. 14).

Geographical disparities in access to professional learning might be addressed by central government resourcing to mitigate inequities. This resourcing might include development of virtual platforms for information sharing or development of kanohi ki te kanohi (face-to-face) opportunities which promote both formal and informal engagement. These might be resourced through financing the travel of facilitators to regional centres, or financing the travel,

accommodation and release teachers for principals of small schools to travel to larger centres for professional learning.

Summary of Findings

In Phase One, the study explored how 67 New Zealand primary principals constructed their leadership practices over the decade 2007-2017. In Phase Two, the study investigated how 12 principals applied their leadership practices and influenced teaching and learning within the unique context of their schools and situations.

All 12 principals' leadership practices were influenced by values and beliefs, systems and structures, vicarious expertise, and context and events. However, when leadership practices were linked to school achievement data, there were differences observed between the practices of principals from high, average and low-achieving schools. The principals from the high-achieving schools continued to develop their own pedagogical knowledge throughout their career by participating in teachers' professional development and utilizing this knowledge to engage in dialogue about teaching and learning with teachers. These principals influenced their contexts through resourcing. Principals from high-achieving schools developed self-improving systems and structures to support communities of practice. Notably, the development of systems and structures required time to influence values and beliefs and could not be immediately replicated in a new context. The development of structures and systems reinforced shared expectations within the schools' learning communities, aligned goals with actions, created and balanced the dissonance required for new learning, established ways to continually examine and improve teaching and learning practices, and enhanced dialogue about teaching and learning within communities of practice. Findings revealed that principals mostly developed their pedagogical content knowledge during their teaching career. However, the study suggests that principals might continue to develop best-practice content knowledge by participating in teachers' professional development and for principals to concurrently develop understandings of processes which support collaborative, adult learning. In this way, principals are responsible for learning current best-practice content alongside teachers but are also responsible for enhancing the processes of the community of practice.

Principals' focus on teaching and learning was shown to be reduced by their work intensities. High work intensities were often associated with consequences from the national context in which the principals were employed. Therefore, the study suggests that systemic solutions could be found to reduce principals' workload, and that solutions to complex problems in education might benefit from regular, collaborative interface between practitioners, researchers and policy makers.

New Zealand primary school principals develop their knowledge, skills and dispositions for leadership heuristically within the self-managing school system. The nature of principals' professional learning is ad hoc in response to contextual needs. The analyses also confirmed previously claimed inequities between professional development opportunities for rural and urban principals based on the size and isolation of the school (Notman, 2015), and showed regional inequities in access to programmes and support. The analyses showed other contextual inequities in access to the vicarious knowledge of experts, who bridged gaps in the principals' knowledge or provided mentorship as the principals' developed their own practice. Peer networks and vicarious experts continually supplemented principals' professional learning. This unfunded, implicit provision of professional learning raised concerns as to why principals' professional development relied so heavily on the unpaid goodwill of colleagues, rather than structured government resourcing.

The second and third research questions focused on whether New Zealand primary principals' decision making was influenced by pedagogical theory and whether pedagogical leadership influenced student achievement. Findings from the study suggested direct and indirect pedagogical leadership by New Zealand primary principals' positively influenced student achievement. Principals' decision making was strongly linked to their theories of action, their previous professional learning as teachers and current professional learning as principals. Structures within the context of New Zealand's self-managing education system could decrease principals' focus on teaching and learning, such as with the intensity of principals' early career learning.

In summary, the key findings of the study are:

- Principals' pedagogical leadership influences student achievement. Principals required both pedagogical theories of action and time to influence practices within their schools to enable high student achievement. To this end, principals need to continue to develop their pedagogical content knowledge and skills which enhance adult learning within their community of practice.
- In New Zealand, the heuristic nature of principals' professional learning is not well-supported by central structures. The national context of the self-managing school system and local context of the principal's school produces inequities of access to professional learning.
- The national context of the self-managing school system and local context of principals' schools overly influences principals work intensities and reduces their focus on teaching and learning.

Contribution of the Study

The study contributes to understandings of how a lack of central structures and unregulated principals' professional development, influences not only principals' professional learning but principals' focus on teaching and learning within their schools. The devolution of the New Zealand education system from central to local control has enabled more local discretion for principals in the management and governance of schools. Despite this devolution, central government control is retained through resourcing structures which influence outcomes for principals and schools. The study showed that the unstructured, heuristic model of principals' preparation and professional learning:

- allowed principals wide discretion in their professional learning but was largely under-resourced with constraints from schools' operational grants and principals' reliance on the good-will of vicarious experts for professional learning;
- allowed parent boards of trustees (who are essentially unpaid volunteers) complete discretion in whom they employed as principal but sustained issues associated with principal quality and competency due to a lack of professional credentialling;

- produced inequities of access to vicarious expertise and to professional development for principals, especially for principals of small schools and principals whose schools were geographically isolated; and
- increased principals' work intensities especially during principals' early career learning

While the study is in keeping with previous research findings as to the importance of principals' participation in teachers' professional development (Robinson et al., 2009; Timperley et al., 2007) and the importance of principals' influence in the development of consistent school culture (Gibbs, 2017; Hallinger et al., 2018; Robinson et al. 2009), the current study built on this research by showing that:

- Student achievement was influenced by both the principals' epistemologies (values and beliefs) and the length of tenure (time) in their schools.
- Student achievement was influenced by principals' development of school structures which managed the integration of new learning and promoted dialogue.
- Contextual influences on student achievement can be mitigated by principals through resourcing.

As previously discussed, a particular contribution of this study was to demonstrate that new learning, both pedagogical and administrative learning, influenced teachers' and principals' focus on teaching and learning within their schools.

The study has highlighted specific leadership practices which support principals in raising student achievement and may contribute to research in the field of pedagogical leadership.

