

## **Cultivating Leadership in Education**

HENLEY BUSINESS SCHOOL

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**Declaration**

I confirm that this is my own work and the use of all material from other sources has been properly and fully acknowledged.

*[Note: The use of any third party proof-reading or editing must be acknowledged in a written statement accompanying the work on submission.]*

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## Abstract

### Does Leadership Matter?

This research explores the relationship between leaders and organizational performance from the perspective of a public school education system that serves students from the beginning years of Kindergarten to High School graduation. Significant literature exists that acknowledges the known impact and behaviours of leaders for organizational success. It also highlights the need for further research into the design and impact of leadership development opportunities for both potential and current leaders in the organization. This research further explores the specific behaviours, actions and thinking of current leaders and school principals in the system that have a demonstrated impact on results, as defined by objective academic and culture performance measures along with affective responses from teachers.

The literature review focuses on the impact of leaders in both education and management from the theoretical stance of transformational leadership given its direct link between leadership behaviours and organizational performance. It highlights current research related to the impact of the leader on organizational success and indicates multi-dimensional characteristics to develop and explore as part of an integrated leadership model. Research related to leadership development along with current models/frameworks for school leadership development are solely reviewed to assess the behaviours, actions, and practices identified as elements of a successful principalship.

Having positioned the research in the literature, the proposal defines the reasons for a mixed-methods research design. The case is made for a relativist research paradigm in Chapter 3 which outlines the research design and methodology. Careful consideration is given to the specific research methods and data analysis techniques from both a quantitative and qualitative stance.

The findings of this thesis support the effects of transformational leadership on student performance. In the quantitative study, the results showed a positive effect of principal leadership, as measured by transformational leadership on several student achievement and culture variables. There was also a positive effect on the teacher outcomes in relation to the actions of the principals. The qualitative study identified attributes, actions, thinking and practices that were common, integrating transformational leadership behaviours, instructional leadership, strategic thinking, networking and contextual awareness.

The findings suggest that an integrated leadership approach is linked to student success. It supports past research that identifies links, both direct and indirect, between the transformational behaviours of

the principal and student achievement and engagement. Furthermore, it adds to the research field by identifying multidimensional variables beyond those of transformational leadership that are essential actions, knowledge, and behaviours for effective principal leadership.

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**bold steps will define you**

# Chapter 1 Overview, Introduction and Structure of Thesis

## 1.1 Introduction

This study explores the relationship between transformational leadership, leadership outcomes, instructional leadership behaviours and student achievement to further develop an understanding of the role of principal leadership and its impact on student success. It intends to contribute to both theory and practice in the context of leadership theory and school leadership practices that are contextually relevant.

## 1.2 Background

There is a growing awareness that the identification and development of leadership potential is a strategic imperative for all organizations, including educational institutions. In many countries, almost half of the current generation of school leaders is due to retire within the next five years creating significant challenges to leadership recruitment, stability and effective continuity and succession, especially where leadership effects overly rely on the impact of a single individual (Leithwood et al., 1999; Hargreaves and Fink, 2003; Darling-Hammond et al., 2007). With rising academic accountability coupled with the changing perceptions of the roles of school leaders, school systems are experiencing increased challenges in the area of leadership personnel. Orr (2006) questions whether this challenge can be attributed to a result of inadequate recruitment practices and/or inept professional development policies for aspiring leaders. Vacancies will be filled, however, unless leaders have a deep knowledge of the organization and the core mandate of schools - student success - the system will continue to be underserved (Orr, 2006; The Wallace Foundation, 2008, 2011; Clifford et al., 2012; Rice, 2010).

In management, it is estimated that only between 31 and 55 percent of large US corporations have a specific framework in place for the systematic identification and development of leadership potential (Dries and Pepermans, 2012). Current research also identifies critical issues in separating current performance from actual potential and the strategic, focused development of valid leadership frameworks. In education, there is considerable research that focuses on the key skills and traits for the development of school-based leaders; leadership frameworks exist yet are not consistently used globally.

With respect to leadership in our modern organizations, including schools, the research of the last three to four decades provides strong support for the argument that if we are to have successful organizations we must have strong leadership. Multiple theories of leadership in both the corporate and educational realms abound - instructional, transformational, moral, participative, sustainable,

authentic, contingent, distributed - yet each recognizes a strong focus on the individual leader who leads from the top of the hierarchy.

In terms of organizational success in the education realm, leadership not only matters but it is second only to teaching among the school-related factors in its impact on student performance. Local leadership, both at the school and district level, also has an influence on teacher development, by directly linking it to student achievement. The leader of a school is critical to the success of the students he or she serves (Darling-Hammond et al., 2007). Clifford, Behrstock-Sherratt, and Fetters (2012) identify “the ripple effect” of principal leadership through both practice and impact perspectives. They suggest that the practice perspective is related to the motivations, actions, and knowledge that principals exhibit. Further, the impact perspective both directly and indirectly focuses on the results for students that include climate and culture, teacher learning, community relationships and student academic results.

Integral to student success is the quality of the teacher (Hattie, 2010; Ladd, 2009; Leithwood et al., 2004; Waters et al., 2003). Research suggests the principal’s influence on both teacher engagement and quality via the creation of a positive instructional climate, continual professional learning, strong working relationships and resources for learning and teaching (Ladd, 2009; Wahlstrom et al., 2010; The Wallace Foundation, 2011). Wahlstrom et al., (2010) note the positive correlation between schools with high student achievement results and high scores of teachers of an instructional climate (p.13).

Reviewing the extant leadership literature, particularly around the relationship of the principal to student performance, will help create a stronger understanding of the key variables that impact success and identify those that may be key constructs of a leadership model or framework for a school district.

It is also important to note the work of Harris and Townsend (2007) who recognize the “new” cadre of leaders who bring to their work different expectations and dispositions than their predecessors and anticipate for more collaborative forms of leadership and managing work-life balance. Management research supports this recognition as well through studies that focus on the Generation Y/Millennial leaders and their emerging roles in organizations (IBM, 2010, 2012). Darling-Hammond et al., (2007) suggests that studies of principal shortages have identified the challenges of new systems of accountability, inadequate compensation, and the continually expanding roles and responsibilities of school leaders as factors that discourage individuals from seeking or remaining in leadership roles, both at the school and district level. In addition, Darling-Hammond (2007) maintains that the quality of



the preparation experience appears to be related to the willingness of potential candidates to assume the role of leader, as well as their ability to survive and succeed in it.

Coupled with this challenge, are the multiple roles, responsibilities, and expectations of principals. Unlike the traditional authoritarian view of the principal, the 21<sup>st</sup> Century principal is expected to share leadership, actively engage in instruction, use multiple spheres of influence and effectively adapt practices and actions that fit the context of the school community. At the core of the principal's work is the belief that change and student success is possible (Wahlstrom et al., 2010).

Leithwood et al., (2010) identify inherent challenges for school districts in the development of leadership roles, particularly related to staff turnover and succession planning. They note the need for district leaders to directly encourage and strategically plan forms of leadership distribution and development systems to build high collective efficacy.

The Organization for Economic Co-Operation and Development ([OECD], 2008, 2010, 2012) notes that with increased focus on accountability, decentralization, evaluation, and assessment through both government reforms and policy to raise student achievement standards worldwide, the role of school leader has changed and acknowledged as integral since "Effective school autonomy depends on effective leaders" ([OECD], 2012, p.14).

The challenge for district leaders is not only to build and distribute leadership for success but also explore how to articulate and foster its development over time. Leadership initiatives and strategic goals will only be effective if current leaders address the needs of both. Lasting, sustainable improvement depends on strategically planned succession, mentoring of new leaders and creating great leadership density and capacity from which effective leaders will evolve.

## **The Research Focus**

The intent of this mixed methods study is to contribute to both research and practice in relation to how principal attributes, actions, thinking, and behaviours influence student success. The study aims to answer the following question: How does principal leadership impact student achievement?" by exploring the extent to which principal leadership attributes, behaviours, actions and thinking directly, or indirectly, impact student achievement.

This study uses a mixed methods design to explore relationships between school leadership and student achievement. The research is grounded in the work of key educational researchers (Leithwood, Day, Robinson, Marks, and Printy) that supports the critical attributes, behaviours, actions and thinking of school leaders. Transformational leadership is used as the key theoretical construct, noting the strong relationship between transformational leadership and organizational performance

(Burns, 1978; Bass, 1985). As well, in the context of education, transformational leadership theory is commonly used in key studies that research and guide the work of principals (Leithwood, 1994, 1999; Leithwood and Jantzi, 2000; Leithwood and Sun, 2015). The research questions are explored and examined using student achievement data, and both quantitative and qualitative data collected from 27 principals, 25 schools and 195 teachers across the largest school district in Newfoundland and Labrador. Three data sets were used:

1. Panel data (2004-2015) that includes student achievement data, climate and culture survey data and principal/school demographics;
2. Survey data based on the Multifactor Leadership Questionnaire (Bass and Avolio, 2004) that provided leader, follower and supervisor scores of transformational leadership behavior and leadership outcomes from 25 school principals and 191 teachers/district leaders; and,
3. Interview data collected from 27 principals.

From an academic stance, the intent is to contribute to the body of literature that identifies the successful practices and behaviours of effective principals. The use of the transformational leadership construct and psychometric will expand on the work of transformational school leadership (Leithwood et al., 1994, 1999, 2000, 2015). Like the research of Darling-Hammond (2007), Clifford, Behrstock-Sherratt and Fetters (2012), and Wahlstrom et al., (2010), this research will expand on the attitudes, experiences, behaviours, learning and actions of principals within the context of their school community. From a practice perspective, the intent is to create a leadership framework that which, if used by a school district, would result in better outcomes and allow for a systematic structure for leadership recruitment and development that is founded on both key research and the practices and perspectives of principals on their work.

## **Thesis Structure**

This thesis has 6 chapters, each providing specific content related to the overall structure, research, and design of this study.

Chapter 1 provides the overview and introduction to the content and structure of the thesis.

Chapter 2 explores the current literature and theories in relation to successful school leadership. A variety of school leadership practices and perspectives are explored. School leadership in the context of transformational leadership theory is discussed. This review provides a background to the main constructs of the research questions and the key variables for exploration.

Chapter 3 outlines the research philosophy and methodology adopted for this thesis. Key findings from the 2014 pilot study are noted as well as a description of the data collection process. The convergent parallel design of this mixed methods study is explained and supported by the literature. The quantitative analysis was of equal value to the qualitative study that relied on thematic analysis of interview data.

Chapter 4 details the quantitative study. It outlines the data selected, the sources and collection process along with the results and hypothesis tests conducted. Findings are presented and provide a relationship to the qualitative study in the next chapter.

Chapter 5 explores the perspectives of current school principals in relation to their impact and practices using semi-structured interviews as the data source. Thematic analysis was conducted on the data and resultant findings are presented.

Chapter 6 presents the convergent findings from both studies. The findings are discussed in relation to both current literature and leadership frameworks. A subsequent leadership development framework is presented. To conclude, both limitations and contributions are noted as well as suggestions for future research.

## Chapter 2 Literature Review

### 2.1 Introduction

This thesis explores the relationship between the school leader, transformational leadership style, and student achievement to develop a comprehensive framework for school leadership. While comprehensive, the current literature review is not exhaustive. This review provides a background to the main constructs of the research questions and is related to the key variables of exploration. Given the substantive research in both school and management leadership theories, this review of the management leadership literature focuses on both theoretical and empirical evidence of current topics, trends, and thinking. The purpose of this review is not to provide a comprehensive historical perspective of leadership research, theory, and development. Rather, the focus is on relevant research in relation to 1) the impact of the school leader on student success, and 2) transformational leadership theory in relation to the context of schools to rationalize its choice as a theoretical construct for the research and a review of current school leadership frameworks.

This literature review has four sections. The first section presents and evaluates key research related to the role and impact of the school principal on student success. The second section highlights school leadership research and theories followed with a broad discussion of transformational leadership theory, particularly related to the school context. The third section explores current school leadership development frameworks in both national and international settings.

Section four will identify the hypotheses and questions for exploration in this mixed methods study, linking the literature to the research questions and noting any limitations that have been identified.

### 2.2 The Impact of the School Leader - Theories and Perspectives

Based on the extant management literature, it can be presumed that effective leadership is vital to the success of an organization. The same beliefs and theories are recognized in the K-12 education realm. Success, from the education system perspective, is linked to improving student learning and the quality of schools and systems (Leithwood and Louis, 2011). Senge et al., (1999, 2000) suggest the dependency of schools on leadership for future shaping through a process of self-renewal. Harris (2005) highlights the importance of leadership for creating better schools and the role of the principal as influencing and motivating teachers to impact the quality of teaching in the classroom. The educational leader is fundamental to the functioning and success of the system, whether at the school or district level. Fullan (2014), in his summary of the work of Robinson (2011); Leithwood, (2012); Kirtman, (2013); Timperley, (2011), and Bryk et al., (2010), notes the consistent finding that principals impact student learning indirectly yet explicitly.

The research of Leithwood et al., (2008) is both seminal and pertinent. Their work identifies key research and findings in this field, specifically:

- School leadership is second only to classroom teaching as an influence on pupil learning.
- Almost all successful leaders draw on the same repertoire of basic leadership practices.
- School leaders apply basic leadership practices in different ways and are responsive to the contexts in which they work.
- School leaders improve teaching and learning indirectly and most powerfully through their influence on staff motivation, commitment and working conditions.
- School leadership has a greater influence on schools and students when it is widely distributed.
- Some patterns of distribution are more effective than others.
- A small handful of personal traits explain a high proportion of the variation in leadership effectiveness (p.28).

Along with this seminal work, other research also identifies the direct influence of leadership on student achievement. Through a meta-analysis of 35 years of research on educational leadership, involving 69 studies and 2802 schools, Marzano, Waters, and Mcnulty (2003) posit that “the caliber of school leadership has a substantial effect on student achievement” (p.42). They identify twenty-one principal behaviours and calculate an average correlation between each of the behaviours and their impact on student learning. They identified the average correlation between the leadership behavior and the average academic achievement of the students to be 0.25 and identify key leadership behaviours and responsibilities that impact this change, including behaviours such as intellectual stimulation, ( $r= 0.24$ ), instructional leadership ( $r= 0.20$ ), situational awareness ( $r= 0.33$ ) and discipline ( $r= 0.27$ ).

Leithwood, Seashore, and Louis (2004) also reference the work of Marzano et al., (2003) in their review of large-scale quantitative and qualitative studies of leadership effects on student achievement, and suggest that both the direct and indirect effects of principal leadership are small yet significant. They conclude that principal leadership “is second only to teaching among school-related factor is in its impact on student learning” (p.5). They identify that leadership explains five to seven percent of the variation in student achievement across schools. They also note that this percentage represents about 12-20 percent of the total across-school variation, considering all school-level variables and controlling for demographics, with classroom factors accounting for more the one-third of the variation, (Leithwood et al., 2004). Likewise, Robinson, Lloyd, and Rowe (2008) in their subsequent meta-

analysis, identified five sets of leadership dimensions with a specific emphasis on the dimension related to teacher learning and development. Robinson et al., (2008, 2011) conducted a large-scale meta-analysis of published research on the impact of principals on student achievement. The findings from these studies are noted in Table 2.1.

**Table 2.1 Impact of Principal Leadership on Student Outcomes**

Reference	Schools	Leadership Theory	Leadership Measure	Measure of Student Outcomes	Magnitude of Effects
Griffith, (2004), USA	117 urban schools	TFL	3 domains of TFL: - Charisma - Individualized consideration - Intellectual stimulation	School level analysis; residual standardized test scores	Effect size (ES) for school grades: 0.68
Heck and Marcoulides, (1996), Singapore	A convenience sample of 26 schools	TFL	Leadership as part of managerial (transactional) processes	National test on a variety of curriculum outcomes	Mean ES for combined achievement= 0.22 (n=3)
Leithwood and Jantzi, (1999), Canada	94 elementary schools	TFL and transactional leadership	Teacher survey	Student identification and participation with school survey (Climate and Culture Survey)	ES for identification= 0.30 ES for participation= 0.20
Leithwood and Jantzi, (2000), Canada	110 elementary and high schools	TFL and transactional leadership	Teacher survey	Student engagement with school (Climate and Culture Survey)	ES for participation- 0.08 ES for identification= 0.20
Leithwood and Jantzi, (2000), UK	256 elementary schools for Literacy and 258 for Numeracy	TFL	Teacher survey related to Literacy and Numeracy initiatives	Gain scores on Key Stage 2 tests	Impact of leadership is not significantly different from zero
Marks and Printy, (2003), USA	24 elementary, middle and high schools	Integrated leadership, comprising of high TFL and high shared instructional leadership	Teacher survey related to leadership, coding of interviews	Gain scores over one year for Math, Reading, and Language	Mean ES for combined achievement = 0.02 (n=60) ES for combined achievement = 0.56

Ogawa and Hart, (1985), USA	124 elementary schools and 151 high schools		Change in principalship	Math and Reading scores on local achievement test over a 6 year period	Elementary schools from 6% to 8% of variance in achievement attributed to the principal controlling for year and school effects. High schools similar for reading (3%) but smaller for Math.
Silins and Mulford, (2002), Australia	96 high schools	TFL	Survey of teacher perceptions of their principal's transformational leadership	(a) Student participation in school, (b) Student engagement with school, and (c) Academic	ES for participation = 0.10 ES for engagement = 0.30 ES for self

(Adapted from Robinson et al., 2008, 2011)



The findings identify five leadership domains that have demonstrated effect sizes on student achievement as noted in Table 2.2. To report the effect size, Robinson et al., (2008) chose to report the z scores. The statistical measures employed in the studies explored, including regressions, path and correlation coefficients and a variety of *t* tests; the resultant z scores were easily derived and served as a common effect size statistic (p.653).

**Table 2.2 Five Leadership Domains**

<b>Leadership Domain</b>	<b>Effect Size (z)</b>
Establishing Goals and Expectations	0.42
Resourcing Strategically	0.31
Ensuring Quality Teaching	0.42
Leading Teacher Learning and Development	0.84
Ensuring an Orderly and Safe Environment	0.27

Adapted from: Robinson et al., (2008)

It is apparent that “Leading Teacher Learning and Development” is the domain that demonstrates the most impact ( $z = 0.84$ ), clearly signifying a need for school principals to be engaged with teachers in relation to instruction and professional development. Robinson et al., (2008) suggest that leaders in high-achieving schools are connected to their teachers and engage in both formal and informal conversations on learning and teaching, drawing on their expertise and providing intellectual engagement. Along with these domains, Robinson (2011) identifies leadership capabilities that cut across each domain, namely:

- Applying Relevant Knowledge
- Solving Complex Problems
- Building Relational Trust

Leithwood et al., (2008, 2012) have studied the impact of the principal in relation to teacher learning and instructional climate. They conclude that principals affect student learning when they target working relationships with teachers, improve instruction and thus, indirectly, impact student success.

Coelli and Green (2011) in their quantitative study on the leadership effects of school principals on student outcomes, identify the impact of school principals on student test scores and suggest that the arrival of a new principal may take a few years to affect a school. Coelli and Green (2011) explore the impact of principal turnover (changes in leadership) at schools, tenure, and experience. They also note policy implications for the retention of good principals. Hallinger and Heck (1998) also posit that school principals may influence student outcomes through the

development of clear purpose and goals, defined structures and social networks, people, and culture. While Coelli and Green (2011) suggest a relationship between the principal and student results, they propose that further investigation is required to explore the effective principal behaviours and actions that affect student outcomes.

In their quantitative study conducted in the 180 schools across 43 school districts in North America, Louis, Leithwood, Wahlstrom, and Anderson (2010) explore the relationship between school leadership and student achievement. Their findings suggest that that the leadership of the school principal matters. They suggest that the principal is in a unique position to create an impact across key variables - teachers, parents, students and policy makers - in order to obtain large effects on student success.

Along with the seminal work of Marzano, Waters and McNulty (2003, 2005), further empirical studies identify that leadership heavily influences student learning, again second only to classroom teaching (Hallinger and Heck, 1996, 2010; Leithwood, Day, Sammons, Harris and Hopkins, 2006; Leithwood, Day, Sammons, Hopkins and Harris, 2008; Robinson, Hohepa, and Lloyd, 2009). This influence is accomplished via the effect on school culture, teacher instruction and behavior, organizational learning, structures, collaboration and school practices. Hallinger's (2010) review of 30 years of empirical research highlights the impact of both direct and mediated effects of the school leader, particularly through the development of capacity of both the school community and teachers as well as the creation of a positive school climate with a focus on student motivation and engagement in order to foster achievement.

Day et al., (2016), in their mixed methods longitudinal study, investigated the work of principals in effective and improving schools in England. Their work is consistent with other research that identifies both the positive and negative impact of school principal leadership directly on the culture and conditions of the school along with the resultant impact on instruction and student achievement (Day et al., 2009; Gu and Johansson, 2013; Leithwood and Jantzi, 1999; Marks and Printy, 2003; Mulford, 2008; Robinson, Lloyd and Rowe, 2008).

Educational researchers are consistent in their identification of the role of the leader for organizational success, in this case, academic success. While the impact and role of the teacher is clearly defined in the literature, current research suggests a need for further exploration into the relationship between the characteristics of the principal and student success (Day et al., 2011; Leithwood and Sun, 2012; Marks and Printy, 2003).

Hitt and Tucker (2016), in their systematic review and synthesis of research on how leader practices influence student achievement, capture key leadership actions and behaviours of principals that enhance student success. These dimensions include:

- Establishing and conveying a vision
- Building professional capacity
- Creating a supportive organization for learning
- Connecting with external partners

Their work highlights the similarities and differences of empirically based research that reflect the definitions of instructional leadership, shared and distributed leadership, managerial behaviours and transformational/transactional leadership in relation to the domains and dimensions of leadership frameworks currently in existence (Leithwood, 2012; Murphy et al., 2006; Robinson et al., 2008; Sebring et al., 2006).

### **2.3 Leadership Theories and School Leadership**

How, then, do we clarify the attributes, skills, traits, and behaviours needed for successful leadership in education? As noted, there are broad theories and frameworks associated with leadership in non-school contexts. These theories, founded in management research, have been influential in the educational context. Many of these are reflected in the educational leadership literature that builds on this work and relates it contextually.

Leithwood and Sun (2012) note that educational researchers have been engaged in defining the leadership practices that matter most and have resulted in both “theory-free” and “theory-driven” findings. Marzano, Waters and McNulty’s (2003) meta-analysis of 70 studies, a theory-free approach, identify the 21 specific leadership “responsibilities”. “Theory-driven” approaches, according to Leithwood and Sun, have focused on constructivist, learning models specific to the school setting. While other leadership theories and definitions exist, for the purposes of this research study, such as team leadership, trait theories, situational leadership, contingency theory, servant leadership and authentic leadership, it is not the intent to explore these in relation to the research question. They provide opportunities for future research and exploration.

Instead, I will focus on the leadership theories and definitions identified by Marzano et al., (2003) that were noted above as foundational to their meta-analysis and further developed in later research by Leithwood et al., (2010, 2012), Robinson et al., (2009), and Hitt and Tucker, (2016), in their studies on the actions and practices of effective school leaders. These include

instructional leadership, distributed leadership, transformational leadership, transactional leadership, shared/participative leadership and transformational school leadership.

For each, I will provide the historical context and development as related to the principal as a leader. The concept of 'instructional leadership' (Hallinger, 2003; Leithwood et al., 2010) will be defined and discussed, from its roots in the effective schools movement to its current status in relation to the principal. Likewise, 'distributed leadership' and 'shared/participative leadership' will be defined and discussed. The most widely accepted and adopted of these models, 'transformational/transactional leadership', will be a key focus since it has been modified and adapted to a version suitable to the leadership demands of schools, combining practices associated with both transactional, transformational and instructional leadership models (Marks and Printy, 2003; Leithwood et al., 2004; Robinson et al., 2009). This research also provides the justification of transformational leadership as the theoretical construct for this thesis. Table 2.3 provides an overview of these key theories and definitions that are used in this study.

**Table 2.3 Key Leadership Theories and Definitions in the Education Context**

Title	Definition	Theorist/Research
<b>Participative/ Shared Leadership</b>	Shared and participative leadership in the educational context addresses attention to leadership in and of groups and how the formal leader facilitates and organizes the involvement of others in the organization.	Day et al., (2004); Carson et al., (2007); Pearce and Conger, (2003); York-Barr and Duke, (2004); Wang, Waldman, and Zhang, (2013)
<b>Distributed Leadership</b>	School leaders who espouse to using distributed leadership do not view themselves as the sole leader responsible for student achievement and rely the power of 'collective agency', drawing on the expertise of individuals in the work of mobilizing and creating instructional change. Principals, in this capacity, recognize the instructional expertise of the teachers providing them support and guidance in enacting change.	Harris, (2005); Hoy and Miskel, (2008); Gronn, (2002); MacBeath, (2004); Spillane, (2006); Sheppard, Brown, and Dibbon, (2009)
<b>Instructional Leadership</b>	Instructional leadership has emerged over the past thirty years as a common concept in school leadership. It is reflected through multiple dimensions such as pedagogic leadership, curriculum leadership and leadership for learning. As a key responsibility of the principal, there is a strong focus on the improvement of classroom instruction, curriculum development and pedagogical quality to improve student achievement	Glickman et al., (1995); Hallinger, (2003), (2005); Leithwood et al., (2010); Louis and Wahlstrom, (2010); Pinty, Marks, Bowers, (2009)
<b>Transformational Leadership (TFL)</b>	Grounded in the work of Burns (1978), this theory is used in both business and education. Four transformational behaviours are identified that produce results beyond expectations, often referred to as the "Four I's". <i>Intellectual Stimulation</i> encourages followers to think differently and seek novel solutions. <i>Inspirational Motivation</i> is characterized by the communication of expectations of high performance. <i>Individualized Consideration</i> notes the importance of personal attention to all followers. <i>Idealized Influence</i> is defined as the attributes and behaviours of the leader that provide models to be emulated.	Avolio, (2005; Avolio et al., (2009; Bass, (1985); Bass and Avolio, (1990); Bass and Riggio, (2006); Bass and Steidlmeier, (1996), (1999; Burns, (1978); Hoy and Miskel, (2008); Kirkbride, (2006); Lowe et al., (1996); Sun and Leithwood, (2012)

<p><b>Transactional Leadership</b></p>	<p><i>Transactional Leadership</i> or managerial leadership differs from transformational leadership in that the leader does not individualize the needs of subordinates or focus on their professional needs. Instead, leaders exchange rewards to advance their own or subordinates' agendas. Transactional leadership focuses on providing clarity on roles and tasks, linking effort to performance. Three dimensions identify transactional leadership. <i>Contingent Reward</i> is the degree to which the leader clarifies expectations, develops constructive exchanges and establishes rewards for meeting expectations. <i>Management by Exception (active/passive)</i> is the degree to which the leader takes corrective action as the results of exchanges with followers. The difference between <i>active</i> and <i>passive</i> is in the timing of the response. Active leaders constantly monitor, anticipate and act prior to behaviours creating challenges. Passive leaders wait until problems arise before taking action</p>	<p>Burns, (1978); Bass and Avolio, (1990); Kuhnert, (1994).</p>
<p><b>Transformational School Leadership (TSL)</b></p>	<p>Noting Bass and Avolio's (1994) four characteristics of individual consideration, intellectual stimulation, inspirational motivation and idealized influence, an education-focused model has evolved over the past fifteen years in response to both quantitative and qualitative evidence. Recent definitions of transformational school leadership combine practices associated with both transformational and instructional leadership models to reflect the focus on improving student achievement</p>	<p>Leithwood,(1994; Leithwood et al., (2004; Marks and Printy, (2003; Robinson et al., (2009).</p>

### 2.3.1 Instructional Leadership

Simply stated, instructional leadership focuses on the teaching and learning that occurs in a school with the intent to improve the “instructional, curricular and assessment practices to improve pedagogical quality and raise student achievement”, (Marks, Printy, and Bowers, 2000; p.507). The principal has long been recognized as having the responsibility for the management and instructional leadership of a school. In the context of this study, the role of the principal is provincially legislated (*Schools Act 1997*), clearly delineating the role and duties of the principal including managing the school, promoting a safe environment, instructional leadership, evaluation of students and teachers, community cooperation and maintaining order and discipline. Managing teachers and students, developing structures and procedures to maintain order and building operations have always been integral to the role.

The research on instructional leadership has emerged and evolved over the past thirty years and is now reflected through multiple dimensions such as pedagogic leadership, curriculum leadership and leadership for learning. It developed during the effective schools movement of the 1980's with the aim of standardizing the practice of effecting teaching and was considered foundational to the work of the principal. The early research on this model (Edmonds, 1979; Hallinger, 1992; Leithwood and Montgomery, 1982) defined it as *strong, directive, leadership focused on curriculum and instruction from the principal* (Hallinger, 2003). This hierarchical and supervisory tone is also evident in the work of Hallinger (1984) who identified the instructional role of the principal to include framing school goals, monitoring and evaluating instruction and student progress and coordinating the curriculum. Broader definitions also included managerial behaviours that aligned with student safety, school budgets and addressing teacher concerns (Donmoyer and Wagstaff, 1990; Murphy and Hallinger, 1988). Glickman (1989) used the term, “leader of instructional leaders” (p.6) in defining the role and work of principals, often denoting power and decision making authority to the principal. Leithwood, Jantzi, and Steinbach (1999) identified instructional leadership as central to the role of the principal, requiring a critical focus on “the behavior of teachers as they engage in activities that directly affect the growth of students” (p.8).

As schools moved from hierarchical, bureaucratic models to accepting more local control and autonomy, the concept of instructional leadership emerged as a shared model with the principal as facilitator versus inspector. In this ‘shared instructional leadership’ role, the principal works closely with teachers to establish a community of learners to research and design practices to enhance student success (Marks and Printy, 2003).

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In the analysis of this mixed-methods study that explored principal effectiveness as perceived by teachers, Wahlstrom (2012) claims that principals, as instructional leaders, engage in two complementary behaviours - *instructional ethos* and *instructional actions*. Instructional ethos involves setting the direction, tone, and climate for professional learning and a vision for student achievement. Instructional actions include the direct engagement of the principal in conversations and observations with teachers in their classroom and as teams. Interestingly, there is a higher rating of principals in elementary schools compared to high school settings related to instructional actions. Wahlstrom (2012) contends that this combination of ethos and action blends professional learning with a direct, intentional role for the principal in instructional operations, ideas and issues at the elementary level. Conversely, teachers did not report high levels of principal 'instructional actions' at the high school level despite high scores in 'instructional ethos'. Wahlstrom suggests that, as instructional leaders, principals at all levels need to have accountability for, "taking actions that are known to have direct effects on the quality of teaching and learning in their schools" (p.84). He further suggests for secondary school principals, in relation to instructional leadership actions, to align ethos with action noting, "...authority relationships tend to discourage candor about problems that secondary school teachers may be having" (p.85).

The term has often been criticized. Bush (2013) suggests that the term suggest teaching versus learning while Hallinger (2003) claims that it is too principal-centric, neglecting the role of leadership teams and classroom teachers. Subsequently, it has been expanded to the notion of "learning-centered leadership", (Bush and Glover, 2014; Hallinger and Heck, 2010; Rhodes and Brundrett, 2010). Hallinger identifies four roles of the instructional leader: resource provider, instructional resource, communicator and visible presence. Other works identify functions and characteristics that include facilitating collaborative efforts among teachers, using instructional research to make decisions, design and procurement of effective staff development opportunities and curriculum development (Glickman et al., 1995; Blase and Blase, 1999; Leithwood et al., 2010). Leithwood (2012) claims that a definition of instructional leadership that solely encompasses a narrow focus on classroom instruction should be expanded to the larger



context of the organizational context, purpose, structures and social systems. He identifies key instructional leadership practices for the school leader that are perceived by both teachers and principals as integral to the improvement of instruction. These include:

- Focusing the school on goals and expectations for student achievement
- Keeping track of teacher's professional development needs
- Creating structures and opportunities for teachers to collaborate
- Monitoring teachers work in the classroom
- Providing instructional resources and materials
- Providing mentoring opportunities for new teachers
- Being accessible
- Providing support for teachers with student behavioral concerns and parent interactions
- Staying current (Leithwood, 2012)

Louis and Wahlstrom (2010) contend that research shows that consistent, informed support from the school leader makes a difference to student achievement. Likewise, Hallinger (2005) supports that the role needs to be enacted consistently through supportive behaviours as well as direct coaching or modeling. Conversely, Louis and Wahlstrom (2010) argue that instructional leadership, like shared leadership, is important but indirectly linked to student achievement. While instructional leadership maintains a singular focus on classroom instruction and teacher practice, with the principal as model, they also note the importance of creating a learning organization with a common vision and focus on leadership for learning (i.e., shared leadership). They confirm the work of Marks and Printy (2003) that emphasizes the integration of transformational and instructional leadership models.

Like the evolution of instructional leadership, leadership scholars note the paradigm shift from vertical, hierarchical leadership to those that are more horizontal and collective in nature. There are many collectivist approaches to leadership including team leadership (Day, Gronn and Salas, 2004), emergent leadership (Kickul and Neuman, 2000), collective leadership (Friedrich et al., 2009), shared leadership (Pearce and Conger, 2003) and distributed leadership (Gronn, 2002, Spillane, 2006). These approaches are often parallel with each other and the definitions frequently overlap. For the purposes of this review, the two dominant definitions in the education literature will be discussed - shared and distributed leadership.

### 2.3.2 Shared Leadership

Shared leadership is often conceptualized as democratic leadership (Bass, 1990) or participative leadership (Piccolo and Judge, 2012) and, used interchangeably with distributed leadership. Like distributed leadership, it is a shared leadership that focuses on the importance of decision processes as well as the decisions decided for implementation by the formal leader. Since in the educational context attention is given to leadership in and of groups and how the formal leader facilitates and organizes the involvement of others in the organization (Pearce and Conger, 2003; York-Barr and Duke, 2004). Shared leadership, identified as teacher leadership in this context, is expected, valued and supported. At the school level, principals recognize the role of the teacher as leader and a key partner in the development of strategies for student achievement, drawing on their pedagogical knowledge and skills (Darling-Hammond, 1988). Through a shared leadership model, there is active collaboration of teachers and leaders related to student success and development. Along with instructional strategies and tasks, the principal and teachers share roles for professional development, school development and student assessment and engagement.

Some researchers find that increasing teacher leadership may improve student achievement (Spillane et al., 2004; Leithwood et al., 2007) while others contest the view that teacher involvement in formal decision-making and leadership roles has a positive influence (Pounder, 1999). While there is conflicting evidence, the concept of shared leadership denotes the influential role of the teacher and their participation in school-wide decision-making. Unlike the instructional leadership, this view of leadership reflects the enactment of both the formal and informal roles of leaders in a school.

Leithwood and Mascal (2008) aimed to estimate the impact of shared leadership on both teacher variables and student achievement and suggest that principals hold the highest level of influence in schools at all levels of achievement. They also hypothesize that schools with higher achievement levels have higher involvement in leadership across the school community compared to lower-achieving schools. While not explored in this thesis, it is a suggestion for future research via broader school community surveys that would engage parents and community partners as well as students and teachers.

### 2.3.3 Distributed Leadership

Since early 21<sup>st</sup> Century, distributed leadership has become a central perspective in the educational leadership discourse. This perspective is not about the actions of leaders, while

quite relevant, but instead focuses on interactions among leaders, follower, and aspects of the situation. Spillane and Healey (2010) suggest that “framing leadership and management from a distributed perspective foregrounds formal and informal aspects of the school organization as well as the relationship between the formal and informal aspects” (p.256).

From a theoretical and conceptual stance, to define distributed leadership, researchers drew on multiple disciplinary approaches including sociocultural activity theory, distributed cognition and micro-sociological theory (Gronn, 2000; Spillane et al., 2004), distributed cognition (Spillane et al., 2001, 2003). Spillane and Mertz (2015) posit that a key element of this conceptual work focused on the role of the situation and how its aspects contribute to defining practice. Gronn (2000), in his definition of distributed leadership, focuses on an activity system model, still valuing formal leadership as critical for organizational success yet cognizant of the flows of influence. He bridges the formal leadership and structures with the actions of the informal agents/leaders of the organization. He notes the dichotomy between traditional leadership paradigm and realities of practice. Gronn’s (2002) distributed leadership model identifies additive and holistic patterns of distributed leadership, distinguishing between situations in which leadership for specific tasks is enacted by multiple leaders, solely or separately (Leithwood et al., 2010).

Spillane, Diamond, and Jita (2003) also focus on the social distribution of leadership practices across formal and informal leaders. They identify two distinct levels of distribution, namely: coenacted practice and independently enacted coordinated practice. Later, Spillane (2006) identifies three specific arrangements for the distribution of leadership responsibilities, referred to as co-performance. He defines them as collaborated distribution (multiple leaders jointly enacting the same leadership practice in the same context), collective distribution (multiple leaders performing separate but interdependent tasks in different contexts and in support of the same goal) and coordinated distribution (interdependent actions of multiple leaders being performed in a particular sequence).

Harris (2005) defines distributed leadership as a form of collective agency that, “incorporates the activities of many individuals in a school who work at mobilizing and guiding other teachers in the process of instructional change” (p.258), recognizing at its core, it is the process of engaging a variety of individuals in leadership activities. Heifetz (1994) also suggests that recognizing leadership and management in terms of practice enables people without formal leadership designations to assume responsibility for work. Again, the formal designation and role of the school leader is recognized. School leaders who espouse to practice distributed

leadership do not view themselves as solely responsible for improving student achievement and, instead, rely on “multiple sources of leadership across the organization to guide and complete numerous tasks that vary in size, complexity, and shape,” (Hoy and Miskel, 2008, p.439).

This perspective recognizes that leading and managing schools involves multiple stakeholders, both formal and informal, including teachers, parents, student and the principal. This calls attention to both the formal and informal organization and how they interact with one another (Spillane, 2006; Spillane and Diamond, 2007). The second idea is that the practice of leading and managing is central to the research on organizational leadership; rather than focus on the individual leader, careful research is required on examining the interactions between school leaders and follower and how this practice is enacted (Spillane et al., 2015).

Leithwood et al., (2007) adopted a distributed perspective, drawing on Gronn’s (2002) holistic forms and conscious alignment of leadership performance of key functions across different sources. They identify these four forms of alignment:

- 1) Planful Alignment - situations in which leadership responsibilities have been decided in advance;
- 2) Spontaneous Alignment - responsibility for leadership functions emerge based on tacit agreements that develop from spontaneous interactions with staff;
- 3) Spontaneous Misalignment - sources of leadership are misaligned in terms of differences in values, norms, and beliefs; and,
- 4) Anarchic Misalignment - individuals assume responsibility for leadership function while rejecting the validity of other sources of leadership, creating competition for resources.

They theorize the impact of these alignments on school outcomes, positing the negative impact of both spontaneous misalignment and anarchic misalignment (Leithwood et al., 2007; Leithwood, Seashore Louis, Anderson and Wahlstrom, 2004).

Leithwood and Mascall (2008) investigated the impact of distributed leadership on student achievement and essential teacher variables. The results from their analysis demonstrated that contend that the practice of distributed leadership explains variations in student achievement across schools. Likewise, schools with higher achievement had a high percentage of teachers indicated aspects of distributed leadership in their schools. Leithwood and Mascall (2008) note that the practice of distributed leadership allows for a better distribution of workload, collective

decision-making, better utilization of member's strengths and an increase in group interdependence.

Heck and Hallinger (2009, 2010) conceptualize distributed leadership as “forms of collaboration practiced by the principal, teachers and members of the school's improvement team in leading the school's development” (p.662). They draw of the work of key researchers who suggest that successful improvement and performance is supported by leadership that is distributed and shared amongst stakeholders (Barth, 2001; Fullan 2001; Harris, 2003; Marks and Printy, 2003; Stoll and Fink, 1996). Their quantitative study (2009) found significant direct effects of distributed leadership on a school's academic capacity along with indirect effects on student achievement rates in mathematics. They explored both exogenous variables (e.g., school size, student composition, teacher certification) and endogenous variables (e.g. change in distributed leadership, change in academic capacity, sociocurricular organization, math achievement) within and between schools that affect student achievement. They hypothesized that the relationship between distributed leadership and academic capacity (changes in the school that support effective teaching and learning for both students and staff) was both dynamic and reciprocal. Their findings support this hypothesis in that when people perceive stronger distributed leadership, schools appear to improve academic capacity and with a similar reciprocal relationship between strong academic capacity and stronger leadership. Likewise, they found a positive association between academic capacity, distributed leadership and growth rates in math. The authors posit that distributed leadership appears to contribute to the development of academic capacity, with indirect effects on student learning outcomes. Their findings are of particular importance for this study since they speak to the development of leadership practices that focus on capacity-building strategies that impact teaching and learning. Similar to the context for this research, Sheppard et al., (2009) explored distributed leadership in a Canadian province. They note that “the view of leadership as collaborative and distributed is a particularly challenging aspect of professional learning communities’ (p.17) and include structural, personal and cultural obstacles that impede collaborative leadership and organizational learning, also noted in Harris (2005). Based on an analysis of five quantitative studies, they revealed key insights into how formal leaders enable collaborative leadership and organizational learning in both schools and districts. Central to the implementation and practice of collaborative/distributed leadership is the commitment of the formal leader to create a culture of trust and collaboration throughout the school. Schools where the formal leader was supportive of collaborative leadership experienced high levels of teacher engagement. Other key insights

include the link between the leadership behaviours of the formal leader, teacher perceptions and resultant engagement in professional learning and leadership. Furthermore, their findings indicate that as more 'constituent' became engaged in leadership and levels of influence increased, the 'extent to which the formal leader was perceived to provide leadership grew accordingly' (Sheppard et al., 2009, p.28). This is also echoed in the work of Gold et al., (2002) who identify the development of leadership capacity in a school as a central lever for organizational success. The researchers clearly identify the roles of both the informal and formal leader, noting the work of Hord and Hall (2006) who posit that the formal leader, the principal, is ultimately responsible, the "point person" (p.31). To create and facilitate an environment for distributed leadership, the formal leader must focus on the following factors:

- The development of a shared, student-focused vision;
- A commitment to teaching and learning;
- High expectations in an inclusive, caring culture;
- A commitment to professional learning of all staff;
- The development of a collaborative culture;
- An emphasis on action learning; and,
- The facilitation of systems thinking (Sheppard et al., 2009).

To do this, the authors suggest the formal leader must be values-based and inclusive, demonstrating a commitment to a higher purpose and vision and transformational.

### **2.3.4 Transformational Leadership Theory**

In terms of theory and style, transformational leadership is the most widely investigated and researched. Over the past several decades, it has emerged as a central approach to defining and understanding leadership effectiveness, During the 1990's, the concept of 'transformational leadership' emerged in education systems drawing on the work of Burns (1978) and Bass and Avolio (1993) that focuses on developing organizational capacity through a commitment to collective goals and the greater good.

Burns (1978) identified two leadership styles, transformational and transactional leadership. Transformational leadership, defined by Burns (1978) and further elaborated by others (Bass, 1985; Conger and Kanungo, 1987; Podsakoff et al., 1990; Yukl, 1989) is characterized by leader behaviours can engage and inspire followers in a higher level of thinking, moving beyond the role of manager or transactional leader. Antonakis and Day (2012) explore Burn's distinction between transformative and transactional leadership through the lens of values. They posit that

transactional leadership is grounded in the values of “responsibility, fairness, honesty and promise keeping, “ (p.526). Transactional leaders assist followers to reach goals by addressing lower-level needs so they can move to a higher purpose. Equally, transformative leadership is focused on values such as, “liberty, justice and equality” (p.526) In essence, transformative leaders raise their followers through higher stages of morality and need while, in turn, creating more leaders.

While Burns argued the distinctiveness of these two constructs, Bass (1985) suggested, in deference to Burns, that transformational and transactional leadership are not polar opposites. Instead, he considered the transformational and transactional leadership paradigm as a complementary construct linking both to the achievement of goals and objectives. Bass (1985) has made several significant contributions to transformational leadership research that is applicable both in education and management. He developed the “Multifactor Leadership Questionnaire” (MLQ) to measure the “Full Range of Leadership” model of leadership attributes, including transactional, transformational and laissez-faire leadership behaviours (Bass, 1985, Bass and Avolio, 2004). The MLQ assessment measures the degree to which a leader demonstrates leadership behaviours using a scale that ranges from “0 - not at all” to “4 - frequently, if not always”. Instead, Bass suggested that all leaders use the three types of leadership (transactional, transformational and non-leadership/laissez-faire). Effective leaders use low levels of laissez-faire behaviours such as the avoidance of decision-making. He further theorized that effective leaders use both transactional and transformational behaviours with the most effective leaders demonstrating transformational leadership behaviours most frequently, if not always (Bass and Avolio, 2004). Given its use in this study, a further discussion of this questionnaire will be provided in Chapter 3. Table 2.4 identifies the seven different factors of Bass’s model.