Future Research

Within this study, principals' values, beliefs, and knowledge influenced their theories of action to enhance student achievement. Principals' career characteristics such as previous experience in senior management positions have also been shown to influence successful leadership practice (Patuawa et al., 2013). A limited section of data from this study suggested that principals with effective pedagogical leadership practices had previously been teachers with highly effective classroom pedagogies. With the increasing attention of governments to the sustained supply of principals and to succession pathways, further longitudinal research could be undertaken to

examine correlations, if any, between the characteristics of effective classroom practitioners and their effectiveness as pedagogical leaders if they subsequently become principals. This may also assist in early identification and therefore development of potential leaders, with an extended pathway to principal leadership.

The influence of context advanced by this study, is of particular concern with regard to the work intensities and equitable access to professional learning for principals of small schools. Given the number of small schools within New Zealand, further research into specific structures which could support principals of small schools is important with the view to retain principals' focus on teaching and learning which enhances student achievement and to ensure a continued supply of competent principals.

Validity and Limitations of the Study

Leadership is a complex phenomenon and has a contested definition. Therefore, an important role of the methodology chapter was to make explicit the values position of the researcher and the rationale for decisions within the study's design, so that the study could be replicated or compared to similar studies. The interpretation of the study findings through a pedagogical lens, though defined, may be a limitation of the study for researchers using other approaches to understanding principals' leadership practices. However, a pedagogical leadership approach was emphasized in the principals' preparation programme for the principals who participated in the study and the importance of pedagogy is reflected specifically in the New Zealand education system. The study may be of less interest to those researching principals' leadership practices outside pedagogical or instructional approaches, though the literature review described commonalities between leadership practices within transformational, distributive and pedagogical approaches.

The mixed methods design of the study was important to investigate the complexity of leadership practice. The design enabled the researcher to investigate the general trends from quantitative data in Phase One to show how the wider cohort of 67 principals developed their leadership practices during the decade 2007-2017. In Phase Two, the qualitative data from the interviews were gathered to seek understanding of the principals' leadership practices rather than make

generalizations. In this way, principals outside the study may relate to or recognize descriptions as being applicable to their own practice. The design enabled the researcher to compare specific practices of the twelve Phase Two principals to student achievement (n= 4892) within the principals' schools. This comparison suggested leadership practices that enhanced high student achievement and were consistent with previous findings from the literature. However, the study findings are not considered trends due to the small sample size (n=12). The two analyses of the interview data and triangulation of principals' actions with school documents strengthened the reliability of findings.

As the study was undertaken by one researcher and not part of a larger project, limitations were imposed on the choices of methodology due to time and cost. For example, the observation of multiple principals' daily practice was not feasible due to time and cost. The influences of the principals' leadership on student achievement gains were established through the principals' decision making in response to student data and problems of practice. Limitations are inherent in both the principals' recall and perspective within the interviews, as well as the range of documents the principals contributed for analysis. The study addressed these weaknesses by having principals read their interview transcripts and subsequently edit aspects to clarify their intent. The researcher also supplemented documents supplied by principals (such as school charters, student achievement data before and after teaching and learning interventions, and analysis of variance documents) with additional school documents available in the public domain (such as Education Review Office reports and principals' sabbatical reports). The documents triangulated interview data to increase validity.

A further limitation of the study was that student achievement data were not moderated between schools. Within each of the 12 study schools, the teachers assessed students' performance in relation to nationally gazetted standards in reading, writing and mathematics (after 40 weeks at school, 80 weeks at school, and at the end of Years' 3-8). These national standards data were summarized by the principals for annual reporting to their boards of trustees and to the New Zealand Ministry of Education. Student achievement data were provided by principals at the aggregated school level but the researcher did not investigate the consistency of overall teacher judgements for student achievement at the classroom level. School decile was used to control for

students' socioeconomic backgrounds in the comparison of high achieving and low achieving schools.

The schools in the study were positioned as low, average or high achieving in relation to the 2016 national decile *means* for student achievement in National Standards for Reading, Writing and Mathematics. This measure of student achievement could be argued as relatively broad and may have been further enhanced by the addition of nationally available stanines data for each decile. However, in New Zealand, it was not possible to obtain national *stanines* for students' achievement data.

The bespoke nature of the Phase 1 questionnaire limited its application for future research. Though the questionnaire was administered successfully within this single cohort, changes to national priorities within the New Zealand education context, such as the scheduled repeal of the National Administrative Guidelines 1 January 2023, would require changes in terms to reflect these new priorities.

Recommendations for Influencing Student Achievement

A goal of the study was to provide insights for the practitioner, researcher and policy-maker as to how primary principals develop their leadership practice and influence student achievement in New Zealand's self-managing school system. Therefore, the study's recommendations are linked to these three groups. The recommendations are that:

1. Pedagogical leadership is retained as the theoretical basis for principal preparation programmes.
2. Principals participate in teachers' professional development.
3. Principals develop, over time, self-improving structures within the professional learning community of their schools that:
    a. manage the dissonance of new learning; and,
    b. develop dialogue.
4. Researchers consider a range of methods when communicating research to account for principals' preferred ways of processing information.
5. Researchers develop collaborative partnerships with principals and schools for Teaching-As-Inquiry projects.

6. Researchers undertake further research focused on pedagogical leadership of small schools, how principals develop their theories of action, and if there is a correlation between an individual's pedagogical classroom practice and his/her leadership.
7. Communities of practice are developed between principals, researchers and policy makers that enhance informed consultation, research implementation and collaborative problem solving.
8. Policy makers, in discussion with the education sector, centralize structures to reduce principals' work intensities, such as:
    a. pre-principal accreditation in finance, human resources and property management; and
    b. resourcing to implement new policies and legislation.
9. Policy makers, in discussion with the education sector, provide central resourcing:
    a. to reduce inequities of access to professional learning, and
    b. for professional supervision of principals.

Concluding Thoughts

While this study offers recommendations that will enhance student achievement through pedagogical leadership practices, these recommendations cannot be enacted without collaboration and further discussion between principals, researchers, and government officials. The introductory chapter highlighted the importance of "research informed practice that is enabled by policy" (Education Council, 2017a, p. 4). Therefore, this study concludes by addressing the importance of collaboration between researcher, policy maker and practitioner to raise student achievement.