**Table 2.4 Full Range Leadership Factors (Bass, 1985)**

<b>Transformational Leadership</b>	<b>Transactional Leadership</b>	<b>Laissez-Faire Leadership</b>
Idealized Influence	Contingent Reward	Laissez-Faire
Inspirational Motivation	Management-by Exception (active and passive)	
Intellectual Stimulation		
Individualized Consideration		

## Transactional/Managerial Leadership

Bass and Avolio (2004) suggest that, in its constructive form, transactional leadership involves leader-member exchange relationships, creating and defining agreements for specific work objectives, discovering individual's capabilities and defining the compensation and rewards that can be expected upon successful completion of tasks. Similarly, in its corrective form, the transactional leader concentrates on setting standards and expectations. In its active form, leaders monitor closely for the occurrence of mistakes. In its passive form, leaders wait for mistakes to occur before intervention. Implicit in this position is the "leader-follower" dichotomy, denoting the superiority of formal leaders. Transactional leaders provide clarity for the work to be done and ensure that the procedures are implemented for work to occur that aligns with the purpose of the organization. Kotter (1996) suggests that transactional leaders offer predictability and order related to short-term success. Bass (1985) proposes that the transactional leader operates within existing cultures, prefers to avoid risk, is conscious of constraints and strives for efficiencies, and charts activities against prior performances. Control is maintained through strong procedures and systems. Bass defines the characteristics of transactional leadership to include *contingent reward* and *management-by-exception*. Bass and Avolio (2004) note that transactional leadership is limited to first order changes and exchanges. First order change can be managed by transactional leaders yet higher order change requires a dramatic shift from simple transactions to an emphasis on higher-order exchanges.

In the education context, this transactional stance supports the characterization of "managerial leadership" defined by Bush and Glover (2003) who equate this form of leadership with a series of rational means or transactions' to pursue goals within the organizational hierarchy. Harris (2005) posits that this rational form of leadership is premised upon leadership "equating with the management of systems and processes rather than the management of people" (p.78).

Sergiovanni (2007) characterizes transactional leadership in schools as the principal maintaining a safe, positive, tightly structured organization with set routines and procedures essential for student learning. In many instances, centralized systems and policies often mandate the initiatives, strategies, and resources at a school level, requiring significant managerial behaviours for implementation. While these actions and behaviours are valued and often required, sustained progress requires a more transformational approach to develop a shared vision for high-quality teaching and learning as well as authentic commitment from staff and the school community.



## Transformational Leadership

While transactional or managerial leadership is grounded in behaviours that create goals, clarify outcomes, provide feedback and exchange rewards for results, transformational leadership creates an environment of motivation for followers to achieve outcomes which are beyond expectation and primarily concerned with relationships and engagement with people. In contrast to the reward systems associated with transactional leadership, transformational leadership suggests the power of the leader-follower relationship for mutual benefit and a greater purpose associated with higher levels of morality and motivation. The dimensions displayed include *idealized influence*, *inspirational motivation*, *intellectual stimulation* and *individualized consideration* (Burns, 1978; Bass, 1985). The leader assumes the role of “moral agent” who empowers followers to take positive actions for the greater good of the organization, using power with and through people versus hierarchical control (Bass, 1985; Bass and Steidlmeier, 1999; Avolio, 2005; Bass and Riggio, 2006; Avolio et al., 2009). Harris (2005) posits a link between transformational leadership and organizational culture, suggesting the potential of leaders to change the culture in which people work; they not only manage structure but act purposely to influence the culture to change it. Sergiovanni (2007) suggests that transformational leaders seek to inspire, empower and influence members of the organization to have a shared vision for success and craft a shared ownership for change via collaboration and commitment, thus mutually creating a strong culture for success.

Extensive meta-analytic studies find that transformational leadership is positively associated with enhanced leadership effectiveness, task performance and positive organizational outcomes across many different types of organizations and cultures (Fuller et al., 1996; Lowe et al., 1996; Judge and Piccolo, 2004; Avolio et al., 2009). In the context of education, Leithwood and colleagues identified three major components of transformational leadership, namely: mission-centred, performance-centred and culture-centred (Leithwood, 1994; Leithwood & Jantzi, 1990; Leithwood, Jantzi & Steinbach, 1999) and suggest that transformational leadership behaviours encourage teacher collaboration, increase motivation and improve teachers’ self-efficacy (Harris, 2005).

### 2.3.5 Transformational Leadership in Education

Like its broader management counterparts, the most widely and adopted of leadership theories and models in schools is transformational leadership. Based on the theory and model of transformational leadership (Burns, 1978; Bass, 1985; Bass and Avolio, 1994), a version was

first proposed by Podsakoff et al., (1990) to reflect the leadership demands of schools. Leithwood (1994) further developed this definition and model of transformational leadership in schools. Noting Bass and Avolio's (1994) four characteristics of individual consideration, intellectual stimulation, inspirational motivation and idealized influence, an education-focused model has evolved over the past fifteen years in response to both quantitative and qualitative evidence. Recent definitions of transformational school leadership combine practices associated with both transformational and instructional leadership models in order to reflect the focus on improving student achievement (Marks and Printy, 2003; Leithwood et al., 2004; Robinson et al., 2009). Elmore (2004) notes that transformational leadership creates a culture of collegiality and collaboration, energizing faculty and staff to take on shared leadership roles.

### **Transformational Leadership in School Contexts - Empirical Research**

Significant research has been conducted by Leithwood and his colleagues related to the effects of transformational leadership in schools. A synopsis of this research is noted in Table 2.5. This thesis will adopt a similar approach, exploring the effect of TFL on academic success as well as mediating variables such as school demographics and principal gender. The work of Leithwood and others will be extended in this thesis to investigate, via a qualitative study, additional leadership factors such as context, leader background, staff engagement, strategic thinking, professional relationships and instructional leadership that may provide further insight into the relationships between the leadership effectiveness and student success.

**Table 2.5 Transformational Leadership in Schools Research**

Researcher	Methodology	Findings
Leithwood, Tomlinson, and Genge, (1996)	Meta-analysis of 34 empirical studies including qualitative, quantitative and mixed methods. Vote counting was used to summarize results.	Summary of the effects of Transformational Leadership (TFL) Transformation School Leadership (TSL) 13 types of outcomes, including student achievement. The magnitude of impact was not assessed.
Leithwood and Jantzi, (2005)	Meta-analysis of 32 published studies including qualitative, quantitative and mixed methods.	TFL effects on academic success were mixed but trending towards positive.
Leithwood and Sun, (2009)	Comprehensive synthesis of unpublished dissertations about TFL in education.	13 sets of TFL practices identified. Findings also suggest that moderating and mediating variables should be explored to investigate how TFL/TSL influences student achievement.
Chin, (2007)	Meta-analysis of 28 unpublished studies related to of TSL and school outcomes.	Results, while limited, indicate that TSL had a positive and large effect on student achievement.
Leithwood and Sun (2012)	Meta-analysis of 79 unpublished theses between 1996-2008 that included quantitative data.	Results indicate a wider range of TFL/TSL behaviours and actions. Also suggested is that TSL has a small but significant effect on student achievement, with some TSL practices explaining powerful effects along with other variables that moderate and mediate.

Leithwood and Sun (2012) suggest that future efforts to conceptualize educational leadership reflect the practices that seem important across most organizational sectors, primarily transformational leadership practices, as well as those unique practices that improve the technical core of the organization, in this case, instruction.

This integrated definition and model requires both a focus on the technical core through instructional leadership as well as the creation of the organizational conditions for success through a transformational leadership model. Marks and Printy (2003), in their quantitative study on the comparison of two conceptions of leadership - transformational and instructional and their relationship to school performance, found that when principals exhibit transformational leadership behaviours, integrated with instructional leadership, it creates a stronger sense of commitment and professionalism from the teachers. They posit that this “synergistic power of leadership” creates schools that, “...learn and perform at high levels” (p.393).

In the education context, this model, referred to as Transformational School Leadership (TSL) assumes shared leadership, as the principal engages teachers in the development of the organization. This model is grounded in individualized support, influencing staff by building from a “bottom-up” approach to develop vision and culture as well as create high expectations for improvement and student success. Leithwood’s model subsumes leadership for learning, i.e., the inclusion of instructional management dimensions. Leithwood and Sun (2012) argues this additional dimension makes TSL relevant in the school setting, aligning with Zaccaro (2012) as well as Marks and Printy (2003) who suggest that leadership research should evolve from rather simplistic models of leader-individual attributes toward more frames that integrate multivariate (profile-type) and multi-stage models of leader attributes, with a focus on the variance of contextual parameters in explaining leadership effectiveness. This identified gap related to leader attributes will be explored in the qualitative component of this thesis study.

Likewise, Robinson et al., (2008) meta-analysis of quantitative research proposes that transformational leadership ( $z = 0.11$ ) is less effective than instructional leadership ( $z = 0.42$ ) since it is staff focused versus the critical mandate of schools, effective teaching, and learning. This research suggests that TFL influences staff attitudes that do not directly translate to student outcomes along with the obvious positive impact of instructional leadership. Robinson et al., (2008) however, reference the work of Griffith (2004) and Heck and Marcoulides (1996) who employed academic outcomes along with transformational leadership measures and demonstrated moderate to large indirect effects on school test scores via influence on teacher satisfaction.

Conversely, Marks and Printy (2003) suggested that a relentless focus on instructional leadership would not be effective if solely focused on external policy drivers related to accountability, performance, and change instead of creating an engaging environment for collaboration, dialogue and partnerships. Like Leithwood’s TSL model, they imply an integrated leadership model that involves the coexistence of transformational and shared instructional leadership (Marks and Printy, (2003). Day et al., (2011) extend this research in their study of over 600 schools in England. They posit that ineffective and improving schools, successful principals demonstrate a wide range of practices that are both transformational and instructional.

Kutsyurba et al., (2015), in their review of the literature surrounding the contextual variables of school climate, culture, and well-being, find that these variables impact both quality and effectiveness of the learning and teaching experiences. They cite research (Bosworth et al.,

2011; Hoy and Miskel, 2005; Marzano, 2003; Uline and Tschannen-Moran, 2008) linking the impact of the climate on student success while noting the direct relationship to the support and leadership of the principal. Kutsyruba et al., (2015) also link the actions of the principal to engage students in decision making, cognizant of their maturity level, will create an environment where students are more connected to the school community. The principal's ability to create a positive school climate, in collaboration with teachers and students, can enhance staff engagement and performance, develop stronger morale and, ultimately, improve student achievement (DeAngelis and Presley, 2011; Hoy et al., 1990, 1998; Schannen-Moran et al., 2006; Kutsyruba et al., 2015). Leithwood et al., (2004) also suggest the link between the actions and influence of the principal to the culture and climate of the school. Waters et al., (2004) propose the strong influence of the principal on student achievement through the school climate and teacher attitudes that are strongly shaped by the principal-teacher shared relationship

The current research has focused on different models of school leadership, namely instructional, transformational, and transformational school leadership, all which focus on a specific set of leadership activities and behaviours. These studies clearly identify gaps in the research that will be explored in this thesis. Marks and Printy (2003) highlight the need to explore the impact of collaboration, dialogue, and partnerships. Robinson (2008) suggests a stronger focus on instructional leadership versus transformational leadership.

Leithwood et al., (2012) along with Marks and Printy (2003) and Zaccaro (2012) highlight the need to explore a model of leadership that includes multidimensional factors such as context, background, motivations and attributes along with the coexistence of transformational and instructional leadership - a more integrated model that may develop the understanding of the role of the principal in relation to school effectiveness and student success.

The intent of this thesis is to address these gaps in the research and provide an integrated leadership model for school leadership, drawing on the attributes of transformational leadership along with multi-dimensional factors.

The quantitative aspect of the study will align with the work of key scholars (Marks and Printy, 2003; Griffith, 2004; Leithwood et al., 1999; Leithwood and Jantzi, 2005; Leithwood and Sun, 2012; Chin, 2007; Robinson, 2008, 2011) in relation to the impact of transformational leadership (TFL) attributes on academic success, including the relationship between TFL attributes and school culture as defined by student perceptions of their learning environment. Robinson et al., (2008) report on the effect of the leader's role in establishing an orderly and supportive environment ( $z = 0.27$ ), drawing on 8 studies in their meta-analysis. This thesis will extend on

this work (Robinson et al., 2008; Kutsyruba et al., 2015) to identify if there is a link between the specific attributes and behaviours of the principal and student perceptions of climate and culture.

The qualitative study will explore the additional leadership factors in relation to context, background, dialogue, and collaboration along with TFL and instructional leadership.

### **Transformational Leadership Theory Criticisms**

While transformational leadership theory and concept are clearly identified and is still the most explored and discussed leadership theory (Dinh et al., 2014), others argue that in order to advance the field of leadership research, researchers will need to derive and test more complex models of how leader individual differences are integrated in their influences on leadership behaviours, processes, and outcomes (Berkovich, 2016; Zaccaro, 2012). Moreover, because leadership actions are contextualized these models cannot ignore situational moderators and influences (Osborn et al., 2002; Piccolo and Colquitt, 2006). The recent emergence of more sophisticated models is likely moving research on leader-individual differences toward a third tipping point. This tipping point should move leadership research away from rather simplistic models of leader-individual attributes toward more complex frames that integrate multivariate (profile-type) and multistage models of leader attributes, with a focus on the variance of contextual parameters in explaining leadership effectiveness (Zaccaro, 2012).

Yukl (1999) has made several criticisms of transformational leadership theory, including that transformational leadership may be associated with a “heroic leadership’ bias. With the central focus on the work of the leader to *move* followers, Yukl posits that TFL fails to consider reciprocal influences, shared leadership or the impact of the leader on groups or processes. Likewise, he notes that there is a strong emphasis on values yet an absence of key components of effective leadership such as monitoring operations, establishing strategic goals, assigning resources and observing the external environment. Yukl (1999) also suggests that there is a lack of clarity related to possible contextual or moderating variables for transformational leadership.

To extend on the work of Yukl (1999), Van Knippenberg and Sitkin (2013) recognize the dominance of TFL in leadership research yet openly question the validity of both the theory and research and noted a high correlation with other forms of leadership, including participative/shared leadership and leader-member exchange. They identify four challenges, specifically: first, a lack of a clear conceptual definition; second, the theories do not specify the

causal model particularly in relation to mediating processes and moderating influences; third, there are challenges with the conceptualization of the construct and operationalization; and fourth, the measurement tools (MLQ, Conger-Kanungo Scale) fail to provide quantitative distinctiveness (p.42). The researchers recommend the abandonment of the TFL framework suggesting that their integrative analysis identifies both conceptual and methodological challenges and provide alternative means to explore leadership processes. A meta-analysis by Judge and Piccolo (2004) demonstrated a high correlation between TFL and contingent reward. This challenge was also noted in the educational context by Menon (2014) who found that the best-fit model of the MLQ was one in which contingent reward loaded as a transactional factor. In the education context, while the comprehensiveness of the transformational model is noted due to its focus on the processes of leadership (Bush and Glover, 2014), several criticisms are made. Berkovich (2016) contends that given the criticisms and shortcomings of TFL, a pragmatic approach should be adopted with additional considerations for future research. Chirichello (1999) suggests that it may be a means of control over teachers who have to adhere to the values of the leaders. Bush et al., (2009) question its validity given the policy climate of school systems. They suggest that the language and symbolism of transformational leadership is rich yet not applicable to practice since many school principals lack both the capacity and authority to effectively implement change as a result of centralized systems or, as stated by Bush (2011, p.86), “the process is political rather than genuinely transformational”, further, Hoyle and Wallace (2005) attest:

The strongest advocacy of a transformational approach to reform has come from those whose policies ensure that the opportunity for transformation is in fact denied to people working in schools (p.128).

## **Conclusions**

This section has presented a review of leadership theory with a focus on transformational leadership theory in relation to school leaders. Coupled with this, is an overview of instructional leadership and the presentation of research that supports an integrated approach, i.e. transformational school leadership. While criticisms of transformational leadership in both education and organizational settings exist and are presented, the research presented identifies the positive, mediating effects of the behaviours of a transformational school leader on student performance. The transformational school leadership or integrated model (Leithwood et al., 2012; Marks and Printy, 2003; Day et al., 2012) subsumes both instructional and

transformational leadership, identifying a range or “layering” (Day et al., 2011) of strategic behaviours, thinking and actions that contribute to successful student outcomes.

The literature review has highlighted key leadership behaviours, actions, and thinking that have an explicit impact on student performance. It is these strategies for success that will be explored in this study to create a successful model for leadership to be employed at a school district for leadership recruitment, policy development, and professional learning.

## **2.4 Leadership Development for School Leaders**

As noted by Bush (2012), most school principals begin their careers as classroom teachers, expanding to a variety of leadership roles, yet in current school systems, additional responsibilities and expectations are required for the role of principal. The OECD (2008) also notes the need for leader development that provides explicit professional development to respond to increased roles and responsibilities. Barber et al., (2010) suggest that decisions at the school level are of increasing importance for the success of the system. School principals, lead and manage increased complexities, accountabilities, and unending change. Without appropriate support, professional development and training, these school leaders may feel overwhelmed and experience burnout. Bush (2012) posits that it is a “moral obligation” for school districts to provide appropriate, deliberate, systematic leadership development programs or, as stated by Brundett et al., (2006, p.90) a “strategic necessity”. In their longitudinal study, Thoonen et al., (2012) explore the role and practices of the principal as a component of school-wide capacity for school effectiveness and improvement. Their findings suggest that improvement of leadership strategies and practices is a critical element in the development of a school’s capacity to improve student performance.

The measured effect of the school leader on student achievement has been clearly identified (Hallinger and Heck, 1998; Leithwood, et al., 2006; Robinson, 2007; Barber et al., 2010). Leithwood et al., (2006), in their work on successful school leadership using the transformational school leadership model, identified core sets of successful leadership practices along with the importance of contextual relevance that would be essential in the development of a leadership model:

- Developing a Vision and Direction Setting
- Understanding and Developing People
- Redesigning the Organization



- Managing the Teaching and Learning (Leithwood et al., 2006)

Ultimately, these findings suggest that any leadership model should focus on opportunities that develop these four dimensions through both content and context so that school leaders cultivate knowledge, understanding, and skills.

### **2.4.1 Leadership Development Practices**

While context significantly influences the application of leadership actions and practices and will be explored as part of this study, there are common practices evident across national and global school leadership development programs. While it is not the intent of this literature review to delve into the field of leadership development research, the purpose of this review is to identify the actions and practices considered effective for school leaders.

Beatriz et al., (2008) and Schleicher (2012) in their work for OECD, recognize leadership development as integral to school improvement and student success and highlights specific school systems for their work on leader development including models from Ontario, Singapore, and Finland.

Bush et al., (2008, 2002, 2011) identify common elements of leadership development programs globally, including Austria, Canada, Finland, France, Norway, Singapore, South Africa, Taiwan, and USA as well as 10 Commonwealth Countries. The curriculum includes:

- Instructional Leadership/Leadership for Learning
- Education Legal Issues
- Educational Finance
- Managing People/Team Leadership
- Administration
- Educational Policy

The Ministry of Education in Ontario, Canada has developed mandatory leadership development, the “Ontario Leadership Framework” (Leithwood, 2012) drawing heavily on the dimensions identified by Leithwood and colleagues along with integrating many of the above-noted curricula. Also integrated is a focus on personal leadership resources such as systems thinking, emotional intelligence, resilience, and self-efficacy.

The provision of mentoring was also noted in several of these courses as well as learning in context. Bush et al., (2007) noted that formal mentoring programmes were identified as effective, with benefits for both mentor and mentee. Also noted was the role of both formal and informal networks to support workplace learning. Also mandatory, Singapore's pioneer "Leaders in Education" programme was identified as exemplary and intended to ensure a "profound learning experience" (Chong et al., 2003, p.169).

While there are common elements noted in the research, contextual considerations are also evident as there is no common model evident nationally or internationally. Mandatory certification programs exist in countries such as the United States, France, Malta, South Africa while others such as Australia do not require formal qualifications. As well, some of the required programs referenced are offered as university programs and required prior to application for school leader positions.

The structure of the education system is also a factor. In Canada, there is no federal mandate for K-12 education and different development models exist across provinces, if at all. In the local/provincial context, leadership development has been haphazard due to resources and budgetary constraints.

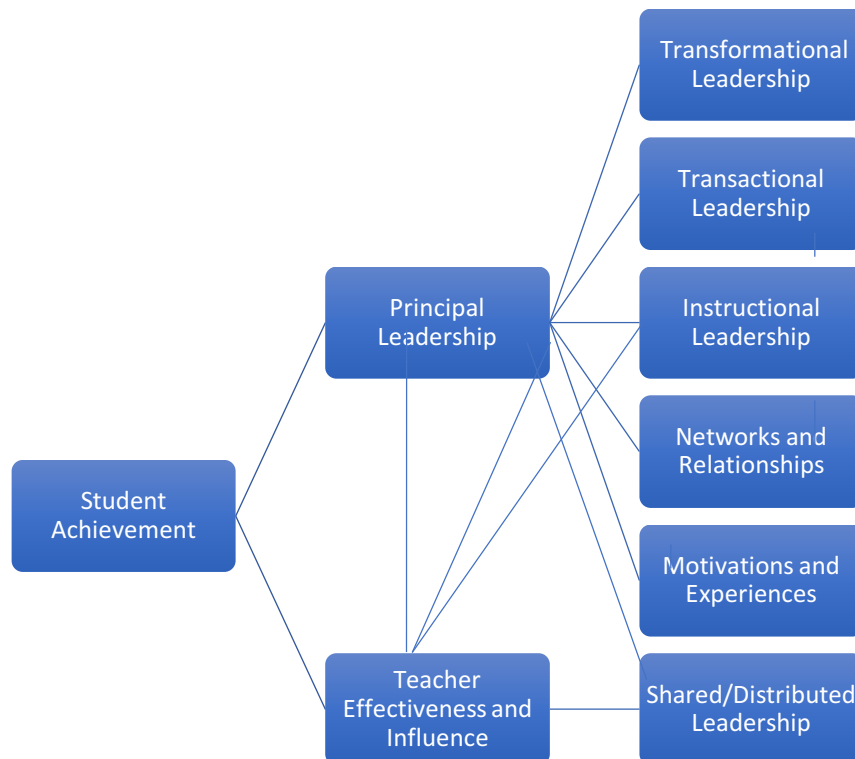
What is common in the global leadership frameworks and programs is the recognition that school leaders require specialized skills and development opportunities to lead effectively. Leadership development has to be a deliberate practice using a model that focuses on the development of the actions, behaviours, and thinking of school leaders to create successful conditions for learning and student success. Day et al., (2016) identify these leadership approaches as "fit for purpose" (p.225) and are in response to specific school communities, culture, level of commitment, capacities and multiple interests.