The concept of the separation of power provides checks and balances between the legislative, judicial and executive branches of government. The separation of the roles of researcher, practitioner, and policy maker could be said to provide similar checks and balances for accountability and autonomy within the education system. However, as previously discussed, Fullan (2013) argues that the complexity of raising student achievement requires a whole of system approach to develop principals' knowledge, skills and dispositions to influence student achievement. In New Zealand there would appear to be a lack of structures in which principals,

researchers and policy makers collaborate. Most structures in which some collaboration occurs are limited by the purposes of a particular group and are not truly agentic collaboration such as representative collaboration or professional development contract delivery. For example, collaborative professional development occurs when policy makers consult with special interest groups which at times include representative principals, or researchers contract with schools for the delivery of particular teachers' professional development such as the Accelerating Learning in Literacy (ALLs) project, the Accelerating Learning in Mathematics (ALiM) project and Asian Language Learning in Schools (ALLiS) project.

Within their schools' communities of practice, principals influence student achievement by developing structures that support regular dialogue about teaching and learning with teachers. In a similar approach, the education system could be structured to facilitate regular dialogue between practitioners, policy makers and researchers. The current tendency within the New Zealand education system is for policy on "best practice" pedagogy to be *delivered* to principals in Honig's "top-down" approach (2004) through changes to legislation or presented in researcher-contracted professional development. It would appear contrary, that an education system which aspires to devolve decision making to schools, impedes principals' professional learning and problem solving within school communities of practice, by retaining systemic structures or processes that reinforce central decision making. These systemic failures can be addressed through planning for the development of collaborative platforms for practitioners, researchers and policy makers to engage in learning conversations. Within a school, the principal influences the organizational structures and climate that facilitates teacher-learning through responsive or reciprocal practices. Within an education system, policy makers might influence the structures and climate that facilitates principal-learning through responsive or reciprocal practices such as collaboration. Collaboration between policy makers, researchers and principals would require the building of relational trust, solving complex problems and the integration of educational knowledge into practice. This collaboration is less likely to occur through representative consultation, but by developing cross-sector communities of learning, by which dialogue can be enhanced between principals and principals, principals and researchers, and principals and policy makers. The establishment of collaborative cross-sector communities of learning would require sustained duration to build relational trust between members and solve complex problems in education. The

cross-sector communities of learning are likely to be best developed when focussed on curriculum and applied to problem solving within schools' contexts. Collaboration between principals, researchers and policy makers might begin with how New Zealand's self-managing school system can be structured so that principals' work intensity can be reduced and principals can focus on being leaders of teaching and learning.

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Appendix One: Information Sheet for Phase One

The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

INFORMATION SHEET

Researcher Introduction

My name is Kathryn Rowe and I am a primary trained teacher. I was a First-Time principal in 2007, and am currently Deputy Principal at [redacted]. I am enrolled in the Doctorate of Education course in the Institute of Education at Massey University.

Project Description and Invitation (in accompanying letter)

As part of this programme, I am undertaking research to investigate how a group of primary principals, who were first time principals in 2007, have constructed leadership practices to raise student achievement in those under their influence. The study's objective is to contribute to the understanding of professional development needs for principals and to provide more information about effective leadership practices which raise student achievement in the New Zealand primary school context. The working title for study is *The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.*

The study has two phases. Phase one involves a questionnaire and phase two follow-up interviews and document analysis. This invitation and information sheet is related to phase one of the project – the questionnaire.

Participant Identification and Recruitment

I am writing to all the primary principals who formed part of the First-Time Principal Programme 2007 cohort to invite them to take part in the questionnaire. The names were obtained from the original database which we received in order to contact colleagues in 2007, and have been traced using Ministry of Education websites, public records, and word of mouth. Some members of the original database of 144 have been unable to be traced.

Project Procedures

The questionnaire should take about 10-15 minutes to complete. If you would prefer to complete the survey on-line then use the electronic link provided to [survey monkey direct link].

If you do not wish to complete the questionnaire please just return it to me in the stamped, addressed envelope provided.

I am also seeking 12 volunteers to be part of a second phase to the research, who would be willing to be interviewed. If you are happy to consider being involved in the interview process, please indicate this by your response to the last question.

I am happy to provide you with an electronic copy of the completed thesis and details of any published journal articles associated with the project.

Data Management

If you choose to complete the questionnaire you will be identified by the code number provided with the questionnaire. Neither your name nor the name of your institution will be identified in the

subsequent thesis or journal publications. The completed questionnaires will be held in secure storage by Massey University and destroyed after seven years.

The collected data using the identification codes will be transferred to a statistical package for social sciences for analysis.

The identification codes will be kept separate from the study information by me. This means your identity will be private to everyone except me. I will make every attempt to preserve all confidentiality to the extent allowed by the law. Please be aware that *absolute* confidentiality is unable to be guaranteed.

Participant's Rights

You are under no obligation to complete the questionnaire. If you decide to participate, you have the right to:

- decline to answer any particular question;
- withdraw your questionnaire from the study up to ten working days from submitting it and no reason needs to be provided;
- ask me or my supervisors any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used; and
- be given access to a summary of the project findings when it is concluded.

It is hoped that the questionnaire will support the principal's own professional reflection and the summary of findings provide opportunities for collegial discussions. By participating, the principal and school would, through the project findings, contribute to the understanding of effective leadership practice and the structures which support this in the New Zealand primary schools.

Project Contacts

I can be contacted at [redacted]

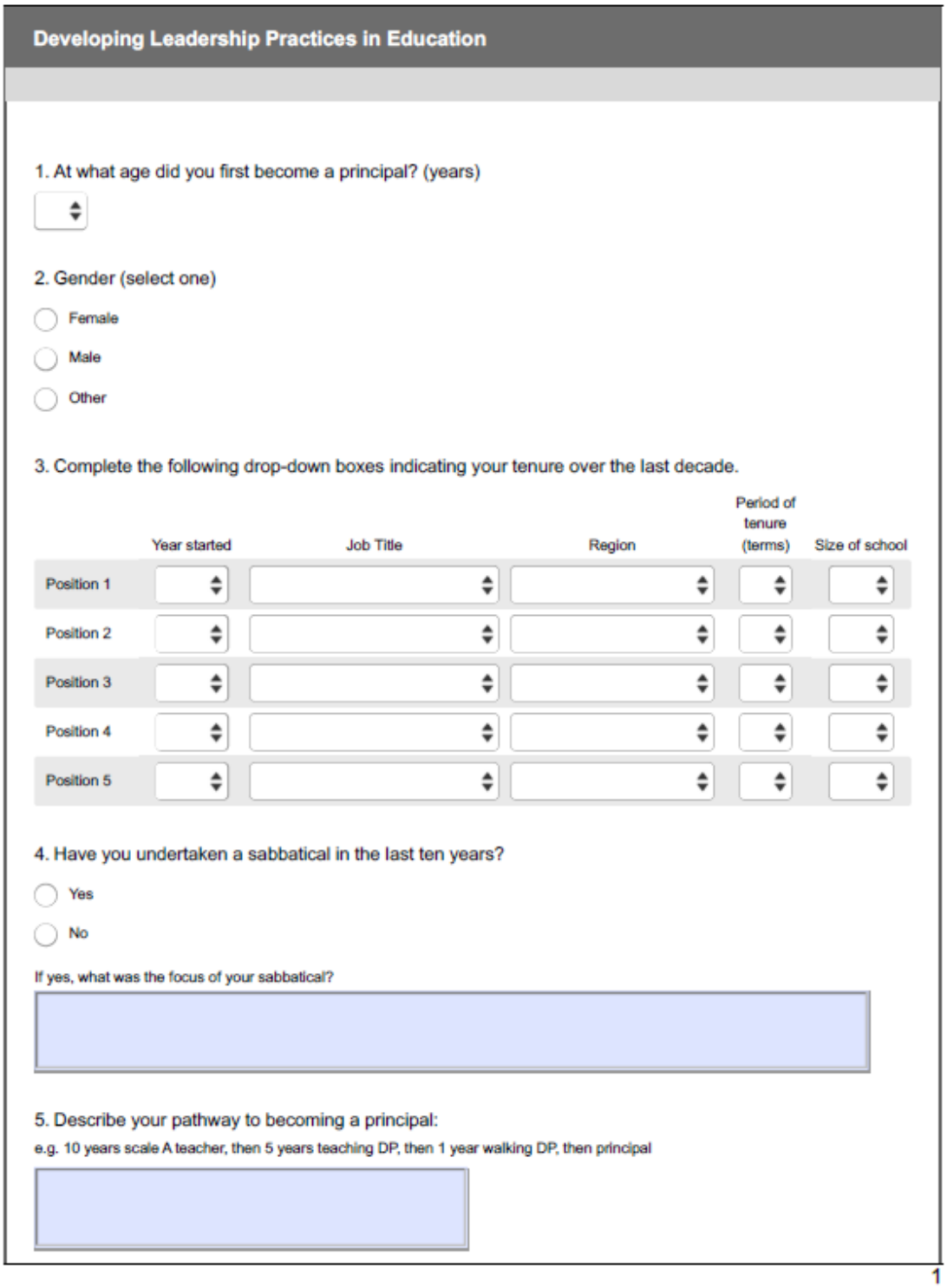
My supervisors, Alison Kearney and Jenny Poskitt, can be contacted at [redacted]

Compulsory Statements

The study will be carried out under the principles of the *Massey University Code of Ethical Conduct*
for Research, Teaching and Evaluations Involving Human Participants 2015, and has commenced after receiving approval from the Massey University Ethics Committee.

Committee Approval Statement
This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 17/03. If you have any concerns about the conduct of this research, please contact Dr Lesley Batten, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 356 9099 ext 85094, email humanethicsoutha@massey.ac.nz

Appendix Two: Questionnaire for Phase One



Developing Leadership Practices in Education

1. At what age did you first become a principal? (years)

2. Gender (select one)

- Female
- Male
- Other

3. Complete the following drop-down boxes indicating your tenure over the last decade.

	Year started	Job Title	Region	Period of tenure (terms)	Size of school
Position 1					
Position 2					
Position 3					
Position 4					
Position 5					

4. Have you undertaken a sabbatical in the last ten years?

- Yes
- No

If yes, what was the focus of your sabbatical?

5. Describe your pathway to becoming a principal:

e.g. 10 years scale A teacher, then 5 years teaching DP, then 1 year walking DP, then principal

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6. How have your learning needs as a principal changed in relation to the National Administrative Guidelines, from 2007/8 to 2016/17?

	Not at all, I am/was very confident in this area	A bit, I am/was quite confident but keep/kept up with any changes	Moderately, I am/have learning/learnt a lot but need to keep working at this	Highly, I was/am not doing quite as well as I'd like in this area	I have recognized/continue to recognize this as an area where I have lots to learn.	N/A I am no longer a principal
Curriculum 2007-8	○	○	○	○	○	○
Curriculum 2016-17	○	○	○	○	○	○
Self review (includes strategic planning and reporting to parents) 2007-8	○	○	○	○	○	○
Self review (includes strategic planning and reporting to parents) 2016-17	○	○	○	○	○	○
Personnel 2007-8	○	○	○	○	○	○
Personnel 2016-17	○	○	○	○	○	○
Finance 2007-8	○	○	○	○	○	○
Finance 2016-17	○	○	○	○	○	○
Property 2007-8	○	○	○	○	○	○
Property 2016-17	○	○	○	○	○	○
Health and Safety 2007-8	○	○	○	○	○	○
Health and Safety 2016-17	○	○	○	○	○	○
Legislative Requirements 2007-8	○	○	○	○	○	○
Legislative Requirements 2016-17	○	○	○	○	○	○

Please comment on the reasons for the changes in learning needs and priorities:

7. This question identifies some sources of professional development you may have used. What importance are these to you?