## **2.5 A Conceptual Framework**

Drawing on the different research associated with the influence of school leaders on student achievement, I constructed a conceptual framework (Figure 2.1) that attempts to describe how the actions and practices of the principal both directly and indirectly impact student learning. 'Principal Leadership' is conceptualized as a construct that includes the components of transactional, transformational and shared/distributed leadership, also drawing on the importance of learning experiences and networks. The second construct, "Teacher Effectiveness and Influence" to emphasize the direct impact of the teacher on student achievement, while noting the key relationships between the principal and teacher with relation

to instructional leadership, relationships and shared leadership for student learning. I have noted the impact of 'networks and relationships' for both the principals and teachers, indicative of both in-school peer conversations and actions as well as external sources for support and engagement for the principal. I have also hypothesized principal leadership to affect the extent that teachers engage in the leadership of the school as indicated by the line between principal leadership and teacher effectiveness/influence. Both principal leadership and teacher effectiveness/influence are conceived to be directly related to student achievement.

**Figure 2.1 Conceptual Framework**



Based on these key concepts, as identified in the literature review, I developed the key research questions to explore in this mixed-methods study. The next section presents the research model and hypotheses to be investigated in this thesis that is derived from the literature and explored in this chapter.

## 2.6 Research Model and Hypotheses

The guiding research questions for this study are as follows:

1. "Does principal leadership impact student achievement?"; and,
2. "Can we identify principal leadership attributes, behaviours, actions and thinking that directly, or indirectly, impact student achievement?"

The aim of this mixed methods research study is to identify the leadership actions, behaviours and thinking of school leaders in order to create a local leadership framework for recruitment, learning, and development. The review of the literature in this chapter identifies the impact of an integrated model of both transformational and instructional leadership behaviours on student achievement. Specifically, the literature review identifies key actions, behaviours, and thinking that are critical for effective leadership. Coupled with this, a review of global leadership development practices aligns with some of these strategic actions and behaviours as well as identifying learning and teaching strategies of successful leadership development initiatives. The identified findings and gaps in the literature suggest that research on school leaders, particularly in the local context, is warranted and would contribute to both research and practice. The literature reviewed in this chapter provides the foundation for the research design for this mixed methods study.

### **2.6.1 Mixed Methods Design and Model**

This literature review informs the design, decisions, and development of both studies. While the research in transformational school leadership is primarily quantitative, a mixed methods approach allows for the possibility of identifying causal associations and connections in relation to the theory, practices, and outcomes. Sammons et al., (2014) suggest that, through a mixed methods approach, the qualitative findings are complemented by the quantitative evidence, identifying the interconnections between survey responses and the actions, behaviours and thinking of school leaders that ultimately impact student success.

#### **Study One**

Study One aligns with the quantitative research that explores the relationship between the principal and student success specifically, the explicit influence of the principal on student achievement. A review of the literature informed the use of transformational leadership theory and the MLQ as a research tool.

This quantitative study examines the impact of transformational leadership on student achievement. This research study is based on both leader, follower and manager scores of transformational and transactional leadership behaviours as well as the outcomes of leadership collected from school principals, staff and supervisors in 25 schools in the Eastern region of Newfoundland and Labrador.

The hypotheses of this research are presented in two parts: Stage 1 and Stage 2.

## Stage 1

Stage 1 explores the relationship between transactional and transformational leadership behaviours and the outcomes of leadership using survey data from school leaders, teachers, and supervisors. The purpose of the first part of this study is to investigate whether a significant relationship exists between transformational and transactional leadership variables and a teacher's sense of effort, effectiveness, and satisfaction. Also explored is the impact of possible intervening variables on leadership and teacher effectiveness and satisfaction. The following hypotheses were formulated:

**Table 2.6 Research Hypotheses**

Hypotheses (Relationships between Leadership Behaviours, Teachers and School Factors)		Representative Research
1.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.	Leithwood and Jantzi, (2005); Leithwood and Sun, (2009); Chin, (2007); Leithwood and Sun, (2012); Robinson, (2008).
2.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.	Leithwood and Jantzi, (2005); Leithwood and Sun, (2009); Chin, (2007); Leithwood and Sun, (2012); Marks and Printy, (2003); Robinson, (2008).
3.	There is a relationship between school configuration and transformational leadership scores.	Day et al., (2011); Graça and Passos, (2015); Hallinger, (2003); Leithwood, (2012); Marks and Printy, (2003).
4.	There is a relationship between school location (i.e. rural/urban) and transformational leadership scores.	Day et al., (2011); Graça and Passos, (2015); Hallinger, (2003); Hallinger and Heck, (1996); Leithwood and Jantzi, (2005); Marks and Printy, (2003).
5.	There is a relationship between the size of the student population and transformational leadership scores.	Day et al., (2011), Graça and Passos, (2015); Hallinger, (2003); Leithwood and Jantzi, (2005); Marks and Printy, (2003).
6.	There is a difference between male and female teacher groups mean leadership scores for principals.	Leithwood and Jantzi, (2005); Hallinger and Heck, (1996).
7.	There is a difference in teacher group mean leadership scores between male and female principals.	Marks and Printy, (2003).
8.	There is a relationship between teacher seniority and perceptions of transformational leadership.	Hallinger and Leithwood, (1996).
9.	There is a relationship between principal seniority and transformational leadership scores.	Wahlstrom, K.L. and Louis, K.S., (2008).

## Stage 2

The second stage of this analysis evaluates the relationship between the transformational leadership (the principal), the outcomes of leadership (the teacher), and student success - namely, student achievement and student perceptions of climate and culture. As noted in the literature, the school principal is second only to the teacher in relation to the impact on student success. To extend on these studies in the local context, and to contribute to the research, the following hypotheses are posited, as noted in Table 2.7:

**Table 2.7 Research Hypotheses - Stage Two**

Hypotheses		Supporting Research
10.	Principal leadership has a direct impact on student achievement.	Leithwood and Sun, (2012); Griffith, (2004); Heck and Marcoulides, (1996).
11.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement.	Griffith, (2004); Leithwood and Jantzi, (2005); Hallinger and Heck, (1996); Kutsyruba et al., (2015); Robinson, (2008)
12.	Principal leadership has a direct impact on student perceptions of climate and culture.	Griffith, (2004); Leithwood and Seashore-Louis, (2008); Kutsyruba et al., (2015).
13.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.	Kutsyruba et al., (2015); Wahlstrom and Louis, (2008).

## Study Two

Study Two is qualitative and based on interviews with 27 school leaders who were identified in the initial pilot study. The questions used were informed by the leadership literature explored in the literature review for this thesis. The questions included specific items that focused on transformational leadership strategies (Leadership), transactional leadership strategies (Management), school culture and conditions, instructional leadership, perceptions of and strategies for change, key relationships and opportunities for leadership development. Interviews with the principals were semi-structured and purposely designed to explore their perceptions of their leadership and work.

### 2.7 Conclusions

This section has outlined the research model for this mixed methods study, including both the qualitative interview design and the hypotheses driven quantitative study. As stated, this

research model is derived from the literature review of transformational leadership theory, instructional leadership and global leadership development practices and models.

This chapter has summarized literature that explores the relationships between transformational leadership, instructional leadership, transformational school leadership, student achievement and leadership development in order to contribute to the understanding that a leadership model for school leaders is an integral component of the policy, practices and professional development work of a school district. Also important in this study is the variable of context. These research questions are investigated within the context of a Newfoundland and Labrador school district. The study creates the opportunity to contribute to the research field using both quantitative evidence as well as possible relationships between the practices of the school leaders and transformational leadership theory, also identified by Sammons et al., (2010). While the results may not apply to other provinces, the research approach and analysis may be applied in these contexts due to the similarities of assessment practices and systems.

From a practice perspective, I suggest the resultant findings may be used to develop a leadership framework for school districts that can be used for staffing, succession planning, and leadership development. The framework identifies the actions, behaviours and thinking of effective school leaders that is founded on both local and global practices, current research and contextually appropriate.

The next chapter, Research Methodology, discusses the philosophical underpinnings of this study. As well, the research design, methodology, and rationale are explained along with the procedures implemented for data collection.

## Chapter 3 Research Methodology

### 3.1 Introduction

Chapter 3 presents an overview of the research design for this study, its theoretical context, and the methodological choices, explaining the purpose of this study and identifying the research paradigm adopted. I also present the methods for participant selection and data collection. I also state my philosophical stance which provides the foundation for the methodologies adopted in this research. I outline the research design, methodological choices, and research strategy. The final section outlines the conceptual research model, hypotheses, how the research questions will be operationalized and a discussion of key terms, strengths, and limitations.

### 3.2 Research Philosophy

The guiding research questions for this study are as follows:

1. “How does principal leadership impact student achievement?” and;
2. To what extent does principal leadership attributes, behaviours, actions and thinking directly, or indirectly, impact student achievement?”

The purpose of this research is to gain insight into the relationship between principal leadership and student success, either directly or indirectly. I believe the knowledge gained from this study related to the behaviours, actions, and thinking of principals may be used to guide the development of a leadership framework for a school district.

These research questions require deep consideration in relation to the research philosophy, design, and strategy. Crotty (1998) identifies four elements - methods, methodology, theoretical perspective and epistemology/worldview - as the basis for research that must be clearly elaborated and inform one another. Both the ontological and epistemological perspectives for this study range on a continuum between ‘realism’ and “relativism”, recognizing the existence of single truths while acknowledging that multiple views of ‘truth’ exist that are constructed or shaped by beliefs, values, and interactions with others (Crotty, 1998; Easterby-Smith et al., 2008; Galway, 2006). What counts as ‘truth’, from this stance, is not absolute and comes from, “our engagement with the realities in our world” (Crotty, p.8). These views of reality align with both a social constructionist epistemology ( Crotty, 1998; Easterby-Smith et al., 2008; Creswell, 2014) and a pragmatic paradigm of inquiry (Creswell, 2014).



### 3.3 Research Paradigm

For any researcher, it is essential to clearly articulate one's philosophical worldview since it defines the congruence between the researcher and the research, i.e., what constitutes reality. Equally fundamental is a comprehension of the epistemological assumptions about what constitutes knowledge and the nature of inquiry - coupled with the methodological stance of the researcher. When considering how phenomena will be investigated, a researcher defines a specific *ontological* and *epistemological* stance (Crotty, 1998), or *worldview* (Guba, 1990; Creswell, 2014) or *paradigm* (Lincoln, Lynham & Guba, 2011).

Guba and Lincoln (1994, 2011) define a research paradigm as a set of beliefs, or propositions that define the nature of the world and relate to what constitutes appropriate techniques for undertaking an investigation, while Tashakkori and Teddlie (1998) propose it is a system of worldviews that guide the inquiry. Creswell (2013) suggests the need for the philosophical perspective of the researcher to be clearly understood since it has an influence on both the research purpose and study design.

The selection of a research methodology and strategy is not simply a decision between quantitative or qualitative analysis. In broader terms, it is inextricably linked to the philosophical stance of the researcher (the *why* of research) along with the practicalities of the plan of action (the *how* of research) including the specific techniques and procedures related to data collection and analysis (Crotty, 1998). Tashakkori and Teddlie (1998) and Creswell (2009) identify four central paradigms/worldviews in social science research, namely: positivism, constructivism, transformative and pragmatism. Table 3.1 provides the key elements of these key worldviews.

**Table 3.1 Four Central Paradigms/Worldviews**

Positivism	(Social) Constructivism
<ul style="list-style-type: none"> <li>• Determination</li> <li>• Reductionism</li> <li>• Empirical Observation and Measurement</li> <li>• Theory Verification</li> </ul>	<ul style="list-style-type: none"> <li>• Understanding</li> <li>• Multiple Participant Meanings</li> <li>• Social and Historical Construction</li> <li>• Theory Generation</li> </ul>
Transformative	Pragmatism
<ul style="list-style-type: none"> <li>• Political</li> <li>• Power and Justice Oriented</li> <li>• Collaborative</li> <li>• Change-Centred</li> </ul>	<ul style="list-style-type: none"> <li>• Consequences of Actions</li> <li>• Problem-Centred</li> <li>• Pluralistic</li> <li>• Real-World Practice Oriented</li> </ul>

(Creswell, 2014)

Positivism is the paradigm generally associated with quantitative research while, at the other end of the continuum, the constructivist paradigm seeks to understand the subjective meanings that individuals construct to explain the work around them (Creswell, 2014). Based on the ontological position of realism, positivism is defined as the view that objects have an existence independent of the knower (Bush, 2007). The role of the researcher is that of objective analyst and interpreter of a measurable, tangible social reality. In contrast, the constructivist worldview gathers both information and perceptions of participants via inductive methods such as observations, interviews and critical incidents and creates knowledge from the perspective of the participant. The constructivist sees reality as subjective and contextual with meaning generated from the individuals involved (Remenyi et al., 1998). The transformative paradigm/worldview is linked to advocacy/participatory research and has a strong emphasis on empowering a call to action for reform of people, institutions or the researcher's life. The research in this worldview focuses on marginalized groups or people, linking both political and social action to these inequalities (Cresswell, 2014).

The pragmatic paradigm is real-world and problem centered, and not tied to any one philosophical stance or reality, instead, having freedom of choice. This paradigm acknowledges that research occurs in a world impacted by many social and contextual influences. Crotty (1998) draws on the work of Peirce, James and Dewey in defining pragmatism as "the authentic meaning of ideas and values is linked to their outcomes and therefore to the practices in which

they are embedded” (p.73). Likewise, Johnson and Onwuegbuzie (2004) note the work of these classical pragmatists to relate both “practical consequences and empirical findings” (p.15). The research process draws on the knowledge of the researcher to in choosing what will work best in the environment of study. The pragmatic researcher seeks to gain the best understanding of the research problem through freedom of choice, drawing on multiple forms of data to look at *what works* and *how*, since answering the research question subsumes the importance of any individual method ( Creswell, 2014; Taskakkori and Teddlie,1998).

For this study, I first adopted a positivist paradigm that was hypothesis-based, objective and deductive (Teddlie and Tashakkori, 2003). My initial philosophical assumptions were influenced by this dominant view (Guba and Lincoln,1994) which suggests that quantitative evidence is more valid, reliable and rational. The reliance on this ‘valid’ data from an organizational stance is also recognized since the use of student achievement data is central to strategic work of both schools and districts. While the results from the initial quantitative pilot study provided the starting point for future research, I recognized the importance of context and the intent of my research question to provide rich insight into the actions, thinking and behaviours of principals. I wanted to explore my research questions valuing both this objective evidence along with the lived experiences of the principals, I experienced a shift in my thinking and recognized that a positivist paradigm would not address the nature of my study and the setting of the investigation.

A constructivist worldview was considered since I sought to gain a deeper understanding of the world in which I lived and worked. Crotty (1998) in defining constructivism, posited 3 key assumptions:

1. Human beings construct meanings as they engage with the world they are interpreting;
2. Humans engage with their world and make sense of it based on their historical and social perspectives; and,
3. The basic generation of meaning is always social, arising in and out of interaction with a human community (Creswell, 2014, p.9).

I recognized that this worldview would provide rich data and insight into the world and work of principals, a world that I knew well, based on my experiences as both a principal and district leader for over 14 years. I recognized that I would build knowledge and construct meaning through direct engagement with the school leaders and inviting them to share their views and perspectives, appreciating the value of these social interactions. While rich findings would have

been achieved by this constructivist worldview, I wanted to have multiple lenses to understand the *what* and *how* of my research question.

In adopting a pragmatic paradigm that is both inductive and deductive. I sought multiple approaches to gain deeper insight and a better understanding of the research problem (Tashakkori and Teddlie, 2003; Creswell, 2014). Creswell (2014) notes that pragmatists place great emphasis on the research problem, using both quantitative and qualitative data to provide the best understanding, cognizant of the contextual circumstances. Tashakkori and Teddlie (2003) note that by espousing a pragmatic worldview, the researcher focuses on what works in relation to the research study and recognizes the values of the researcher, linking to the analysis of the findings. I was aware of the influence of my values on this research, particularly those I believe to be important for school leadership. A pragmatic approach to this work appealed to me since I was able to utilize mixed methods and a model design that did not value one method over another (Tashakkori and Teddlie, 2003; Creswell, 2014). A pragmatic worldview derives an understanding of the phenomenon of the relationship between the school leader and student achievement through the analysis of quantitative data related to both and reflection on the view of the participants. Current trends in both education and leadership research support a pragmatic paradigm for this work (Robinson et al., 2008; Sammons et al., 2011; Teddlie and Tashakkori, 2009). On review of this research, I believe a pragmatic stance will provide rich data for exploration.

### **3.4 Research Design**

The choice of research design is critical since it defines the types of questions asked as well as the nature of the evidence that is gathered and knowledge that is created (i.e., the kinds of claims that can be made). Likewise, the research design specifies the strategy for data collection and analysis. It is essential that it be defined prior to data collection since it ensures that the evidence collected is meaningful to the defined research questions. The design provides an essential link between theory, research, and subsequent data collection. These designs can be categorized into 3 choices. Table 3.2 provides an overview of these research design approaches.

**Table 3.2 Research Designs**

<b>Quantitative</b>	<b>Qualitative</b>	<b>Mixed Methods</b>
Experimental Designs Non-Experimental Designs (Surveys) Quasi-Experimental	Narrative Research Phenomenology Grounded Theory Ethnographies Case Studies Action Research	Convergent Explanatory Sequential Exploratory Sequential Transformative, Embedded or Multiphase

(Easterby-Smith et al., 2008; Creswell, 2014)

### **3.4.1 Quantitative Research**

Grounded in a positivistic paradigm, the intent of quantitative research is primarily to produce findings that are hypothesis-driven, measurable, replicable and objective. The researcher is not an external observer and quantifies the phenomena versus interpretation. Data collection and analysis frequently utilize surveys, longitudinal databases, statistically valid methods and models with identified confidence intervals and measurement scales. Prior to data collection, hypotheses are created. Research findings may be generalized on many different populations as well as allow predictions to be made. Quantitative research seeks explanation, possible cause-effect relationships and seeks generalizability (Easterby-Smith et al., 2012). While some contend that, even in the social sciences, outcomes can be determined reliably and validly others such as Tashakkori and Teddlie (1998) aim for rhetorical neutrality in order to establish and describe social laws. While Denzin and Lincoln (2005) note quantitative approaches provide specific, generalizable results Creswell and Plano-Clark (2007) posit the lack of connection between the lived experiences and the research, specifically the participant experiences.

### **3.4.2 Qualitative Research**

Conversely, qualitative research is open-ended with the intent to provide explanatory, contextual knowledge rather than claims of generalizability and replication. Data collection often involves field work and may consist of interviews, case studies, and observations of participants. Data are interpreted and analyzed with an emphasis on the meaning, concepts, metaphors and rich content of the lived experiences of identified individuals. Guba (1990) suggests that logic flows from specific to general and that the knower and known cannot be separated because the subjective knower is the only source of reality. Research is value-bound, context-free generalizations are neither desirable nor possible, and it is impossible to differentiate fully causes and effects (Johnson and Onweugbuze, 2004). Data analysis consists of rich, detailed

descriptions that provide rich and meaningful conceptualizations of the social world (Denzin and Lincoln, 2005).

### 3.4.3 Mixed Methods Research

Johnson and Onweugbuzie (2004) note that quantitative purists suggest social science inquiry should be objective (Ayer, 1959; Maxwell and Delaney, 2004; Popper, 1959; cited in Johnson and Onweugbuzie, 2004) with outcomes determined reliably and validly, whereas qualitative purists reject positivism, arguing that these are multiple-constructed realities (Guba, 1990; Lincoln and Guba, 2000) and that knowledge is generated inductively. Johnson and Onweugbuzie (2004) note the richness of the two cultures, “one professing the superiority of ‘deep, rich, observational data’” and the others the virtues of “‘hard, generalizable ... data’” (p. 1335).

Johnson and Onweugbuzie (2004) posit mixed methods research draws on the strengths and minimizes the weaknesses of a single research method. Creswell and Plano-Clark (2007) suggest that the combination of qualitative and quantitative studies provides a more comprehensive insight into research problems.

Current researchers recognize the complexity and socially constructed nature of leadership and suggest that mixed-methods designs foster greater understanding and knowledge about the leadership phenomenon and create contextual understandings (Stentz et al., 2012; Mumford, 2011; Northouse, 2013; Gardner et al., 2010; Robinson et al., 2008). Wren (1995) contends, “because the issues relating to leadership cut across all types of human activity and thought, a true understanding of such a complex phenomenon requires a broadly conceived approach.” Antonakis et al., (2006) caution that leadership research that has been operationalized using quantitative methods may not provide a comprehensive understanding of complex phenomena and, thus, may be improved through the use of qualitative approaches. Bass (2008) adds that the possibility of a new leadership research paradigm that combines both objectivist and subjectivist views will build a stronger understanding of the complex phenomenon of leadership. Given the complex nature of leadership, Antonakis et al., (2006) suggest a complementary approach, balancing rich qualitative content with quantitative methods founded in theory and testing.

Similar mixed method studies have been noted in the literature review (Day et al., 2009; Sammons et al., 2011). Day et al., (2009, p.31) contend:

“The use of mixed methods was seen to increase the possibilities of identifying various patterns of association and possible causal connections between variation in different outcomes indicators of school performance (as measured by data on student attainment and other outcomes) and measures of school and departmental processes. By incorporating both extensive quantitative and rich qualitative evidence from participants about their perceptions, experiences, and interpretations of leadership practices and of school organization and processes with that on student outcomes, it was possible to conduct analyses in parallel and to allow evidence from one source to extend or to challenge evidence from another source.”

This study uses a mixed methods approach to allow for comparability to existing works and adds to the literature. For this research, a convergent parallel design is adopted. In adopting this mixed methods design, using both quantitative and qualitative studies, Johnson and Onwuegbuzie (2004) state that a researcher must decide if, 1) there is a dominant paradigm or not, and 2) if the phases of the research will be conducted concurrently or sequentially, cognizant that the integrated findings will be discussed in the interpretation phase of the research. In this research design, data collection is parallel. In this study, the quantitative data, consisting of a longitudinal panel of student/school data and MLQ survey data from a wide range of participants, including principals, teachers, and supervisors, will be used to test the relationship between the leadership style of the principal and student results.

The qualitative data, gathered via in-depth interviews with school leaders, will explore the actions, behaviours, and attributes of current school leaders that provide deep insight, detail, clarifications and rich explanations of the phenomenon (Easterby-Smith et al., 2012).

Both the quantitative and qualitative data are collected close to the same time and integrated to interpret the results. This mixed methods design allows for the researcher to merge both quantitative and qualitative data to provide an overall analysis and multi-faceted picture of the research problem (Stenz, 2012; Creswell, 2014).

### **Research Design - Phases for Data Collection**

To produce data, I adopted this mixed-methods design that involved the collection of both quantitative and qualitative data. I was responsible for all data collection. I worked closely with the District statistician to collate the student achievement and “School Climate” survey data. Two of the data sets, the principal interviews, and leadership surveys were completed between November 2014 and March 2015. Table 3.3 outlines the data collected and the associated timelines. Each dataset will be explained in detail in subsequent sections.

**Table 3.3 Fieldwork Plan for Data Collection**

Phase	Procedure	Timelines	Product
<b>Quantitative Data Collection (Longitudinal Panel)</b>	<b>Collect Student Achievement, Perception, School and Principal Data</b>	<b>2013 - 2015</b>	<b>Numeric Data</b>
Connecting Quantitative and Qualitative Phases	Purposely Selecting Participants based on Quantitative Results Developing Interview Questions	Spring 2014	Cases n=27 Interview Protocol
Qualitative Data Collection (Interview Data)	Individualized In-depth Interviews with 27 Participants	October - November 2014	Text Data
Quantitative Data Collection (Survey Data)	Web-based Survey of Principals (n=27) Teachers and Supervisors (n= 189)	March 2015 (3 weeks Prior to Easter Break)	Numeric Data
Quantitative Data Analysis	Data Screening, Regression Analysis (SPSS)	Fall 2015 - Winter 2016	Descriptive Statistics
Qualitative Data Analysis	Coding and Thematic Analysis of the Results, NVivo Software	Fall 2014 - Winter 2015	Codes and Themes, Visual Model of Analysis
Quantitative Data Analysis	Analysis of Survey results with panel data	Spring / Fall 2015	Descriptive Statistics, Tests of Normality, Regression Analysis
Integration of Quantitative and Qualitative Phases	Interpretation of the Quantitative and Qualitative Results	Fall 2015 / Winter 2016	Discussion Implications Future Research

The sequence of data generation, a partnership design (Easterby-Smith et al., 2008), captured both the intended qualitative and quantitative data for this research study. Data collection for the longitudinal panel was ongoing and concluded with the release of the 2015 student data results from the province in Fall 2015. For the qualitative data generation, the principal interviews were conducted prior to the use of the MLQ. This allowed me to have a deeper conversation with them about the study and establish trust. Subsequently, the MLQ was administered after the principal interview to both the principal and raters. I was conscious of the timing of this survey delivery in the school calendar year and ensured that it did not coincide with the schools' evaluation or holiday schedule.

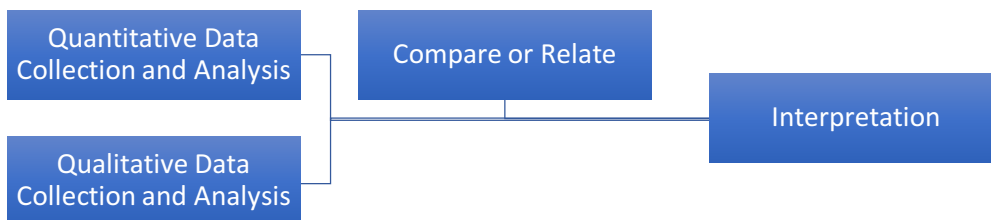


For the qualitative component of the study, a phenomenological approach was used to capture the lived experiences of the individuals in the study. In-depth interviews were conducted with school principals. Qualitative data includes interview data, text analysis and thematic interpretation (Cresswell, 2014). For the quantitative component of this study, two data sets were used - a longitudinal data panel capturing student achievement, and School Climate perception data, school and principal information and the MLQ (Bass and Avolio, 2004) standardized leadership assessment questionnaires that captured leader perceptions from self, supervisors, and staff.

The statistical methods used in this research study include independent sample t-tests, correlations, hypothesis tests, several diagnostic tests include Cronbach's Alpha, linear regressions, and thematic analysis.

A central contribution of this thesis is that it utilizes this mixed method convergent parallel design (Stenz et al., 2012). This design, as illustrated in Figure 3.1, represents a departure from the strictly traditional positivist or constructivist framed research approach in leadership studies (Stenz, 2012). It is the intent of this study to add to current findings on school leadership in both research and practice.

**Figure 3.1 Convergent Parallel Design**



(Adapted from Cresswell and Plano Clark, 2009)

This section describes the research design for this study with a focus on the approach, philosophy, and methods. Given the pragmatic stance, a mixed methods approach is adopted with a convergent-parallel design. Since the questions explored are aligned with current literature, it is the intent to add to the current findings both in research and practice. Furthermore, this approach allows for direct comparability to the evidence available in the published literature. To conclude this discussion, it is essential for me to state my bias as an active participant in the work. My role as a Senior Education Officer and former principal positions me as an active participant in this work. My epistemological assumptions imply my

reliance on direct engagement and collaboration with the participants; I assume an “insider role” (Cresswell, 2014) and acknowledge that my experiences inform my position and perspectives on the research.

## **3.5 Mixed-Method Studies**

### **3.5.1 Initial Quantitative Study**

The initial quantitative study was conducted in March 2014 (Appendix F - Pilot Study) to assess the feasibility of the main research question, using a sample of student assessment data and interviews with school leaders. The study used a dataset on student achievement, demographic and principal data from 116 schools in one school district spanning from 2004-2012. The data were analyzed to identify if there was a relationship between the leadership of the school principal and student achievement. The main hypothesis tested was that student achievement results would be related to the leadership attributes of the principal and demographic characteristics of the school.

### **Pilot Study Findings**

The study tested and supported the hypothesis, using linear regression techniques to assess the association of school and principal characteristics on student achievement. The purpose of the pilot study was to identify independent principal leadership variable and explore each in terms of statistical significance for possible inclusion in the final regression model. These variables include principal gender, seniority and principal changes at the school level.

The analysis confirmed a systematic relationship between the principal variables, school location (rural/urban), student population, school configuration, attendance rate and student achievement, particularly when there was a change in principal at the school. There were several additional associations raised in the feasibility assessment via engagement with school leaders as part of the pilot. Specifically, the following additional research questions arose:

1. Does a change in principal impact the climate and culture of a school?
2. To what extent does culture and climate play a role in student achievement?
3. What specific principal behaviours have an impact on student achievement results?

These additional questions aligned with key research that is explored in the literature review. Multiple researchers note the impact of principal leadership on student achievement as the second most influential factor, second only to the quality of the classroom teacher (Leithwood et

al., 2008, 2010, 2015; Harris and Jones, 2010; Hattie, 2012; Marzano, Waters and McNulty, 2005; Robinson, Lloyd and Rowe, 2008; Wahlstrom, Seashore-Lewis, Leithwood and Anderson, 2010).

The hypotheses are tested using the same framework as the pilot study with additional data and an expanded model. The expanded model for investigation built on the longitudinal panel data that captured student achievement results, school climate data, school information (location, configuration, population etc.) and principal information (gender, seniority, tenure at the school) from 2004-2015. These results were examined using regression analysis to investigate the relationship between the constructs.

### **Qualitative Study**

Based on the initial study findings, an interpretive phase was implemented in the form of semi-structured, in-depth interviews with school principals. The results are examined using thematic analysis with the intent to add richness to the study by providing a better understanding of the results from the quantitative phase (Braun and Clarke, 2006). The results of the research provide insights into the behaviours, traits, and competencies of leadership. In doing so, the research identifies possible organizational interventions or factors that positively impact leadership and student achievement, for example, through the creation of an effective leadership framework, professional development, and district policies.

### **Quantitative Study**

A quantitative phase involves survey data, using a validated questionnaire to collect data from principals, their teachers, and supervisors. The questionnaire was based on a scale from existing published research namely, The Multifactor Leadership Questionnaire (MLQ) (Bass and Avolio, 2004). These survey findings will be presented. As well, statistical analysis will be used to investigate the relationship between the panel data and the survey results.

The following sections outline the research approaches used in this study, namely a longitudinal panel, semi-structured interviews and a psychometric survey.

### **3.6 Qualitative Study - Insights from Principals**

King (2004) posits that the essential goal of the qualitative research interview is to gain an understanding of the research question from the perspective of the interviewee as well as how their views developed. Rather than an abstract discussion, Kvale (1983) suggests that the interview is low in structure with open-ended questions and a direct focus on “specific situations

and action sequences in the world of the interviewee” (cited in Cassell and Symon, 2004, p.11). Burgess (1982, p.107) stresses the importance of the in-depth interviews for research when he suggests, “it is an opportunity of the researcher to probe deeply to uncover new clues, open up new dimensions of a problem, and to secure vivid, accurate inclusive accounts that are based on personal experience” (cited in Easterby-Smith et al., 2008, p.131).

In-depth interviews may take several approaches and may be completely open-ended, non-directive to highly structured with a defined list of questions from the researcher. For this research, a semi-structured interview guide was developed that had specific questions but was flexible in relation to the interviewee response. This allows for the researcher to probe and explore the views and responses of the respondent.

The intent of the qualitative study is to both explore the understanding of the quantitative findings from the panel analysis and provide insights into the key research questions using a semi-structured interview process. The questions were constructed using key findings from the research literature, the interviewer’s personal knowledge and consultation with leadership experts from both education and general management. The interviews delve into actions, behaviours, and thinking of the leaders, particularly in relation to the quantitative findings. An interview protocol was designed and tested with educational leaders prior to use with study participants (Appendix B).

### **3.6.1 Sampling Frame**

For this research, principals invited to participate in the study were identified because of the initial findings from the quantitative analysis of the panel data (i.e., the association between the change in principal in a school and student achievement results). Of the 116 schools used in the district, 33 were identified as having a change in principal in either the 2013 or 2014 school year. Principals of these 33 schools were invited via email to participate in the study.

Participants were assured of confidentiality as well as the purpose and intent of the research in writing, according to research protocols for Henley and the Newfoundland and Labrador English School District. Of the 33 possible participants, 27 responded positively (Appendix D).

Individual, semi-structured open-ended Interviews were conducted individually at a time chosen by the participant, either via Skype or in person. Each interview was recorded with permission of the interviewee and the duration was, on average, one hour to one and a half hours. While I kept some notes, the recorded interviews were transcribed as soon as possible after the

interview for review and reflection. Interview transcripts were created and used for subsequent data analysis.

### **3.6.2 Development of the Interview Guide**

Based on the high interest in the research, key findings identified in the literature review guided the development of questions for the interview process. During the development of the interview guide, I engaged both educational leaders for review to ensure coherency and consistency as well as Henley and Rotman colleagues. The final interview guide was reviewed by trusted peers, leaders in the education organization, and Rotman faculty who acted as both experts and critical friends. The interview guide, while open-ended, was designed to capture several key areas: firstly, introductory questions related to principal tenure, background, school context and experience of the participant; second, the perceptions and actions of the principal in the new school setting related to staff, culture, leadership, critical actions and students; and third, key relationships, leadership learnings and professional vision. The interview guide is provided in Appendix B. A semi-structured protocol was adopted in order to allow for additional questions to be introduced if needed in relation to the interviewee responses and address any further concepts that emerged. The design and structure of the interview questions, while grounded in the literature, was intentional and attempted to generate understandings of the principals' thinking, actions, and perspectives on their work as leaders. Table 3.4 outlines the interview guide, with associated research links, used for this study.

**Table 3.4 Interview Guide and Research Links**

Interview Questions	Themes to Explore	Research Links
<p><b>Introduction</b></p> <p>1.1 How long have you been in this role?</p> <p>1.2 Why did you choose to move to this school?</p> <p>1.3 Tell me about your educational background and experiences.</p>	<ul style="list-style-type: none"> <li>➤ Biographical Information</li> <li>➤ Decision Making (Personal/Professional)</li> <li>➤ Is There a Link Between Background and Experiences and Their Leadership? (My Question)</li> </ul>	<p>Clifford, Behrstock-Sherratt, and Fetters, (2012)</p> <p>Harris and Townsend, (2007); Leithwood et al., (2008, 2010); Marzano et al., (2003)</p>
<p><b>Leadership Role</b></p> <p>2.1 What did you know about this school before you came here? (<i>Impact of Prior Knowledge</i>)</p> <p>2.2 <i>What were your first impressions?</i></p> <p>2.3 <i>What surprised you?</i></p> <p>2.4 <i>What things did you feel you needed to change immediately?</i></p> <p>2.5 Describe how you spend your day.</p> <p>2.6 Tell me about your school development plan.</p> <p>2.7 Do you have key people on staff?</p> <p>2.8 How do you engage others?</p> <p>2.9 How do you deal with difficulties?</p> <p>2.10 How are you viewed as a leader?</p> <p>2.11 <i>What key asset do you bring to this role?</i></p> <p>2.12 <i>How do you add value to the success of your students?</i></p>	<ul style="list-style-type: none"> <li>➤ Transactional/Transformational/ Instructional Leadership</li> <li>➤ Role of Demographics, Context, Reputation, Location, Staff Size, Configuration, Student Achievement Etc.</li> <li>➤ Climate/Structures/Transactional</li> <li>➤ Instructional Leadership</li> <li>➤ School Development and Improvement</li> <li>➤ Strategic Planning and Thinking</li> <li>➤ Distributed Leadership</li> </ul>	<p>Bass, (1985); Burns, (1978); Bass and Avolio, (2005); Coelli and Green, (2011); Darling-Hammond et al., (2007); Day et al., (2011, 2016); Gronn, (2002); Hallinger, (2010); Harris, (2005); Heck and Marcoulides, (1996); Judge et al., (2009); Leithwood et al., (1999, 2000, 2010); Leithwood, Wahlstrom and Anderson, (2010) Macbeath, (2004); Marks and Printy, (2003); Pearce and Conger, (2003); Robinson et al., (2009); Robinson, (2011); Spillane, (2006); Sheppard, Brown, and Dibbon, (2009)</p>
<p><b>Learning</b></p> <p>3.1 <i>Who supports you?</i></p> <p>3.2 <i>Do you have a network?</i></p> <p>3.3 <i>How have you prepared for this role as leader?</i></p>	<ul style="list-style-type: none"> <li>➤ Learning Experiences, Leadership Development Opportunities, Role of Colleagues and Networks</li> <li>➤ Role of Relationships</li> </ul>	<p>Barber et al., (2010); Bush et al., (2002, 2008, 2011); Gronn, (2002); Leithwood, (2012); Macbeath, (2004); Spillane, (2006)</p>

<p><b>Thinking/Strategy</b></p> <p>4.1 When you are faced with a difficult decision, what do you do? How do you deal with it?</p>	<ul style="list-style-type: none"> <li>➤ Transformational Leadership</li> <li>➤ Role of Teams, Key Players</li> <li>➤ Decision Making Process</li> </ul>	<p>Bass, (1985); Burns, (1978); Bass and Avolio, (2005); Leithwood, Wahlstrom and Anderson, (2010); Robinson et al., (2009); Robinson, (2011); Sheppard, Brown and Dibbon, (2009); Spillane, (2006)</p>
<p><b>Professional Vision</b></p> <p>5.1 What is your vision for this school? For yourself?</p> <p>5.2 <i>Where do you see yourself in 3-5 years?</i></p>	<ul style="list-style-type: none"> <li>➤ Role of vision</li> <li>➤ Professional Growth</li> <li>➤ Leadership Focus</li> <li>➤ Strategy</li> </ul>	<p>Darling-Hammond et al., (2007); Day et al., (2011, 2016); Harris and Townsend, (2007)</p>
<p><b>Conclusion</b></p> <p><i>** Italicized questions are based more on the interest of the researcher yet linked to key themes</i></p>	<p>Any other questions - Thanks</p>	

Using the interview guide, informants were asked to answer open-ended questions during one-on-one interviews. Koro-Ljungberg (2008) suggests that all informants are engaged in knowledge production during the interview, creating a sense of shared authority and ownership over the interview data. The interview structure provided a direct focus on the attributes, practices, skills, knowledge, and thinking of the informant.

### **3.6.3 Informants**

For this component of the research, the results from the pilot study guided the selection of informants in order to gain insight into the thinking, knowledge, and actions of current principals. The informants were identified as a result of the initial findings from the quantitative analysis of the panel data, i.e., the impact on student results in relation to the change in principal in a school and who were either in their first or second year at the school.

The original sample of 116 schools was drawn from the population of the Eastern School District in Newfoundland and Labrador. As stated, the pilot study initially identified an association between a change in leadership at the school level, i.e., a new principal and student achievement results. Using these results, 33 schools were identified as having a change in principals over a two-year period (2013 or 2014).

As a Senior Education Officer and a principal, I was familiar with the informants. This familiarity was beneficial since it established a sense of contextual knowledge and trust, encouraging richer responses. The informants recognized the impact that this work will have on the future practice of their school district. In many instances, they noted the benefit of a mixed methods approach since “the numbers can’t tell you the whole story of what we do as principals.” Table 3.5 outlines the demographics of the informants. The majority serve as principals in elementary schools, the largest percentage of schools in the District.



**Table 3.5 Informant Demographics**

Variable	
Female	56%
Male	44%
Rural	41%
Urban	59%
Elementary School (K-6)	63%
Middle School/Junior High	22%
Grade K-12, 7-12	15%
First Year at School	52%
Second Year at School	48%
Average Seniority	17.03 years
First Principalship	44%
Phone Interviews	44%
In-Person Interviews	56%

### 3.6.4 Interview Data Collection

For the purposes of this study, individual interviews were arranged and conducted either in person or via telephone at the informants' convenience. The interviews were, on average, 60 minutes and were recorded and transcribed. A semi-structured interview guide was used to ensure that key ideas of the researcher were covered as well as to guide the process. Given the researcher's familiarity with the informants, the question guide also provided consistency of practice and promoted reflexivity for the researcher. Questions were revised or further detail was provided if asked by informants. The interview questions were aligned with the goals of the research and asked the principal to share, explore and reflect on their leadership. Given the researcher's familiarity with most of the informants, I intentionally did not provide the questions prior to the interview, definitions or personal viewpoints. Instead, the question design provided a focus on the intent of the interview and to explore the thinking, knowledge, and actions of the principals (Appendix B - Qualitative Study Interview Guide).

### Considerations Before the Interview

#### Interview Protocol

As established in the initial discussion on the research design, due consideration was given to the questions asked since "at the root of.... interviewing is an interest in understanding the experience of other people and the meaning they make of that experience" (Seidman, 1991, p.3). While qualitative interview research design is open-ended and attuned to the informant versus the same path for all respondents it is also noted that it may be difficult to compare findings across cases if informants have not responded to similar questions (Kvale, 1996).

Thus, a semi-structured interview design was employed and interviews developed based on the central focus of the research prior to data collection to garner specific information and enable possible comparisons. While somewhat structured, the researcher ensured openness and flexibility and could probe for individual responses in more detail, often pursuing ideas that emerged from different informants (Hill et al., 2005). Flick (2002) notes that the protocol for semi-structured interviews serve as a foundation but allow for creativity to ensure that each informant's experience is told. Along with the development of the questions, in preparation for the interviews, I tried to ensure that I had prepared the interview guide properly along with the practicalities for the actual interview. This included a review of the following:

- Develop questions which covered the topics of interest and gather the data to answer the specific research questions.
- Ensure a logical order of the topics so that the interview flowed well.
- Used language that was jargon-free, relevant and theoretically aligned with the respondents.
- Avoided leading questions.
- Ensure that recording equipment (phone and iPad) worked and that backup was also used (notebook and pen) so that the responses are captured and transcribed later for analysis.
- Arrange an appropriate interview location that is private and comfortable.  
(Easterby-Smith et al., 2008)

Prior to the actual interview, I reassured the participants of confidentiality and offered them the opportunity to question me at any time either during or post interview. Due to my familiarity with all the participants, I felt that we established trust quickly. The interview process, from my perspective, was both relaxed and open; participants were willing to share their experiences and thoughts.

### **Phone Versus In-Person Interviews**

Another consideration for the interview process is the means of completing the interview: Should there be a difference in the interview data if completed by phone or in person? These constraints had also been explored in the pilot study and both interview structures were noted in the research proposal. In some cases, there were both time and distance constraints for both the researcher and the respondents. Thus, both interview structures were used for data collection with potential bias noted.

Several studies (de Leeuw and van der Zouwen, 1988; Know and Burkard, 2009) suggest that in-person interviews yield better quality data while Tourangeau and Yan (2007) found that social desirability bias is worse for telephone interviews than face to face interviews. Hill et al., (1997, 2005) affirm the advantages of phone interviews as a means of data collection, particularly related to 1) the efficient use of resources, 2) allow research - appropriate relationships, and 3) minimize disadvantages of in-person interviews (response bias may be reduced in the absence of facial expressions or body language, the researcher may take detailed notes and create a comfort level for each informant. Shuy (2003) states that phone interviews reduce interviewer effects and allow better uniformity of delivery and consistency of questions as well as facilitate faster results. Nonverbal data, according to Musselwhite, Cuff, McGregor, and King (2006) may possibly create potential response bias since informants may interpret interviewer reactions to informant responses and adjust their answers accordingly.

Alternatively, in-person interviews allow for both verbal and non-verbal data. Both informants engage and observe gestures, facial expressions and other non-verbal communications that may enrich the significance of the spoken word. The researcher can build a rapport that may promote a more open disclosure of the experiences of the informants (Shuy, 2003). Similarly, Musselwhite et al., (2006) claim in-person interviews facilitate trust and openness and enable the examination of private experiences.

Recognizing the limitations and rewards of both, as well as financial and physical constraints, the study was designed to use both phone and in-person interviews. To mitigate potential bias, as the interviewer, I was conscious of both my verbal and non-verbal responses and ensured the use of the interview protocol to keep my participants focused. For the phone interviews, I was keenly aware of the tone of my voice and ensured that I adopted an engaging yet professional manner. While the participants did not see me during these interviews, thus unable to judge my body language, I was consistent in my tone and use of the interview protocol. I also requested that the participants conduct the interview in a quiet room with little or no distractions (email, other people, phones). While unable to see this in person, the intent was to establish the same comfortable environment and sense of trust that was evident during the in-person interviews.

## Considerations During the Interview

As noted earlier, the strength of the relationship between the interviewer and the respondent is a critical component of qualitative research. Koro-Ljungberg (2008) suggests that all informants are engaged in knowledge production during the interview, inferring a shared authority and ownership over the interview data. Knox and Burkard (2009), as well as Kvale (1996), suggest that it is through the interviewer-respondent relationship that all data is collected and data validity is strengthened. The power of the relationship is fundamental; it impacts the depth of information shared and level of self-disclosure. It is essential to establish a sense of safety and trust. While respondents may initially agree to be interviewed, it is important for the interviewer to be responsive and engaging during the interview, validating and supporting the responses given. Central to the interview is the understanding of non-verbal communication (Kvale, 1996) may impact the development and engagement of the informant.

### 3.7 Analysis

The intent of qualitative data collection is to gather evidence that can be evaluated and interpreted related to the social phenomena explored. While structure and organization is essential to good research, qualitative data analysis is an iterative process, requiring constant reflection, query, and exploration. For this research analysis, I considered and used a qualitative data analysis software (NVivo 11) to assist in rich, deep analysis of the phenomena explored. Using the interview data, a thematic analysis method was used to examine the responses.