	Rarely contributes to my professional learning	Irregularly do this but use it when I have a specific learning need	Part of my regular routine, I do this because I need to keep up-to-date	Part of my regular routine, I set aside time to do this and find it valuable	Consistently use this to modify and develop my thinking and actions
Courses, training programmes, workshops	○	○	○	○	○
Research from journals and texts	○	○	○	○	○
Official Ministry publications and on-line sites e.g. TKI	○	○	○	○	○
Inquiry learning within school, investigation and experimentation	○	○	○	○	○
Visits to other schools	○	○	○	○	○
Peer discussion and networking	○	○	○	○	○
Higher qualifications	○	○	○	○	○
Critical reflection of experiences e.g. journaling	○	○	○	○	○
Policies	○	○	○	○	○
Mentor	○	○	○	○	○
Appraisal	○	○	○	○	○

3

8. This question investigates your pursuit of knowledge, skills and dispositions associated with pedagogical leadership. Which option best describes your learning?

	I did this during the First-time Principals Programme but have not done anything in this area since.	I did this during FTPP and it has come up again in discussions with colleagues.	I critically reflect on this area with peers and inform myself with free professional material.	I have under taken paid courses and/or bought books to continue my learning in this area.	I have actively pursued professional development in this area with research and qualifications.
Pedagogically informed decision making	○	○	○	○	○
Problem-solving	○	○	○	○	○
Building relational trust	○	○	○	○	○
Engaging in learning conversations	○	○	○	○	○

9. How have you developed your leadership practices since completing the First-time Principals' Programme?

10. What resources and structures do you think support or would support the development of leadership practices?

11. Are there any other comments you would like to make?

12. Would you consider participating in the interviews in Phase 2 of the study?

○ No thanks, I don't want to participate in Phase 2.

○ Yes, I'm interested and would like some more information about possible participation.

Thank you for completing this questionnaire.

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Appendix Three: Letter of Interest for Phase Two

[Address]

12 April, 2017

Dear [Name of principal]

RE: The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

Thank you for completing the questionnaire for my doctoral research into the impact of leadership on student achievement. In that questionnaire you indicated that you may be interested in participating in the interviews in phase two of the study. The information sheet which accompanies this letter provides details about phase two of the study. Please read this before deciding if you want to participate in phase two.

A participant in this part of the study would be involved in:

- Face-to-face interviews;
- The provision of school documentation such as curriculum and assessment policy statements; and
- The provision of examples of summary student achievement data which they used to measure the effect of in-school pedagogical initiatives (The student data would be anonymous, and preferably aggregated as an effect size for the initiative).

The interviews would be sound recorded and transcribed. You would receive a copy of the transcription to read and to make any alterations you would like, to clarify ideas or meanings. I expect that the interview would take no more than 2 hours, including the informalities of getting settled and testing the sound equipment.

My intention is to conduct the interviews during Term 2, at a time which is convenient for the participants and schools. I would also need to get permission from the school board of trustees, to conduct the interviews during work hours and to receive access to the school documents.

It is hoped that the interview would be beneficial for personal, professional reflection and that the project findings will contribute to the understanding of effective leadership practices in New Zealand primary schools.

If you agree to be interviewed, would you please sign the enclosed consent form and scan it to me.

Thank you for your consideration of this request.

Yours sincerely

Kathryn Rowe

B.Sc., B.Ed.,
Dip.Tch (Primary),
M.Ed.Stud(Maths),
PG.Dip.Ed.Admin.Lead.

Appendix Four: Information Sheet for Phase Two

Institute of Education
Massey University
Private Bag 11-222
Palmerston North

The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

INFORMATION SHEET

Researcher Introduction

My name is Kathryn Rowe and I am a primary trained teacher. I was a First-Time principal in 2007, and am currently Deputy Principal at [redacted]. I am enrolled in the Doctorate of Education course in the Institute of Education at Massey University.

As part of this programme, I am undertaking research to investigate how a group of primary principals, who were first time principals in 2007, have constructed leadership practices to raise student achievement in those under their influence. The study's objective is to contribute to the understanding of professional development needs for principals and to provide more information about effective leadership practices which raise student achievement in the New Zealand primary school context. The working title for study is *The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.*

Project Description and Invitation (in accompanying letter)

In the second phase of this doctoral research study, interviews and document reviews will be used to provide information. The information gathered is designed to inform the research questions:

- What do New Zealand principals do to ensure administrative decisions are informed by knowledge about effective pedagogy?; and
- What evidence is there of pedagogical leadership influencing student achievement?

Principals will also be asked to provide examples of summative student achievement data which the principal used to measure the effect of in-school pedagogical initiatives.

Participant Identification and Recruitment

This phase of the research involves 12 principals who:

- Consent to be interviewed;
- Are able to provide documents of their pedagogical activities, including evidence of student data they have used to inform school initiatives to raise student achievement;
- Have the permission of their board of trustees to be involved in this phase research.

Project Procedures

If the principal consents to the interview, after receiving the consent form, the researcher will contact the principal's board of trustees to request permission to conduct the interview during work hours and to be able to receive scanned copies of school documents.

The interviews will occur in Term 2, 2017 at a time which is convenient for the participant and school. It is envisaged the interview will take approximately 1 ½ - 2 hours including settling in and testing sound equipment.

The interviews will be semi-structured. This will allow flexibility for both the interviewer and the participant to follow-up or expand on emerging information. There will be only six pre-determined questions which will focus on—goal-setting, building relational trust, analysing and solving complex problems, and principal experience. The questions are:

1. What do you think are important leadership practices to raise student achievement?
2. How do you set school-wide student achievement goals?
3. What do you think are important leadership practices to develop relational trust with staff, parents, the board of trustees, and external agencies such as Group Special Education (GSE)?
4. Think about a complex problem you encountered over the last year. Please describe it and explain what you did to solve it?
5. What do you do to develop the motivation and capabilities of teaching staff?
6. What other comments would you like to make?

Other questions may occur naturally as part of the conversation to clarify ideas or follow emerging ideas.

The interviews will be sound-recorded.

A transcript will be emailed to the principal within two weeks of the face-to-face interview. This is to make any additions or clarifications which he or she may have considered beyond the limited interview time. It expected this may take 10-30 minutes dependent upon the additions the participant wishes to make. The participant will indicate whether he/she wants the original sound-recording destroyed or returned after the transcripts have been finalized. Participants will be asked for approval to release the transcripts which means that the data can be used to inform the study.