#### 3.7.1 Description of the Method

Thematic Analysis (TA) was chosen as the method for identifying themes and patterns in the interview data. Braun and Clarke (2006) identify the method as foundational to qualitative research since it can be applied across a range of theories and is an effective tool to develop a multifaceted account of the data. It can be a method which works to both “reflect ‘reality’ and to unravel the surface of ‘reality’ (Braun and Clarke, 2006, p.9), providing trustworthy and insightful findings. Joffe (2012) also supports this method since it draws on both explicit and implicit content. The structure adopted for thematic analysis uses a framework that is established using the key themes and ideas identified in the literature along with emergent findings. TA provides a systematic structure for the analysis of the findings, allowing for iterative modifications of the framework as information and common themes emerge via thorough analysis. King (2004, p. 256) suggests its broad, flexible application and ease of use in comparing and evaluating perspectives. Boyatzis (1998) describes the benefit of TA as a *translator* for those ‘speaking’ the

languages of quantitative and qualitative analysis, enabling researchers to ‘communicate’ with each other.

While TA is flexible and easily adopted, critics of the method suggest it is disadvantaged in comparison to other methods such as phenomenology, grounded theory, and ethnography and may result in inconsistencies, lack of cohesion when identifying and developing themes (Braun & Clarke, 2006; Holloway & Todres, 2003). King (2004) suggests that it forces the researcher to ensure a well-developed structure for managing the data to ensure a clear, organized report of the findings.

Thematic analysis was completed using qualitative data analysis software, NVivo Version 11 (QSR International, 2015).

### **3.7.2 Use of Data Analysis Software**

Statistical Analysis Software (SPSS v. 21) was used for the quantitative study to assist with data analysis and the reporting of findings. Similarly, for the qualitative study, software options were considered and used. While I used frequent note taking and Excel for organizational purposes, I chose to use NVivo 11 for data analysis. This software was introduced as part of our research program. It allowed for the indexing of the interview textual data and facilitated searches of keywords and phrases. I was able to create my framework for data analysis within the software and it allowed me to organize my data, manage the analysis and identify categories and themes. I used the established a priori themes for the initial framework, others emerged via data analysis. NVivo requires the manual intervention of the researcher to create these codes and structures for analysis. I did not employ the auto-coding function since I wanted to explore and analyze the data through my own lens. While Woods et al., (2016) caution that using qualitative software may imply the use of programmatic approaches to analysis, I was conscious of the need to be constantly reflexive in my work.

Data analysis was ongoing throughout the data collection process. This allowed me to review all 27 interviews again, reflect on the concepts discussed and make initial notations. Once the transcripts were completed and uploaded to NVivo, each interview was again read several times prior to beginning the detailed coding process to get a sense of the overall emerging concepts and themes. Notes were made about each informant’s interview. Analysing the data with the research objectives in mind, this process generated preliminary categories. Using NVivo, each interview was coded using both *a priori* themes from the research (i.e., Transformational Leadership/Transactional Leadership/Instructional Leadership) as well as those that emerged

from the initial readings. This was a time-intensive, iterative process. After all interviews were initially coded, each was reviewed again, codes were collapsed or combined and key themes began to emerge. Each transcript was read multiple times to mine for relevant quotes and information.

This initial process generated a comprehensive list of codes that were reviewed again and organized into broad categories that identified emerging themes as well as sub-headings that helped provide coherency. With these codes and categories in mind, each transcript was reviewed again. The codes and categories were applied to text selections from informants. After the data had been reviewed and coded several times, the codes (Appendix C - Coding Sample) were pulled from NVivo and entered into a spreadsheet in order to re-examine the essential ideas and structures in order to analyze and define the phenomenon under study.

I used Microsoft Excel documents as a way of tracking the categories and to visualize the possible findings. The software also provided visualization tools that captured keywords and data queries so that I could explore the informant accounts in more depth. This allowed me to organize and group the key ideas or themes that emerged. Initially, I thought that I would be able to organize the themes into four broad categories namely, “leading, managing, engaging, instructional leadership” but, as I reviewed the data, I was cognizant that these categories were quite broad and that a different, richer story was emerging.

For each emerging theme, I developed a description of the phenomena that had been identified as a key element of the principal’s thinking, knowledge and actions framework for the meanings revealed in the study (Patton, 2002) combining both my perspective as researcher, and that of the principal.

Initial findings were shared with two informants, two peers and my supervisor at Rotman to seek feedback, provide criticism and confirm that the findings were congruent with their beliefs and experiences.

### **3.7.3 Trustworthiness**

Given the convergent parallel design of this research, it is important to question the trustworthiness of this component of the design in terms of reliability and validity. In terms of qualitative research, many investigators tend to distance themselves from this positivist paradigm. In this light, Guba (1981) posits that the following criteria should be pursued in qualitative research, corresponding to the positivist paradigm, as suggested in the work of Shenton (2004, p.63):

- Credibility (in preference to internal validity)
- Transferability (in preference to generalizability)
- Dependability (in preference to reliability)
- Confirmability (in preference to objectivity)

Table 3.6 summarizes the key points related to the criteria noted above:

**Table 3.6 Addressing Trustworthiness in Qualitative Research**

Addressing Trustworthiness		
Quantitative	Qualitative	How to Address
Internal Validity	Credibility	<ul style="list-style-type: none"> <li>• Adoption of appropriate research methods.</li> <li>• Familiarity with culture of the participating organizations.</li> <li>• Triangulations via different types of informants and sites.</li> <li>• Iterative questioning, peer scrutiny, thick description of the phenomena under study.</li> </ul>
Generalizability	Transferability	<ul style="list-style-type: none"> <li>• Provide background data to establish context and detailed descriptions to allow for comparisons.</li> </ul>
Reliability	Dependability	<ul style="list-style-type: none"> <li>• In-depth methodological description to allow study to be repeated.</li> </ul>
Objectivity	Confirmability	<ul style="list-style-type: none"> <li>• Triangulation to reduce effect of bias.</li> <li>• Admission of research beliefs and assumptions, recognition of shortcomings.</li> <li>• In-depth methodological description, clear audit trail.</li> </ul>

(Adapted from Shenton, 2004)

To ensure trustworthiness of this study, several methods were used. I had a strong familiarity with the culture of the organization and sought informants from a variety of sites. I used peer debriefing to discuss the methods and themes as they emerged. I spent significant time in the interview process and conducted it in a 3-week time-frame resulting in prolonged engagement and persistent observation.

Transferability and dependability were addressed via detailed descriptions of the context, process, and methodology. Confirmability was also considered since I ensured a clear audit trail throughout the data collection and analysis process. As well, a variety of school sites and principals participated in the interviews and, again, took part in the quantitative study to address triangulation of the data.

## **3.8 Quantitative Study - The Impact of Leadership on Student Success**

### **3.8.1 Longitudinal Data Panel**

A longitudinal panel involves the collection of information about a fixed population sample or samples, measured repeatedly over time. Remenyi et al., (1998) note that the key advantage of employing a longitudinal design is that it provides the ability to detect change over time and possibly provide greater accuracy of resultant findings. Simply put, the theoretical model is a clear statement about the nature of the change to be observed.

One dataset for the quantitative study consists of a time series panel of data (2004-2015) related to 116 schools in a school district. For the purposes of this study, in order to capture both MLQ survey data and achievement results, only schools in existence during the 2013 and 2014 school years were used for this study. Data include student achievement results, student climate surveys, school and community demographics and former and current school principal information for each of these schools from 2004-2015. Data were gathered from government and school district websites and categories for each variable were identified. The school achievement and climate data consist of observations on 156 separate variables. Appendix E outlines these specific variables and sources used for this study. The datasets were organized in a spreadsheet tool (Microsoft Excel) and structured for export to statistical software (IBM SPSS v. 21) for testing and analysis. The results of the preliminary analysis provided additional hypotheses and guided subsequent hypothesis testing.

#### **Student Achievement and Attainment Data**

For the panel, student achievement and attainment data were compiled and used for analysis. These data included the following publicly available results via the Government of Newfoundland and Labrador website.

#### **Student Achievement Results**

Yearly provincial assessments are conducted at Grades 3, 6 and 9 in the subject areas of Math and Language Arts. These results are included in the panel. While these assessments are not standardized in comparison to other international assessments like the Programme for International Student Assessment (PISA) conducted annually by the Organisation for Economic Co-operation and Development (OECD), they do assess key stage outcomes in Language and Math.



The Primary and Elementary assessments are conducted at the Grades 3 and 6 levels in both Math and Language Arts. There is no comprehensive grade. Instead, results are provided based on rubrics for students achieving at Level 3 or higher, the provincial standard. Yearly assessments may also assess different program strands. The Intermediate Provincial Assessment, conducted in Grade 9, does include a comprehensive grade but also notes students achieving at Level 3 or higher, the provincial standard. Results are provided for both Math and Language Arts. To prepare this data, a composite score was created for the results of the Grade 3 and 6 Language Arts and Mathematics Assessments from the subtests that were common across the panel. Regressions were run with both the composite and individual school scores.

At the high school level, provincial assessments are also completed in specific course areas- Math, Social Studies, French, English and the Sciences. All of these are included in the dataset. These courses are part of the provincial curriculum and essential to high school graduation. Courses listed are also indicative of the rigor of the academic program provided at each school in terms of honors, academic or general graduation status.

### **Student Attainment Rates**

For schools with senior high status, graduation rates are included in the data. These attainment rates (i.e., honors, academic or general) are calculated based on student achievement results in specific high school courses that are part of the provincial curriculum and required for high school graduation. The attainment rate represents the percentage of students achieving that status at the school. They are further delineated to include the status of the student upon graduation i.e. honors, academic or general graduation status based on student achievement results.

### **School Climate Surveys**

School Climate Surveys (2011-2015) provide data regarding student perceptions of student satisfaction, learning opportunities, school climate, behavioral expectations, safety, Bullying and harassment, participation (Grade 7-12) and Drugs and Alcohol (Grades 7-12). Composite scores were created for each of these Grade levels and each subscale was reviewed to see if reversals of the questions were required. The survey results highlight the percentage of students who “agree somewhat” or “strongly agree” with each of the statements. For each of these grade level surveys, a composite score was created for the subscales. Regressions were conducted with both the subscales and composite scores.

### 3.8.2 Multifactor Leadership Questionnaire

#### Instrumentation

The instrument employed for this study has been widely used in leadership research as noted in the literature review. The instrument used to measure effective leadership with the Multifactor Leadership Questionnaire (MLQ) developed by Bass and Avolio (2004).

The MLQ measures leadership behaviours across a continuum from transformational leadership to transactional to passive-Laissez-Faire. While the instrument has undergone many revisions, the version used for this study is the 5X-Short. This form has been validated by extensive confirmatory and discriminatory factor analysis (Antonakis et al., 2003; Bass and Avolio, 2004; Judge and Piccolo, 2004; Waggoner, 2009) and broadly vetted in empirical and theoretical research, including educational settings (Muenjohn and Armstrong, 2008). As noted in the literature review, the MLQ provided an opportunity to survey both the school leaders and followers.

The MLQ is available through a commercial vendor, Mind Garden Inc. The vendor was contacted and permission granted to deliver the survey electronically via Survey Monkey, ensuring that the precise instructions from the vendor were acknowledged.

The MLQ is used extensively in the education sector as well as across North America and globally. In particular, Leithwood and colleagues (Leithwood, 1994, 1999; Leithwood and Jantzi, 2000; Leithwood and Sun, 2015) reference both transformational leadership theory and the MLQ in their studies on leadership in schools.

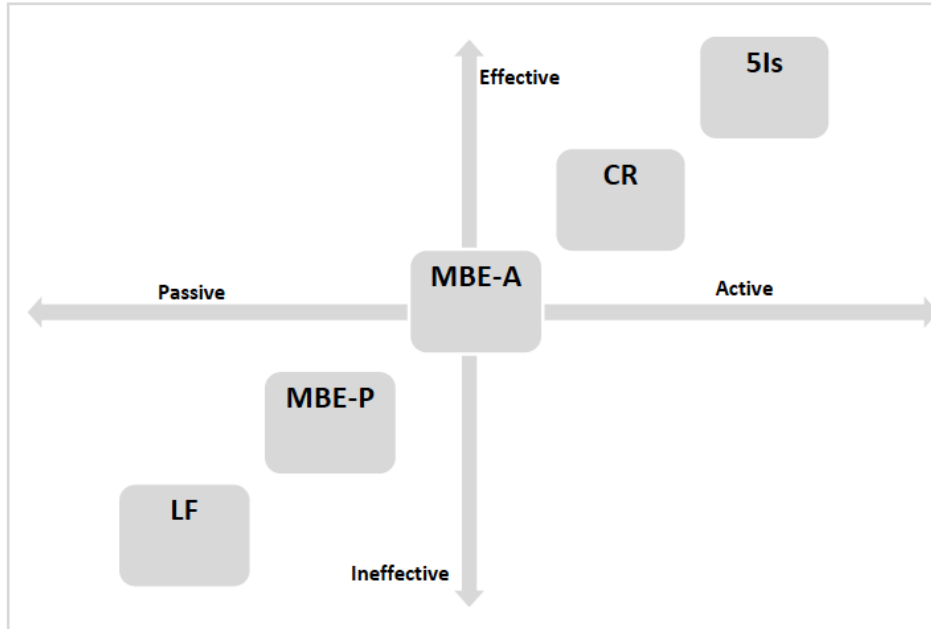
Prior to use with all survey participants, the survey was piloted with a group of 3 principals and District supervisors to ensure clarity, ease of response and capability of the online survey tool. No concerns were noted.

#### The Multifactor Leadership Questionnaire (MLQ)

Bass (1985), in his Full Range of Leadership Model (FRLM, Figure 3.2) identifies three leadership behaviours, namely: transformational, transactional and laissez-faire. Also described is the relationship between these central behaviours and leadership outcomes. Bass and Avolio (2004) contend that all leaders display these behaviours in varying degrees. Leaders who display higher frequencies of transformational and contingent reward behaviours will reap higher leadership outcomes, i.e., organizational results. While transactional leadership focuses on the task-related exchange between the leader and follower, transformational leadership emphasizes

leadership is a shared process between the leader and the follower, with a focus on aligning the followers' needs with the higher tasks and goals of the organization (Bass, 1990).

**Figure 3.2 Full Range of Leadership Model (adapted from Bass, 1996)**



Full Range of Leadership Model - Legend	
LF:	Laissez-Faire
MBE-P:	Management by Exception Passive
MBE-A:	Management by Exception Active
CR:	Contingent Reward
5Is:	Influence Attributes Idealized Influence Behaviours Inspirational Motivation Individual Consideration Intellectual Stimulation

Source: Multifactor Leadership Questionnaire, Bass, and Avolio, (2004)

### MLQ Scales and Sub-Scales

Using a Likert scale (0-4), the MLQ allows both leaders and followers to rate how leadership behaviours are exhibited and leadership outcomes developed. The scale items are rated as noted in Table 3.7.

**Table 3.7 MLQ - Likert Scale Scores**

MLQ Likert Scale Scores
0= Not at all
1= Once in a while
2= Somewhat

3= Fairly often
4= Frequently, if not always

Source: Multifactor Leadership Questionnaire, Bass, and Avolio, (2004)

## **Transformational Leadership Scale**

Bass and Avolio (2004) define transformational leaders as those who influence followers to move beyond self-interest, focus on the greater good of the organization and achieve a higher level of self-actualization through higher levels of moral and ethical behavior. Specifically, the scale is composed of five subscales: Idealized Influence (Attributes), Idealized Influence (Behaviours), Inspirational Motivation, Individualized Consideration, and Intellectual Stimulation. Each sub-scale has four elements. A description of each is provided in Table 3.8 (Bass and Avolio, 2004).

### **Idealized Influence (Attributes and Behaviours)**

Idealized influence describes leaders who serve as strong role models. They garner high levels of trust and respect from colleagues and consider the needs of the group prior to their own. They consistently display behaviours that are aligned with personal and professional ethics and values.

### **Inspirational Motivation**

Transformational leaders are optimists, effectively communicating high expectations and an exciting vision for future growth. They display strong levels of enthusiasm and confidently engage others in creating goals that will be achieved.

### **Individual Consideration**

Teaching, coaching and mentoring are key behaviours of transformational leaders to help others achieve their potential for the greater good of the organization. Followers are treated with both empathy and respect. Their uniqueness and contribution is appreciated.

### **Intellectual Stimulation**

Transformational Leaders challenge status quo, create an environment that fosters creativity and innovation and promotes engagement and varying perspectives when solving problems.

**Table 3.8 Transformational Leadership Scale and Subscale Items**

Sub-Scale Item Number	Sub-Scale Item Description (Self-Scores)
<b>Idealized Influence Attributes</b>	
IIA 10	I instill pride in others for being associated with me.
IIA 18	I go beyond self-interest for the good of the group.
IIA21	I act in ways that build others' respect for me.
IIA 25	I display a sense of power and confidence.
<b>Idealized Influence Behaviours</b>	
IIB 6	I talk about my most important values and beliefs.
IIB14	I specify the importance of having a strong sense of purpose.
IIB23	I consider the moral and ethical consequences of decisions.
IIB34	I emphasize the importance of having a collective sense of mission.
<b>Inspirational Motivation</b>	
IIM9	I talk optimistically about the future.
IM 13	I talk enthusiastically about what needs to be accomplished.
IM 26	I articulate a compelling vision of the future.
IM 36	I express confidence that goals can be achieved.
<b>Intellectual Stimulation</b>	
IS 2	I re-examine critical assumptions to question whether they are appropriate.
IS 8	I seek differing perspectives when solving problems.
IS 30	I get others to look at problems from many different angles.
IS 32	I suggest new ways of looking at how to complete assignments.
<b>Individual Consideration</b>	
IC 15	I spend time teaching and coaching.
IC 19	I treat others as individuals rather than just as a member of the group.
IC 29	I consider each individual as having different needs, abilities, and aspirations of others.
IC 31	I help others develop their strengths.

Source: Multifactor Leadership Questionnaire, Bass and Avolio (2004)

### Transactional Leadership Scale

Bass and Avolio (2004) also note two factors of transactional leadership, namely contingent reward and management by exception (active).

#### Contingent Reward

This leadership behavior is characterized via the exchange between leader and follower. Outcomes are negotiated and there is an exchange for follower effort.

#### Management by Exception

This behavior involves criticism of the follower. In active management by exception, the leader monitors the actions and behaviours of the followers, intervening to ensure conformity to organizational norms. In its passive form, the leader only intervenes when there are problems.

**Table 3.9 Transactional Leadership Scale and Subscale Items**

Sub-Scale Item Number	Sub-Scale Item Description (Self-Scores)
<b>Contingent Reward</b>	
IC1	I provide others with assistance in exchange for their efforts.
IC11	I discuss in specific terms who is responsible for performance targets.
IC16	I make clear what one can expect to receive when performance goals are achieved.
IC35	I express satisfaction when others meet expectations.
<b>Management by Exception (Active)</b>	
MBEA4	I focus attention on irregularities, mistakes, exceptions, and deviations from standards.
MBEA22	I concentrate my full attention on dealing with mistakes, complaints, and failures.
MBEA24	I keep track of all mistakes.
MBEA27	I direct my attention towards failures to meet standards.
<b>Management by Exception (Passive)</b>	
MBEP3	I fail to intervene until problems become serious.
MBEP12	I wait for things to go wrong before taking action.
MBEP17	I show that I am a firm believer in "If it ain't broke, don't fix it".
MBEP20	I demonstrate that problems must be chronic before I take action.

Source: Multifactor Leadership Questionnaire, Bass, and Avolio, (2004)

### Outcomes of Leadership Scale

The MLQ also measures the direct impact of leadership behaviours, referred to as outcomes by Bass and Avolio (2004). These outcomes evaluate the degree to which the leader is noted as effective at operating at different levels of the organization, the perception related to motivating others and the satisfaction of how the leader works with others. Three scales measure these results: Extra Effort, Effectiveness, and Satisfaction. The subscale items are noted in Table 3.10.

**Table 3.10 Outcomes of Leadership Scale and Subscale**

Sub-Scale Item Number	Sub-Scale Item Description (Rater-Scores)
<b>Extra Effort</b>	
EE39	Gets me to do more than I expected to do.
EE42	Heightens my desire to succeed.
EE44	Increases my willingness to try harder.
<b>Effectiveness</b>	
EFF37	Is effective in meeting my job-related needs.
EFF40	Is effective in representing me to a higher authority.
EFF43	Is effective in meeting organizational requirements.
EFF45	Leads a group that is effective.
<b>Satisfaction</b>	
SAT38	Uses methods of leadership that are satisfying.
SAT41	Works with me in a satisfactory way.

Source: Multifactor Leadership Questionnaire, Bass, and Avolio, (2004)

## **Demographic and Organizational Variables**

In addition to the standardized survey questions, demographic and organizational variables were added to evaluate their impact on leadership behavior, outcomes or student achievement. The following variables were included in this study: age, tenure, organizational size, location, gender, level of education and seniority in the organization. Additional information related to these variables is provided in the quantitative chapter.

## **Survey Scores**

The participants in this quantitative study are school principals, their direct supervisors, and teachers at their schools. The research is based on both self and follower scores of leadership behavior and leadership outcomes from the 216 participants who completed the MLQ. The survey data is twofold and presents a composite rating of the leader's' behavior. One element of the data is based on leader self-perceptions of behavior and outcomes. Other raters include the leaders' direct supervision/manager and direct reports. While a multi-rater approach is optimal and creates a composite picture of the leader's behavior (Day et al., 2014; Yammarino and Atwater, 1993), careful attention must be given to the survey sampling procedures.

## **Survey Sample Selection Process**

### **Sample Size**

For a quantitative study, sample size is an important consideration in relation to the confidence level and precision of the research results. Remenyi et al., (1998) identifies several factors to attain the desired sample size including; the size of the population, sample type and expected response rate. Coupled with these are time and cost factors along with similarities from previous studies.

Based on the findings from the initial quantitative research and subsequent engagement in the qualitative study, 27 principals were invited to participate in the survey along with their current teachers and supervisors. Both the raters and the principals completed separate surveys, based on their role, that included the leadership behaviours and 'outcomes of leadership' scales. Surveys were conducted with the principal and 9 raters - his/her supervisor, the assistant principal and 7 direct reports (teachers on staff) to provide 10 data samples for each leader.

The sampling plan included direct contact with the supervisor and assistant principal. All teachers on the school staff were invited to participate via email from the researcher (Appendix A). Using a compiled list of positive responses from each school, a random selection process

was conducted to select 7 direct reports. In small school populations ( $n < 10$ ) all teachers were invited. All 27 principals completed the self-assessment. Only 25 of the schools participated in the teacher/follower data collection.