The participants will also be asked to provide copies of curriculum documents of their choice which indicate how the curriculum is 'delivered' within the school. Examples of this might be: A curriculum delivery statement; assessment practices; pedagogical expectations of staff; teacher inquiry processes; or other general curriculum principles. All institution names, logos, mottos or other identifying features will be removed from the copies, and the copies scanned to the researcher's email address, prior to the researcher leaving the institution. At no time will the researcher retain any original copies of the documents provided.

The participants will also be asked to provide before and after student summary data of a student achievement initiative within their school. Any student names need to have been deleted from the data before the summary is received by the researcher.

Data Management
The interviewee will be identified by the code number. Neither your name nor the name of your institution will be identified in the subsequent thesis or journal publications. The completed transcripts and other documentation will be held in secure storage by Massey University and destroyed after seven years.
The interview transcripts and documents will be entered with the identifying code number and analysed using computer-assisted qualitative data analysis software (*NVivo11*).

The identification codes will be kept separate from the study information by me. This means your identity will be private to everyone except me. I will make every attempt to preserve all confidentiality to the extent allowed by the law. Please be aware that *absolute* confidentiality is unable to be guaranteed.
I am happy to provide you with an electronic copy of the completed thesis and details of any published journal articles associated with the project.

Participant's Rights
You have no obligation to complete the questionnaire. If you decide to participate, you have the right to:
- decline to answer any particular question;
- decline to release the transcript and no reason needs to be provided;
- withdraw the transcript and documents from the study up to ten working days from submitting the release from and no reason needs to be provided;
- ask me or my supervisors any questions about the study at any time during participation;
- provide information on the understanding that your name will not be used; and
- be given access to a summary of the project findings when it is concluded.

It is hoped that the interview will support the principal's own professional reflection and the summary of findings provide opportunities for collegial discussions. By participating, the principal and school would, through the project findings, contribute to the understanding of effective leadership practice and the structures which support this in the New Zealand primary schools.

Project Contacts
I can be contacted at [redacted] or phone [redacted].
My supervisors, Alison Kearney and Jenny Poskitt, can be contacted at [redacted].

Compulsory Statements
The study will be carried out under the principles of the *Massey University Code of Ethical Conduct for Research, Teaching and Evaluations Involving Human Participants 2015,* and has commenced after receiving approval from the Massey University Ethics Committee.

Committee Approval Statement
This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 17/03. If you have any concerns about the conduct of this research, please contact Dr Lesley Batten, Chair, Massey University Human Ethics Committee: Southern A, telephone 06 356 9099 ext 85094, email humanethicsoutha@massey.ac.nz

Appendix Five: Individual Participant Consent Form Phase Two

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MATAURANGA

The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

PARTICIPANT CONSENT FORM - INDIVIDUAL

I have read the Information Sheet and have had the details of the study explained to me. My questions have been answered to my satisfaction, and I understand that I may ask further questions at any time.

1. I agree/do not agree to the interview being sound recorded.
2. I wish/do not wish to have my recordings returned to me.

I agree to participate in this study under the conditions set out in the Information Sheet.

Signature: ..... **Date:** .....

Full Name - printed .....

Appendix Six: Letter to Board of Trustees

MASSEY UNIVERSITY
INSTITUTE OF EDUCATION
TE KURA O TE MĀTAURANGA

[Address]

[Date, 2017]

The Chairperson
[Name and address of board of trustees]

Tēnā koe [Name of chairperson]

RE: The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

Ko Te Mata o Rongokako te māunga, ko Ngaruroro te awa, ko Heretaunga te kāinga, ko Waiapu te pīhopatanga, nō Ngāti Kahungunu mātau, ko Hato Matiu te kura, ko Kathryn Rowe ahau.

I am enrolled in the Doctorate of Education Programme in the Institute of Education at Massey University. As part of my study programme I am undertaking research to investigate how a group of primary principals, who were first time principals in 2007, have constructed leadership practices to raise student achievement in those under their influence. It is hoped that this research will contribute to the understanding of professional development needs for principals and provide more information about effective leadership practices which raise student achievement in the New Zealand primary school context.

[Name of participant] has kindly consented to be interviewed as part of the study. I would like the board's permission to interview [name] during school hours. The expectation is that the face-to-face interview would take between 1 ½ - 2 hours, in Term 2, 2017, at a time which suits the principal and school.

As part of the study, [name of participant] would also be asked to provide school documents of their choice showing policies or procedures around teaching and learning, and one example of before and after data from a student achievement initiative. No personal information related to individual students will be collected, and all efforts will be taken to ensure that the school is not identified. I would also like the board's permission to have scanned copies of these documents with all the names and identifying features such as mottos or logos removed.

I have enclosed a copy of the participant information sheet for your information. This contains my contact details and those of my supervisor should you need more information. Please email me with the board's decision at [redacted]

If the board agrees to [name of participant]'s participation in the study, please advise me of any tikanga which I need to be aware of when visiting the school. Also sign and date the consent form contained in this letter, and I will collect a copy at the time of the interview.

This project has been reviewed and approved by the Massey University Human Ethics Committee: Southern A, Application 17/03. If you have concerns about the conduct of this research, please contact Dr Lesley Batten, Chair, Massey University Human Ethics Committee: Southern A, telephone 06356 9099 ext 85094, email humanethicssoutha@massey.ac.nz.

Ngā mihi maioha.

Nākū, na

Kathryn Rowe

B.Sc., B.Ed.,
Dip.Tch (Primary),
M.Ed.Stud(Maths),
PG.Dip.Ed.Admin.Lead.

Appendix Seven: Consent Letter from Board of Trustees

[School letterhead]
[School Address]

[Date], 2017

[redacted]
The Secretary
Massey University Human Ethics Committee
Private Bag 11-222
Palmerston North 4442

Dear [redacted],

RE: The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

Recently we were approached by Kathryn Rowe to be involved in the second phase of her doctoral research project, as she investigates how a group of primary principals, who were first time principals in 2007, have constructed leadership practices to raise student achievement in those under their influence. We have read the information sheets provided, and in discussion with our principal, Trish Plowright, have agreed to participate in the research.

Trish has consented to be interviewed and we give permission for the interview to occur during work hours in Term 2, 2017.

We give permission for our principal, as part of the study, to provide Kathryn with copies of curriculum documents such as a curriculum delivery statement or procedures around assessment practices or teaching and learning. We understand that these documents will have the school name and any other identifying features such as the school logo or motto removed before being scanned and stored as electronic data.

We give permission for the principal to provide Kathryn with anonymous, aggregated student achievement data which has been used to measure before and after results of a school achievement initiative. We understand that individual students will not be identified in the data and will remain anonymous to the researcher.

We are looking forward to being part of this research study.

Yours sincerely,

Chairperson

[Name of] School BOT

Appendix Eight: Letter Accompanying Authority to Release Transcripts

[redacted]

[Date, 2017]

[Name and address of participant]

Dear [Name of participant]

RE: The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

Thank you for allowing me to interview you for my doctoral research study and for taking the time to edit the transcript.

A hard copy of the final transcript is enclosed with this letter for your records. The original sound recording has [been destroyed/returned with this letter].

If you are happy to consent to information in this transcript being used for the purposes of my doctoral study, would you please sign and date the *Authority to Release Transcripts* form and return it in the pre-paid envelope. You have ten days from the date of signing to withdraw from the study if you change your mind.

Let me know if you would like an electronic copy of my thesis, a summary of findings, or any subsequent publications resulting from the study.

Thank you once again for taking the time to contribute to my study.

Yours sincerely

Kathryn Rowe

Deputy Principal/SENCO
B.Sc., B.Ed.,
Dip.Tch (Primary),
M.Ed.Stud(Maths),
PG.Dip.Ed.Admin.Lead.

Appendix Nine: Transcriber's Confidentiality Agreement

The Impact of Pedagogical Leadership on Student Achievement in New Zealand Primary Schools: A Mixed Methods Study.

TRANSCRIBER'S CONFIDENTIALITY AGREEMENT

I ..... (Full Name - printed) agree to transcribe the recordings provided to me.

I agree to keep confidential all the information provided to me.

I will not make any copies of the transcripts or keep any record of them, other than those required for the project.

Signature: ..... **Date:** .....

Institute of Education, Massey University, Private Bag 11-222, Palmerston North

Appendix Ten:

Number and Percentage of New Zealand Students in Years 1-8 Achieving At or Above National Standards in Mathematics, Writing and Reading by Decile (2012-2016).

Information requested under the Official Information Act, 15 July 2019 (Ministry of Education, 2017).

Writing-Tuhituhi

Decile	2012		2013		2014		2015		2016	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Decile 1	16,723	51.0	15,974	50.9	16,383	52.0	20,047	54.5	20,214	54.9
Decile 2	20,623	57.2	19,457	57.6	21,156	59.1	20,203	59.2	20,608	59.8
Decile 3	19,813	61.5	18,499	62.2	19,844	62.3	22,100	62.9	22,862	62.7
Decile 4	24,543	67.6	23,560	66.3	24,008	65.9	25,022	67.0	25,515	65.4
Decile 5	27,327	67.6	27,698	68.2	28,515	69.1	30,323	69.3	30,855	69.0
Decile 6	29,598	71.6	28,964	71.9	30,216	71.9	25,914	72.6	26,233	71.6
Decile 7	28,124	74.6	29,030	74.8	30,168	75.7	35,571	75.5	35,726	74.9
Decile 8	35,299	75.7	34,767	75.8	37,289	76.1	40,287	76.9	41,477	77.5
Decile 9	40,676	77.3	39,637	77.7	41,561	78.6	41,397	79.7	43,164	78.5
Decile 10	50,476	81.6	52,270	81.7	54,559	82.2	52,564	82.5	54,136	81.5
All Students	**293,483**	**70.1**	**290,783**	**70.5**	**304,198**	**71.1**	**313,721**	**71.5**	**321,169**	**71.2**

Reading-Panui

Decile	2012		2013		2014		2015		2016	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Decile 1	19,217	58.5	18,777	59.8	18,900	59.9	22,461	61.0	22,709	61.7
Decile 2	23,682	65.9	22,458	66.6	23,626	66.0	22,884	67.1	22,804	66.2
Decile 3	22,153	68.7	20,369	68.5	21,985	69.0	24,159	68.8	25,061	68.8
Decile 4	27,080	74.4	26,149	73.5	26,660	73.2	27,722	74.2	28,694	73.6
Decile 5	30,693	76.0	31,109	76.6	31,869	77.2	33,605	76.8	34,180	76.4
Decile 6	32,921	79.8	32,320	80.2	33,587	79.8	28,543	79.9	29,119	79.4
Decile 7	30,851	81.7	31,655	81.5	32,645	82.0	38,567	81.9	38,706	81.2
Decile 8	38,508	82.7	38,126	83.2	40,602	82.9	43,611	83.3	44,755	83.6
Decile 9	44,407	84.4	43,172	84.6	44,828	84.8	44,565	85.7	46,779	85.1
Decile 10	54,886	87.8	55,977	87.4	58,407	88.0	56,012	87.9	57,915	87.0
All Students	**324,716**	**77.5**	**321,118**	**77.9**	**333,664**	**78.0**	**342,470**	**78.1**	**351,128**	**77.8**