### **3.9 Challenges and Limitations in the Research Design**

It is appropriate to note the possible challenges and limitations to this design. While care was taken to ensure appropriate sampling procedures both random and non-sampling errors may occur. While 25 of the 33 schools identified in the initial quantitative study are represented, it is possible that an imperfect representation of the population may occur since the survey data is dependent on teacher participation. Non-sampling errors may occur through respondent errors, lack of response and inaccurate answers. This will be given careful consideration in the data preparation phase prior to data analysis. Given the positive response to participation, over-rating and underrating of leaders may occur (Yammarino and Atwater, 1993). Again, careful data preparation and assumptions for statistical analysis will identify if the data is valid and representative of the population studied.

As noted previously, 63% of the schools in the study are elementary schools, 22% are middle/junior high schools and 15% are high schools. It would have been desirable to have more middle and high schools represented in this sample to explore the hypotheses with a broader sample. This presents an opportunity for future research using a similar research design at each school configuration level in order to make stronger claims of causality and generalizability.

### **3.10 Terminology Usage**

#### **School Leader and Principal**

For this purpose of this thesis, the term “leader” refers to the school principal. The terms “principal” and “school leader” and “leader” are used regularly in the literature. These terms are used interchangeably in this study, particularly in both the quantitative and qualitative analysis. While other education leaders may be referenced in this study, such as Senior Education Officers (SEO) or Superintendents, the term “leader” solely refers to the principal.

#### **Student Achievement and Student Success**

As defined in Appendix E of the current study, student achievement data is captured in the longitudinal panel. These data represent key-stage student achievement results that are gathered annually by the Department of Education in Newfoundland and Labrador. For the



purposes of this study, “student achievement”, “student success” and “student performance” are used interchangeably in reference to this data.

## **Conclusions**

This Chapter addressed both the research questions and methodological considerations. The initial findings from the preliminary quantitative study were discussed and provided suggestions for future research questions. The research design, a convergent parallel structure, draws equally on both qualitative and quantitative studies. The quantitative study, Chapter 4, tests for relationships between multiple leadership variables collected via a leadership questionnaire and student achievement factors. Chapter 5 follows with the qualitative part of this study. This study draws on perspectives of school leaders and explores their professional actions, insights, and behaviours via an in-depth semi-structured interview, providing the data for thematic analysis.

## Chapter 4 Quantitative Analysis and Findings

### 4.1 Introduction

This study examines the relationship between the principal and student success, namely, the explicit influence of the principal on student achievement. Subsequently, this quantitative study examines the impact of transformational and transactional leadership, as measured by the MLQ, on student achievement. This research study is based on a longitudinal panel of student performance and perception data as well as leader, follower and manager scores of transformational and transactional leadership behaviours and outcomes of leadership collected from school principals, staff and supervisors in 25 schools in a school district in Newfoundland and Labrador.

This study is divided into two stages. Stage 1 explores the relationship between transformational and transactional leadership behaviours and the outcomes of leadership using survey data from school leaders, teachers, and supervisors. The purpose of the first part of this study is to investigate whether a significant relationship existed between transformational and transactional leadership variables and a teacher's sense of effort, effectiveness, and satisfaction. Also explored was the impact of possible intervening variables on leadership and teacher effort, effectiveness, and satisfaction. Table 4.1 identifies the hypotheses formulated:

**Table 4.1 Research Hypotheses - Stage One**

<b>Hypotheses (Leadership Behaviours, Teacher and School Variables)</b>	
1.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.
2.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.
3.	There is a relationship between school configuration and transformational leadership scores.
4.	There is a relationship between school location ( i.e. rural/urban) and transformational leadership scores.
5.	There is a relationship between the size of the student population and transformational leadership scores.
6.	There is a difference between male and female teacher groups mean leadership scores for principals.
7.	There is a difference in teacher group mean leadership scores between male and female principals.
8.	There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.
9.	There is a relationship between principal seniority and perceptions of transformational leadership behaviours.

## Stage 2

The second stage of this analysis evaluates the relationship between transformational leadership and student success - namely, student achievement, climate, and culture. As noted in the literature, the school principal is second only to the teacher in relation to the impact on student success. To extend on these studies in the local context, and to contribute to the research, the following hypotheses are posited, as noted in Table 4.2:

**Table 4.2 Research Hypotheses - Stage Two**

Hypotheses	
10.	Principal leadership has a direct impact on student achievement.
11.	Principal leadership has a direct impact on student perceptions of climate and culture.
12.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement.
13.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.

This chapter is in three parts. Section one will provide the process for data screening along with assessing reliability and validity. Section two presents the results and findings of the survey with a focus on the relationships between the teacher/rater and the principal. Section three explores the relationship between the survey findings and student achievement results using a longitudinal data panel for the schools in the study. The chapter concludes with a summary of research results.

## 4.2 Data Preparation

### MLQ Questionnaire

The data were examined prior to multivariate analysis to identify missing data, outliers, reliability and validity (Hair et al., 2010; Pallant, 2010). As noted in Chapter 3, there was a 100% response rate from the 27 principals who agreed to participate and a 90% response rate from the raters group that consisted of teachers, assistant principals, and district supervisors. Five rater cases were unusable since only the demographic data were completed. The data were further screened to determine the extent of errors in data entry by the raters, appropriate numeric ranges, and coding. Table 4.3 summarizes the values received for each demographic and organizational variable.

## Demographic and Organizational Variables

Data on tenure, job position, and additional variables were collected in the Survey A summary is provided as well as the possible values for each in Table 4.3:

**Table 4.3 Summary of Demographic and Organizational Variables and Values**

Variable	Value
<b>School Phase (1-3)</b>	1 - Elementary 2 - Junior High 3 - K-12
<b>School Location (1, 2)</b>	1 - Urban 2 - Rural
<b>Gender (Principal and Rater)</b>	0 - Male 1 - Female
<b>Education</b>	1 - Bachelor Degree 2 - Masters Degree 3 - Post Graduate studies
<b>Current Position</b>	Senior Education Officer (Supervisor) Classroom Teacher Special Education Teacher Assistant Principal Learning Resource Teacher Specialist Teacher Guidance Counsellor, Department Head, Literacy Support
<b>Position in Relation to Principal</b>	1 - Supervisor 2 - Direct Report
<b>Seniority (Rater and Principal)</b>	Actual Years of Work Used

A review of this dataset indicated no missing data.

## Leadership Characteristic Variables

Along with the screening of the demographic and organizational variables, the leadership characteristic variables were also screened. The four variables assessed in the MLQ - transformational leadership, transactional leadership, Laissez-Faire leadership and leadership outcomes, were reviewed. Based on the survey design, possible values were situated on a 5-point scale ranging from "0= not at all" to "4= frequently, if not always" (Bass and Avolio, 2004, p.17). Table 4.4 shows the minimum and maximum values for all four variables.

**Table 4.4 Descriptive Statistics for ‘Full Range Leadership’ and Leadership Outcomes**

Descriptive Statistics	Minimum	Maximum	Mean	Std. Deviation
	Transformational Leadership	1.84	3.68	3.0758
Transactional Leadership	1.72	2.80	2.2097	.26982
Laissez-Faire	.21	1.71	.5785	.35272
Outcomes of Leadership	1.90	3.75	3.1618	.46748

All of the values are within the numeric range defined by the scale. The dataset is complete. Missing values are noted for the transformational, transactional and leadership outcomes scales. These will be explored further.

#### 4.2.1 Missing Data

As previous noted, of the 196 surveys received, five were determined to be unusable and were excluded from the dataset. The remaining data were reviewed to determine the extent and impact of missing data. Table 4.5 provides a summary of the available and missing cases for each scale and subscale.

**Table 4.5 Summary of Missing Cases - Rater Survey**

Scale/Subscale Name	N= Available	N= Missing
<b>Transformational Leadership Behavior</b>		
Transformational Scale	189	2
<b>Transformational Subscales</b>		
Idealized Influence Attributes	190	1
Idealized Influence Behaviours	191	0
Individual Consideration	183	8
Inspirational Motivation	191	0
Intellectual Stimulation	189	2
<b>Transactional Leadership Behavior</b>		
Transactional Leadership Behavior	188	3
<b>Transactional Subscales</b>		
Contingent Reward	178	13
Management by Exception (Active)	180	11
Leadership Outcomes	190	1
<b>Leadership Outcomes Subscale</b>		
Effectiveness	184	7
Extra Effort	182	9
Satisfaction	190	1
Laissez-Faire Leadership	191	0
<b>Laissez-Faire Subscale</b>		
Management by Exception (Passive)	189	2
Laissez-Faire	191	

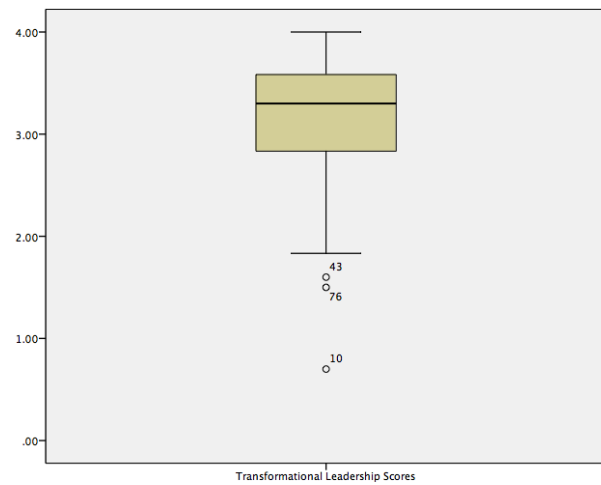
Given the high response rate as well as the high number of usable cases this results in a large sample to use for analysis purposes.

### 4.2.2 Outliers

The data were investigated for outliers. As shown in Figure 4.1 to 4.4, there were a small number of outliers identified for each leadership behavior and leadership outcomes. Pallant (2010) suggests that in order to determine if outliers have a strong influence, it is essential to compare the variable mean with the trimmed mean.

Figures 4.1, 4.2, 4.3, and 4.4 identify the outliers for the each of the leadership scales used. For both the transactional and transformational leadership scales, 3 outliers are evident. 6 outliers were evident in the Laissez-Faire Leadership scale and 5 in the Leadership Outcomes Scale.

**Figure 4.1 Transformational Leadership Boxplot (Rater)**



**Figure 4.2 Transactional Leadership (Rater)**

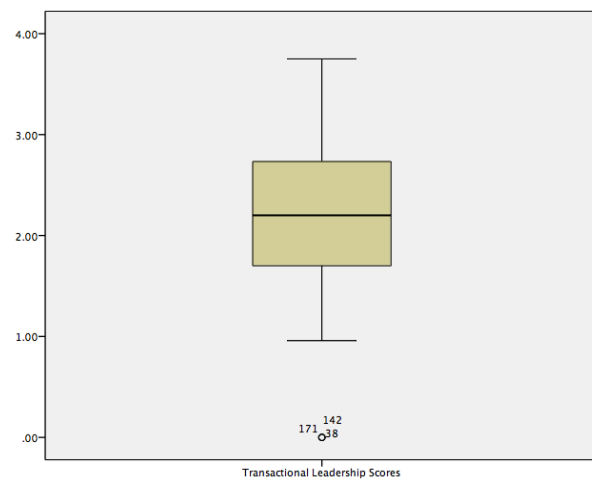


Figure 4.3 Laissez-Faire Leadership

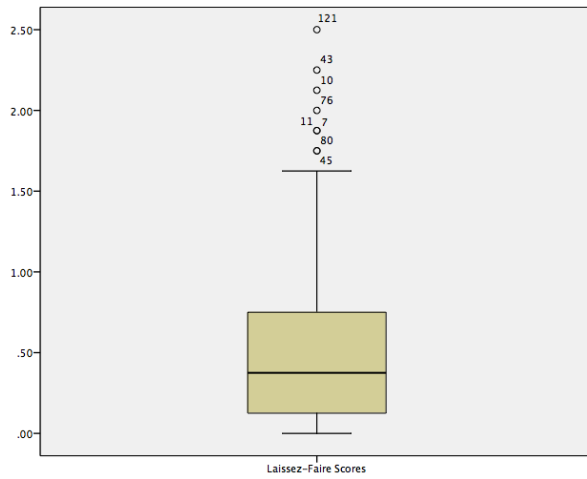
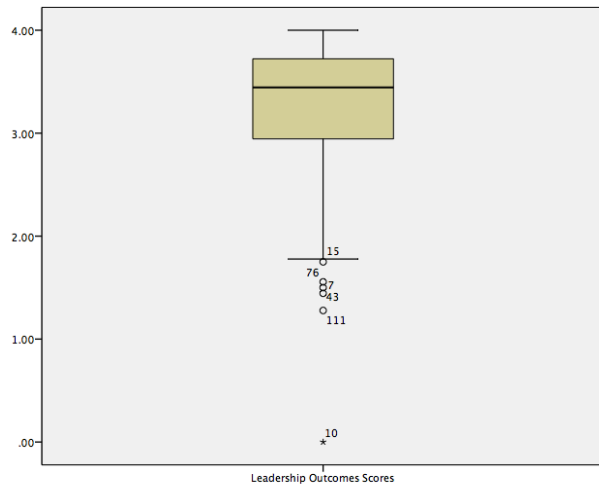


Figure 4.4 Leadership Outcomes



Given the presence of outliers, it is necessary to explore whether to include them in the analysis. Pallant (2010) suggests that an effective approach to determine this is to compare the variable means with the trimmed mean, which identifies the mean with the top and bottom 5% of cases removed. If the differences between the means are quite different, it is indicative of the outliers having a strong influence on the mean.

Table 4.6 identifies both the variable mean and trimmed mean for each of these variables. While there is a more substantial effect on the laissez-faire variables, there were little differences between the mean and trimmed mean for the transactional, transformational and leadership

outcomes scales that are used in this analysis. This analysis suggests that these outliers do not have a strong influence on the means, and they were therefore not excluded from the dataset.

**Table 4.6 Mean and Trimmed Mean of Leadership Variables**

	Outliers	Mean	Trimmed Mean
<b>Transformational Scale</b>	3	3.16	3.19
<b>Transactional Scale</b>	1	2.19	2.20
<b>Laissez-Faire</b>	6	.522	.471
<b>Leadership Outcomes</b>	5	3.26	3.32

### 4.2.3 Scale Validity

The next step in data preparation is to examine the validity of the scales used in the study. Validity (Hair et al., 2010; Pallant, 2010) is defined as the degree to which a scale measures what it intends to measure. There are several types of validity discussed and used, namely, predictive validity, criterion validity and construct validity, but for this study, content validity was used to assess the validity of the questionnaire. Content validity is defined as the adequacy to which the measure or scale has sampled from the domain of content (Pallant, 2010).

For the MLQ leadership scale, the key measure of content validity is its use in the academic literature (Pallant, 2010). As noted in Chapter 2, the MLQ has been widely used in leadership research, specifically in studies related to education and leadership.

### 4.2.4 Exploratory Factor Analysis

After determining the validity of the scale, the next step in data preparation was to evaluate the factor structure of the MLQ using exploratory factor analysis. Factor analysis is employed on a large set of variables, reduces them into a smaller number of factors and is regularly used to both create and evaluate scales (Pallant, 2010). The intent of this analysis leadership is to identify if the leadership scale for this data set is similar to the structure suggested by the original researchers (Bass and Avolio, 2004). Bass and Avolio (2004) observed high correlations between transformational scales and transactional contingent reward since they represent active, positive forms of leadership and argue that the consistency of transactional agreements and associated trust is the foundation of transformational leadership.

Since the intent of this research is to focus primarily on transformational leadership behaviours, this factor analysis will concentrate on the three-factor model for transformational leadership.



This includes the following factors: charisma, which is composed of both idealized influence attributes and idealized influence behaviours; inspirational motivation; individualized consideration; and intellectual stimulation (Bass and Avolio, 2004), assessed by the MLQ 5x. The subscale items for each factor are previously noted in Table 4.6.

Pallant (2010) suggests the use of the Principal Component Analysis (PCA) approach since the aim of this study is to present a quantitative summary of the data. The 20 items of the MLQ were used as the data for PCA using SPSS version 21 to determine if the three-factor model (Bass and Avolio, 2004) was supported. Pallant (2010) outlines the following steps: first assess the suitability of the data for factor analysis; then, undertake factor extraction and, third, conduct factor rotation and interpretation.

### PCA: Suitability of the Data

There are two main concerns to determine suitability namely, sample size and the strength of the relationship between items. While Tabachnick and Fidell (2001) (cited in Pallant, 2010) suggest a sample size of 300 they also note that a smaller sample will suffice if there are several higher loading marker variables (above 0.80). In this instance, the sample size was 191.

With relation to the strength of the inter-correlations among the items, a correlation matrix was generated to assess the appropriateness of factor analysis. Two measures were used; Bartlett's Test of Sphericity (Pallant, 2010) which should be significant at  $p < .05$  and the Kaiser-Meyer Olkin (KMO) measure of sampling adequacy. The KMO index ranges from 0-1, with 0.6 as the minimum value for good factor analysis (Pallant, 2010).

The sample size of 191 cases suggests suitability for PCA and the results of the correlation matrix, provided in Appendix G, show coefficients of 0.3 and above. Table 4.7 shows the KMO value was 0.87, exceeding the recommended value of 0.6 and the Bartlett's Test of Sphericity reached statistical significance, supporting the factorability of the correlation matrix (Pallant, 2010).

**Table 4.7 Kaiser-Meyer Olkin and Bartlett's Test**

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy	0.92	
Bartlett's Test of Sphericity	Approx. Chi-Square	1792.412
	df	190
	Sig.	.000

## PCA: Factor Extraction

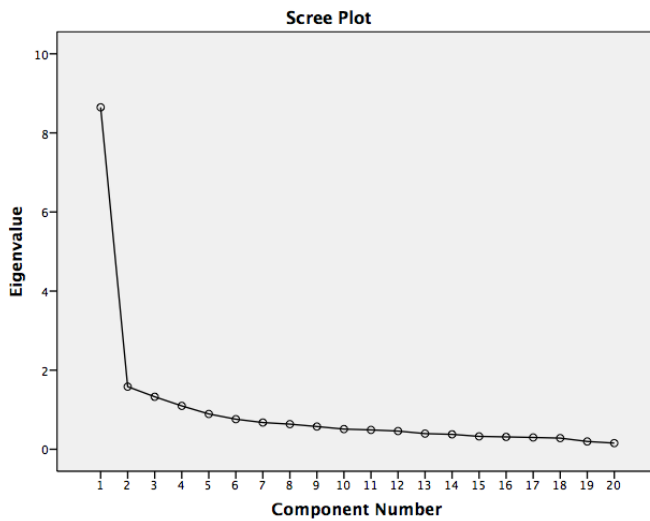
Pallant (2010) notes that the aim of factor extraction is to determine the smallest number of factors that best represent the interrelationships among the variables. The results of the factor extraction are noted in Table 4.8. This stage of PCA revealed the presence of two components with eigenvalues exceeding 1. These components explain a total of 63.28% of the variance.

**Table 4.8 Principal Components' Analysis - Eigenvalues**

Total Variance Explained						
Component	Initial Eigenvalues	Extraction Sums of Squared Loadings				
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.647	43.233	43.233	8.647	43.233	43.233
2	1.583	7.917	51.151	1.583	7.917	51.151
3	1.327	6.637	57.788	1.327	6.637	57.788
4	1.097	5.486	63.275	1.097	5.486	63.275
5	.893	4.465	67.740			
6	.761	3.804	71.543			
7	.676	3.379	74.922			
8	.636	3.178	78.100			
9	.575	2.873	80.974			
10	.510	2.551	83.525			
11	.489	2.447	85.972			
12	.460	2.301	88.274			
13	.396	1.980	90.254			
14	.377	1.884	92.139			
15	.326	1.629	93.768			
16	.313	1.563	95.331			
17	.299	1.493	96.824			
18	.282	1.411	98.235			
19	.197	.986	99.221			
20	.156	.779	100.000			
Extraction Method:	Principal Component Analysis					

Since the Kaiser criterion often extracts too many components, it is necessary to review the Scree plot (Figure 4.3) to evaluate a change in the shape of the plot (Pallant, 2010). An inspection of this plot, as shown in Figure 4.3, revealed a clear break after the second component. It appears that these components capture more of the variance and will be retained for further exploration.

**Figure 4.3    Scree Plot**



#### **Step 4: Parallel Analysis**

This decision was supported by the results of Parallel Analysis, provided in Appendix D, which showed only two components with eigenvalues exceeding the corresponding criterion values for randomly generated data matrix of the same size (20 variables x 483 respondents) (Pallant, 2010, p.193). A review of the Component Matrix, shown in Table 4.9, revealed that the majority of the items load on the first two components.

**Table 4.9 Component Matrix - Parallel Analysis**

Component	Initial Eigenvalues from PCA	Criterion V	Decision
1	8.647	1.62	accept
2	1.583	1.51	accept
3	1.327	1.42	reject
4	1.097	1.34	reject
5	.893	1.27	reject
6	.761	1.21	reject
7	.676	1.15	reject
8	.636	1.10	reject
9	.575	1.04	reject
10	.510	0.99	reject
11	.489	0.94	reject
12	.460	0.90	reject
13	.396	0.85	reject
14	.377	0.81	reject
15	.326	0.76	reject
16	.313	0.71	reject
17	.299	0.67	reject
18	.282	0.62	reject
19	.197	0.57	reject
20	.156	0.51	reject
Extraction Method:		Principal Component Analysis	

**PCA: Component Matrix**

The final step is to review the generated component matrix (Table 4.10) which shows the loadings for the each of the components. Four components are noted since SPSS retains all values with Eigenvalues above 1 as the default. The results show that most items load on Components 1 and 2 and quite strongly (above 0.4) on Component 1. This supports the conclusion from the scree plot analysis to retain two factors for further investigation.

**Table 4.10 Component Matrix**

	<b>Component Matrix<sup>a</sup></b>			
	<b>Component</b>			
	<b>1</b>	<b>2</b>	<b>3</b>	<b>4</b>
IM2	.789		-.327	
IA2	.784			
IA1	.771			
IC3	.763			
IB3	.753			
IB2	.721			
IM3	.715		-.353	
IA	.697			
IM1	.671	-.325		
IS2	.670	.447		
IM	.648	-.377		
IC1	.647			-.405
IS	.646			
IS3	.623	.335		
IS1	.596		.559	
IC	.466	.335	.370	
IC2		.518		.437
IB	.416		.579	.319
IA3	.375	-.424		.447
Extraction Method:	Principal Component Analysis			
a. 4 components extracted				

However, the final step for confirmation of the two-factor solution involved the review of the pattern matrix.