Mathematics-Pangarau

Decile	2012		2013		2014		2015		2016	
	Number	Percent	Number	Percent	Number	Percent	Number	Percent	Number	Percent
Decile 1	18,129	55.5	17,696	56.5	17,800	56.6	21,868	59.3	21,715	58.9
Decile 2	22,367	62.1	21,308	63.0	22,813	63.7	22,130	64.9	21,838	63.3
Decile 3	20,710	64.9	19,636	65.9	21,376	67.0	23,266	66.1	24,328	66.8
Decile 4	25,443	69.9	24,779	69.7	25,325	69.5	26,646	71.3	27,545	70.6
Decile 5	28,315	70.0	29,163	71.8	30,130	73.0	31,985	73.0	32,634	73.0
Decile 6	30,967	75.1	30,638	76.0	32,005	76.0	27,129	75.9	27,584	75.2
Decile 7	29,416	77.8	30,407	78.4	31,517	79.2	37,318	79.3	37,796	79.4
Decile 8	36,667	78.7	36,570	79.8	39,287	80.2	42,522	81.1	43,825	81.9
Decile 9	42,647	81.0	41,758	81.8	43,431	82.1	43,534	83.8	45,717	83.1
Decile 10	53,230	85.1	54,666	85.4	57,384	86.5	54,788	85.9	57,179	86.0
All Students	**308,177**	**73.6**	**307,589**	**74.6**	**321,561**	**75.2**	**331,493**	**75.5**	**340,548**	**75.4**

Appendix 11: Example of Interview Coding

Theme	Code	Early codes (iterations)	Quote
Values and beliefs	1. Internal and external contextual influences to beliefs 2. Influence of principal's beliefs on decision-making 3. Development of common beliefs about teaching and learning practices 4. Influence of principals' beliefs on their work intensity (and well-being) 5. A principal's epistemological beliefs influence the theory of action within the school. 6. Link to structure and systems to develop beliefs 7. Link to context and events to shared beliefs 8. Link to vicarious expertise for professional development	Work ethic Priorities based on beliefs Work/life balance	"I believe in doing the very best you can in your job, but I don't believe in crashing and burning…"
		Judgement (What is right? Whose beliefs?) Expectations	"For me it's about having the right people in place to be able to lead and do the right things"
		Align beliefs of followers to vision (Whose vision?) Examine beliefs Commonality	"As a leader, the idea of your vision is to change people's mental models. So the values and beliefs are assumptions about teaching"
		Competing limits of time and resourcing Prioritization	"Put your support into [changing teachers philosophies of learning] and once that is up and going then look at other priorities [like resourcing IT]."
		Changing teaching beliefs Managing change	"We have done a trial of collaborative teaching in a space that we had for a year that was orchestrated to try and demonstrate to teachers that it could be done. There is huge resistance to collaborative teaching…"
		Family and personal morality Communicate beliefs through actions	"The way to leadership is through service [so today I will do the shopping for our fundraiser and tomorrow I will do the cooking] that keeps it aligned to what I believe"
		Comparing school contexts Compartmentalize/prioritize Workload	"I think it depends on your circumstances and your situation…it was definitely easier to compartmentalize and get things done [at my other school]."

Appendix 12: Example of Document Coding

Leadership Dimension	Excerpt from Document	Document Type (Identification)
Promoting and participating in teacher learning and development	Minutes [date] July 2016	Staff meeting minutes (K, 6-1)
Establishing goals and expectations	*My focus is on leading improvement in mathematics given that this an area identified in my school as needing additional focus and improvement. Accordingly, my report has mathematics at its core but aims to provide insights into all school curriculum improvement. In addition, it was my goal to identify and investigate extra assistance programmes and strategy's in mathematics that are being used successfully in other schools, their strengths and weaknesses, implementation strategies, and the barriers to their implementation.*	Sabbatical report (B, 2-1) *also coded to resourcing strategically; planning, coordinating and evaluating teaching and curriculum
Planning, coordinating and evaluating teaching and curriculum	*Teachers have done a lot of thinking and reading around ways to develop a Growth Mindset amongst students, which is also having a positive impact.*	Annual report to parents (K, 3-2)
Resourcing strategically	*Year 1-2 cohort spelling assessment gathered to inform practice and resourcing decisions*	Annual report and analysis of variance (E, 1-16)
Ensuring an orderly environment	*At* [name of school] *we have clear expectations characterised by our school norms that are explicitly and consistently applied across all classrooms as well as the school grounds. This is seen in how we: present ourselves; are prepared for school; maintain respectful relationships; use restorative practices; aspire to be the best we can.*	Learning covenant poster (F, 5-1) *also coded to establishing goals and expectations
Creating educationally powerful connections	*With a focus on deeper writing features and content we will work hard to produce and article worthy of national publication and a resource that the school that can be very proud of which tells the story of a very important physical addition to the schools' culture and progression of Maori inclusion.* *The first part of the study is to investigate how strong relationships are beneficial to students while they are making their way in learning.* *School leaders value the involvement and support of parents. They are currently planning a review of the school's partnership with parents including the ways in which information about students' learning is made available to parents.*	Progress report on Maori Boys Writing Group (F, 4-4) Sabbatical report (D, 5-1) ERO Report (L, 2-1)
Engaging in constructive problem solving talk	*Ensure teachers regularly participate in in-depth discussions about the strengths and needs of students who need to make accelerated progress. This collaborative discussion is expected within the classroom but also in other forums such as PLG meetings, so the team collectively takes ownership of student progress and achievement in written language.*	NAGs 2A report commentary for Ministry of Education (M, 3-4)
Selecting, developing and using smart tools	Rubric of best practice *Though there is evidence of progress for these students, there needs to be further accelerated progress for them to achieve at or above the standard for Reading. There will be a change in wedge graph design to help teachers with identifying individual and cohort improvement, achievement and progress over time.*	Curriculum delivery document (K, 22-10) *also coded to establishing goals and expectations Annual report to community (C, 4-2) *also coded to planning, coordinating and evaluating the curriculum
Reflection	*I have spent the last few days re-reading James Kouzes' and Barry Posner's, Extraordinary Leadership… For me this is indeed an extraordinary book and not just for the reasons outlined above. Fundamentally it deeply resonates as to how I am trying to live my life as a leader. Secondly it aligns with what we are trying to create here at our school – a great workplace.* Leading complex change powerpoint *Since discovering the* [name] *framework it has had a large impact on my leadership, mainly in terms of how I think about the challenges that are being faced in my organisation.*	Blog (I, 14-5) Presentation to principals' group (A, 1-1) Sabbatical report (G, 3,1)