### **PCA: Factor Rotation and Interpretation**

PCA with a two-factor solution was conducted next as noted in Table 4.11:

**Table 4.11 Rotated Component Matrix - Two Factors**

	Rotated Component Matrix <sup>a</sup>		
	Component		
	Question	1	2
Inspirational Motivation	3	.779	.304
Idealized Behavior	2	.766	.369
Inspirational Motivation	1	.738	
Inspirational Motivation	2	.721	
Idealized Attributes	1	.650	.312
Idealized Behavior	4	.637	.413
Inspirational Motivation	4	.605	.394
Idealized Behavior	3	.580	.431
Idealized Attributes	4	.560	
Intellectual Stimulation	2	.518	.312
Idealized Behavior	1	.461	
Intellectual Stimulation	3		.775
Individualized Consideration	4	.385	.723
Intellectual Stimulation	4		.659
Idealized Attributes	2	.465	.643
Individualized Consideration	2	.320	.620
Idealized Attributes	3	.544	.571
Individualized Consideration	1		.557
Intellectual Stimulation	1	.385	.544
Individualized Consideration	3		.529
Extraction Method:	Principal Component Analysis		
Rotation Method:	Varimax with Kaiser Normalization		
a. Rotation converged in 3 iterations			

The PCA resulted in a solution that explained a total of 51.15% of the variance, with Component 1 contributing 28.28% and Component 2 contributing 22.87%. Varimax rotation assumes that the two factors are unrelated. Given that many items were cross loaded, a three-factor model was explored. The component matrix for the three-factor model is noted below in Table 4.12:

**Table 4.12 Rotated Component Matrix - Three Factors**

	Rotated Component Matrix <sup>a</sup>		
	Component		
	1	2	3
Inspirational Motivation 3	.858		
Idealized Behavior 2	.781	.301	
Inspirational Motivation 2	.755		
Inspirational Motivation 4	.729	.337	
Idealized Behavior 4	.713	.355	
Idealized Behavior 3	.547	.380	
Idealized Attributes 4	.452		.319
Intellectual Stimulation 3		.753	
Individualized Consideration 4	.382	.688	
Intellectual Stimulation 4		.635	
Idealized Attributes 2	.499	.600	
Individualized Consideration 2		.592	
Individualized Consideration 1		.549	.405
Individualized Consideration 3		.540	
Idealized Attributes 3	.506	.523	.304
Intellectual Stimulation 1	.339	.511	
Intellectual Stimulation 2			.755
Idealized Behavior 1			.736
Inspirational Motivation 1	.534		.564
Idealized Attributes 1	.475		.521
Extraction Method:	Principal Component Analysis		
Rotation Method:	Varimax with Kaiser Normalization		
a. Rotation converged in 6 iterations			

The PCA resulted in a solution that explained a total of 57.79% of the variance, with Component 1 contributing 25.00%, Component 2 contributing 19.97% and component 3 contributing 12.81%.

Using the three-factor model, the final step was to explore the pattern matrix. Given the positive correlation of these factors, Oblimin rotation was employed (Pallant, 2010). As Table 4.13 notes, this rotation showed strong loadings on the three components, with Component 1 having the majority of variables.

**Table 4.13 Pattern Matrix**

	Rotated Component Matrixa		
	Component		
	1 Inspirational Motivation	2 Intellectual Stimulations	3 Charisma
Inspirational Motivation 13	.930		
Inspirational Motivation 26	.812		
Idealized Influence Behaviours 14	.812		
Inspirational Motivation 36	.798		
Idealized Influence Attributes 34	.758		
Idealized Influence Attributes 23	.530		
Inspirational Motivation 9	.480		.476
Idealized Influence Attributes 18	.479	.458	
Idealized Influence Attributes 21	.466	.355	
Idealized Influence Attributes 25	.457		
Intellectual Stimulation 30		.683	
Individualized Consideration 29		.592	
Individualized Consideration 31	.327	.567	
Intellectual Stimulation 32		.553	
Individualized Consideration 15		.494	.472
Individualized Consideration 19		.488	
Intellectual Stimulation 2		.390	
Intellectual Stimulation 8			.785
Idealized Influence Behaviours 6			.776
Idealized Influence Attributes 10	.406		.452

It is evident that the items loaded somewhat differently than the three-factor model proposed by Bass and Avolio. Several of the idealized influence attributes loaded on both Components 1 and 2. Most of the intellectual stimulation and individualized consideration items loaded on Component 2, intellectual stimulation. Individual consideration, unlike the Bass and Avolio three-factor model, loaded on all three components.

While the PCA conducted suggests a three-factor model for full-range leadership with loadings slightly different than those proposed by Bass (2004), the decision was made to retain the leadership scales without factor changes for the analysis, given the alignment of this study with others that have used the MLQ to assess principal leadership.



### 4.2.5 Scale Reliability

Previous validation of the instrument is noted due to its extensive use (Hater and Bass, 1988; Bass and Yammarino 1988; Howell and Avolio, 1989; Catanyag,1995; Bass, Avolio, Jung and Benson 2003; cited in Avolio and Bass, 2004). Research by Avolio, Bass, and Jung (1995) produced the validity of the instrument as noted in Table 4.14:

**Table 4.14 MLQ Validity**

Validation Measure	Item/Factor Measured	Score
Reliability (Alpha)	Rater Questionnaire	0.74-0.94
Overall fit with the full nine-factor model	Goodness of fit index	0.91

Adapted from Bass and Jung (1995)

The reliability coefficient, Cronbach's Alpha, was considered for this use of the instrument and the range of the scores is noted in Table 4.15. Hair, Black, Babin, and Anderson (2010) suggest that the generally agreed upon lower limit for this score is 0.70 and may decrease to 0.60 in exploratory research.

**Table 4.15 Cronbach's Alpha**

Validation Measure	Item/Factor Measured	Score
Reliability (Alpha)	Rater Questionnaire	0.79-0.87
Overall fit with the full nine-factor model	Goodness of fit index	0.91

For this study, the reliability of all the scales and subscales was assessed. Cronbach's Alpha was used to measure the internal consistency. Reliability analysis was conducted for each scale and subscale to determine the internal consistency if the item was deleted.

In relation to the full factor leadership scale, Cronbach's alpha was 0.83. A review of the subscale items (Table 4.16) indicated that the alpha would be impacted by the removal of scale items specific to passive-avoidant leadership-Management by Exception (Active and Passive) and Laissez-Faire Leadership increasing from 0.83 to 0.87.

**Table 4.16 Full Factor Leadership Scale**

	Item - Total Statistics			
	Scale Mean if Item Deleted	Scale Variance if Item Deleted	Corrected Item-Total Correlation	Cronbach's Alpha if Item Deleted
Inspirational Motivation	27.83	20.22	0.715	0.797
Idealized Influence Behavior	27.89	19.57	0.764	0.791
Intellectual Stimulation	28.16	19.64	0.761	0.792
Individualized Consideration	28.26	20.00	0.625	0.802
Idealized Influence- Attributes	27.83	19.55	0.722	0.794
Contingent Reward	28.23	19.43	0.804	0.788
Management by Exception (Active)	29.56	22.68	0.126	0.853
Management by Exception (Passive)	30.38	27.28	-0.294	0.867
Laissez-Faire	30.79	27.28	-0.534	0.870

In summary, three subscales increased the internal consistency if removed - Management by Exception (Active and Passive) and Laissez-Faire behaviours. These were reviewed in relation to the context of the research question. In these instances, the subscales were related to non-leadership (i.e., passive-avoidant behaviours). As well, the behaviours noted in this component of the survey are not elements of effective leadership that will be used for the development of a leadership framework. However, the transformational leadership and leadership outcomes scales, as well as their subscales, fall within the normal range.

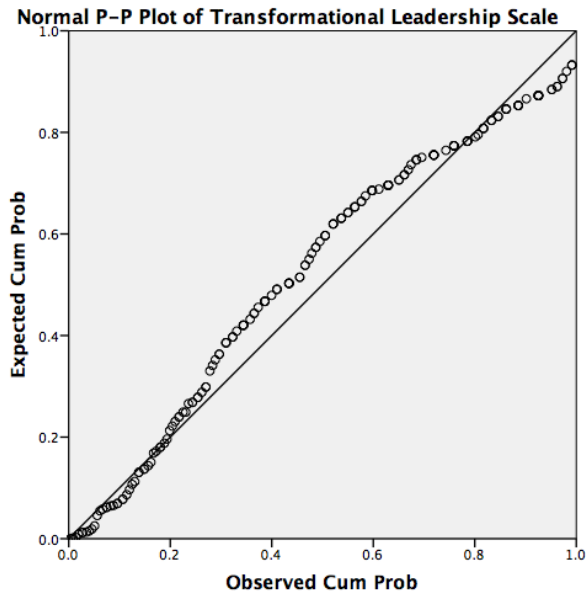
#### 4.2.6 Multivariate Analysis Assumptions

Prior to analysis, the data were assessed to ensure that key assumptions were met. These include normality, homoscedasticity, and linearity. Each will be addressed for each leadership variable and outcome. Further evaluations will be provided during the analysis section of this chapter.

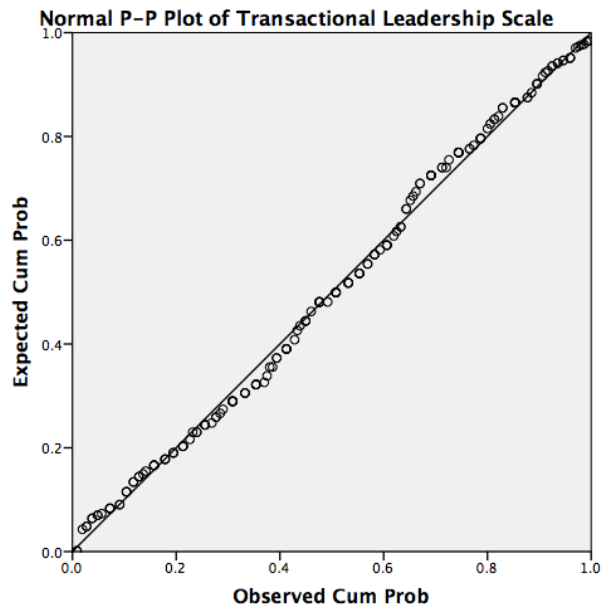
##### Normality

To assess if the data were normally distributed, normal probability plots were examined for each variable. The closeness of the data to the normal line indicates that all of the variables are normally distributed, particularly in relation to transformational, transactional and leadership outcomes. The first assumption for multivariate analysis, normality, is met.

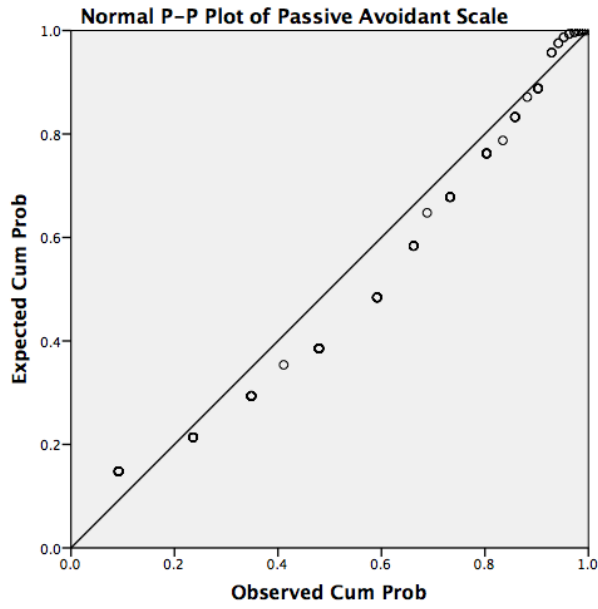
**Figure 4.4 P-P Plot Transformational Leadership**



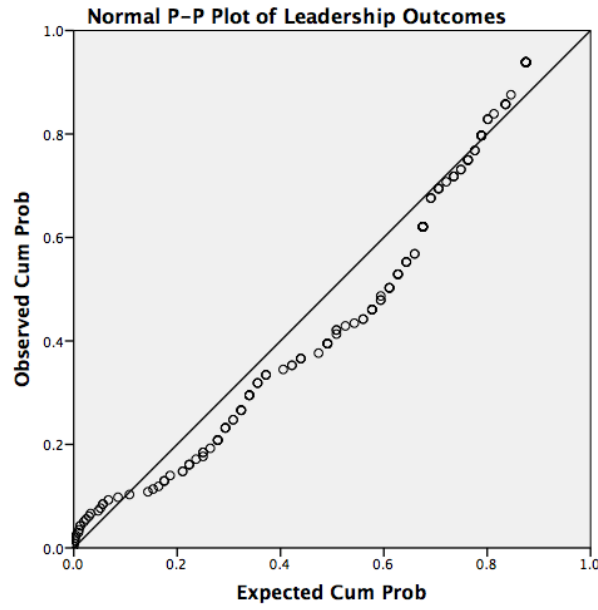
**Figure 4.5 P-P Plot Transactional Leadership**



**Figure 4.6 P-P Plot Laissez-Faire Leadership**



**Figure 4.7 Leadership Outcomes**

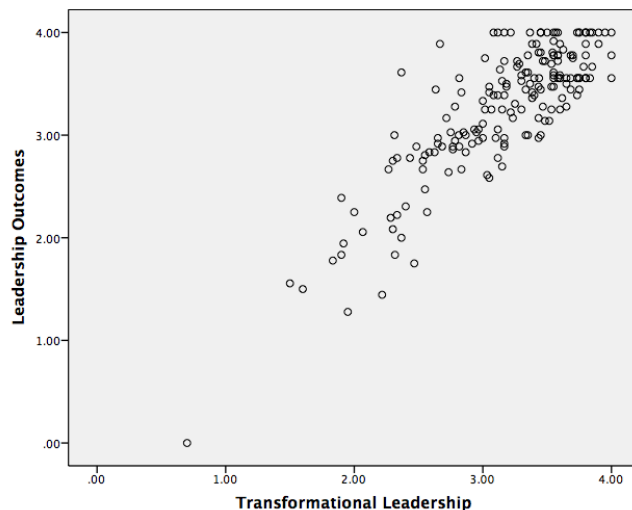


## Homoscedasticity

The next assumption to verify is homoscedasticity that determines in the dependent variable under analysis exhibits equal variance across a range of predictor variables (Hair et al.,2010). A scatter plot that has an elliptical distribution indicates that the relationship is homoscedastic.

In this case, the relationship between transformational leadership, the predictor variable (x) and leadership outcomes, the dependent variable (y) was explored using a scatter plot, as shown in Figure 4.8. The elliptical distribution is indicative of homoscedasticity, meeting the second assumption for multivariate analysis.

**Figure 4.8 Scatter Plot - Transformational Leadership and Leadership Outcomes**

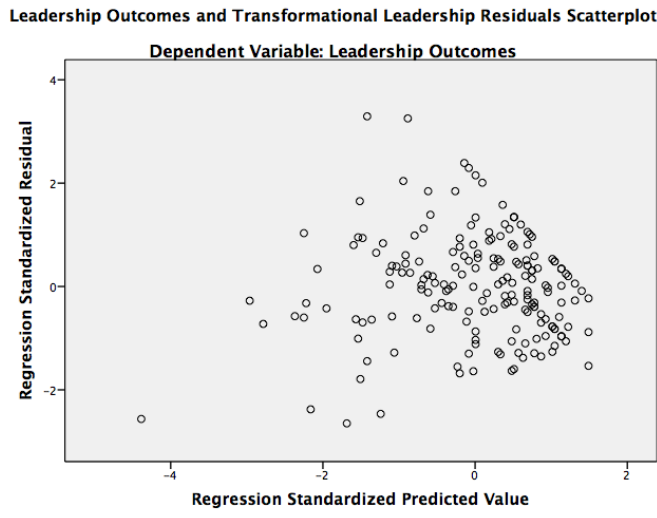


## Linearity

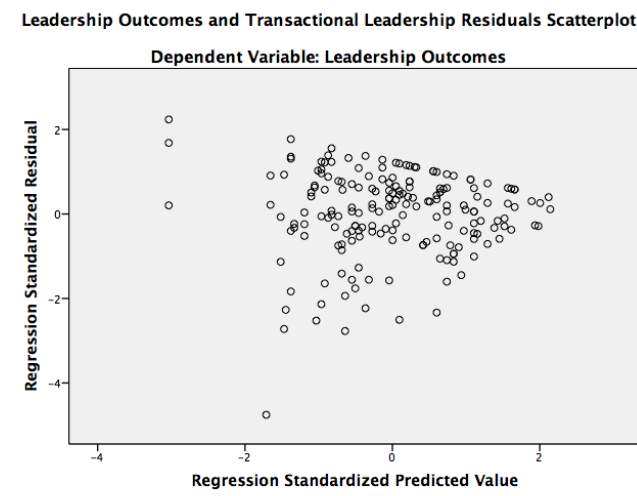
The third assumption assessed is the linearity of the relationship between leadership behaviors and leadership outcomes. Hair et al. (2010) and Pallant (2012) suggest that a scatter plot of the residuals, in a simple regression, can identify this assumption and determine if there are no systematic relationships between the errors in the model.

A regression was conducted to demonstrate the impact of leadership behaviours on the dependent variable of leadership outcomes. Regressions were run for both transformational and transactional leadership behaviours in relation to effectiveness on the leadership outcomes, the dependent variable. The results are shown in Figures 4.11 and 4.12.

**Figure 4.9 Leadership Outcomes and Transformational Leadership Residuals Scatterplot**



**Figure 4.10 Leadership Outcomes and Transactional Leadership Residuals Scatterplot**



A visual inspection concludes that there do not appear to any systematic relationships in the data examined and, thus the assumption of linearity is satisfied.

## 4.3 Descriptive Statistics

### 4.3.1 Demographic and Organizational Variables

All leaders and raters responded to the demographic and organizational questions in the survey. These descriptive statistics are described for each. As noted in chapter 3, of the 33 possible respondents, 27 principals responded positively to participate. All 27 responded to the self-assessment but only 25 of these principals engaged in the rater survey. For analysis purposes, only these 25 will be used since both leader and rater data are available.

## **Sex/Gender**

Of the 25 principal responses used for this survey analysis, 60% were female and 40% male. Likewise, for the rater population (n=191), 80% of those surveyed were female. Given the high sample response rate (91%), one may posit that the data set is representative of the study population.

## **School Phases and Location**

The school sites varied in terms of the school phases, location, and student population. Of the participating schools surveyed, 67% were elementary (K-6). 22% of the schools were junior high settings and 11% were all grade schools (K-12). Both rural (n=9) and urban (n=16) schools were represented. Schools varied in population as well, ranging from a small, rural school of 62 to a large urban school of 836. The average population was 353.

## **Seniority and Tenure**

The average seniority of the rater participants was 14.74 years. The average seniority for principals was 17.60 years, with a median of 18.62 years. Generally, the data indicates that the majority of principals and raters are mid-career.

Along with seniority, the tenure of the principal at the school was measured( i.e. the number of years as principal of the school). Of the 25 principals in the study, 44% were in the first year of at the school (n=11), with 56% (n=14) in the second year as principal of the school. For this group, 48% were in their first tenured position as principal. This is a very experienced group of leaders since all have served as assistant principals, previous principalships or district roles for more than 5 years.

## **Role in the School System**

Raters were asked to identify their current role in the school system. Table 4.17 provides their responses. Only the Senior Education Officer - Programs would identify to being in a higher role than the principal and act as a supervisor and evaluator, particularly related to principal tenure.

**Table 4.17 Job Titles of Raters**

Senior Education Officer - Programs	10.95%
Classroom Teacher	50.25%
Special Education Teacher	10.95%
Assistant Principal	9.45%
Learning Resource Teacher	1.49%
Specialist Teacher (Music, Physical Education, LRT)	6.97%
Guidance Counsellor, Department Head, Literacy Support	9.45%

### **Education**

All of the leaders indicated their highest level of education and have completed a Masters program. A Master's Degree is a prerequisite for application for a leadership position. Of the 25 school principals, all note additional courses in other areas and have a variety of undergraduate degrees ranging from physical education, special education, guidance, arts, science, and technology.

The rater responses indicate a high level of education as well. While 27% have the prerequisite Bachelor's Degree, 54% have completed a Master's Degree and over 18% have completed postgraduate work.

### **Conclusion**

Several conclusions may be assumed from the demographical data gathered in the survey. From an experience perspective, both the raters and the principals are mid-career and bring knowledge and experience to their roles. They are a highly educated group and represent the larger population of the school district. A variety of school settings are represented and indicative of the general population breakdown of the school district.



### 4.3.2 Independent and Dependent Descriptive Statistics

SPSS was used to aggregate individual rater responses by school and then to calculate descriptive statistics and standard deviations for the transformational, transactional, passive leadership and leadership outcomes. Table 4.18 outlines the composite rater responses as well as the norms and percentiles as determined by Bass and Avolio (2004).

When measured against the North American norms that capture the average percentile scores for leaders, the composite scores for leaders in terms of transformational leadership were at or above the 50<sup>th</sup> percentile. Only one score, “Individualized Consideration” was lower than the 50<sup>th</sup> percentile.

**Table 4.18 Rater Survey Findings - Descriptive Statistics**

	<b>N</b>	<b>Mean</b>	<b>Std. Deviation</b>	<b>Percentile (Relative to US Data)</b>
Idealized Attributes	192	3.28	.70	60%
Idealized Behaviours	194	3.21	.66	70%
Inspirational Motivation	194	3.48	.61	80%
Intellectual Stimulation	191	2.93	.68	60%
Individualized Consideration	184	2.85	.74	50%
Contingent Reward	179	2.89	.66	50%
Management by Exception (A)	182	1.53	.95	40%
Management by Exception (P) Laissez-Faire	191	.73	.64	40%
	194	.32	.50	40%
<b>Outcomes of Leadership</b>				
Effectiveness	184	3.41	.67	70%
Extra Effort	182	2.86	.78	60%
Satisfaction	191	3.52	.68	70%

**Table 4.19 Leader and Rater Responses**

	<b>Leader Mean</b>	<b>Rater Mean</b>	<b>Percentile (Leader)</b>	<b>Percentile (Rater)</b>
Idealized Attributes	3.13	3.28	70%	60%
Idealized Behaviours	3.43	3.21	80%	70%
Inspirational Motivation	3.51	3.48	80%	80%
Intellectual Stimulation	3.40	2.93	80%	60%
Individualized Consideration	3.44	2.85	70%	50%
Contingent Reward	3.08	2.89	50%	50%
Management by Exception (Active)	1.72	1.53	60%	40%
Management by Exception (Passive)	.73	.73	30%	40%
Laissez-Faire	.27	.32	30%	40%
Effectiveness	3.33	3.41	60%	70%
Extra Effort	2.87	2.86	60%	60%
Satisfaction	3.58	3.52	80%	70%

Table 4.19 outlines the leadership variables and descriptive statistics related to leader responses. Generally, the leaders' composite scores fell in a higher percentile than the rater scores; however, "Inspirational Motivation" was in the 80<sup>th</sup> percentile for both the leader and rater. In relation to the transformational leadership scores noted by both groups, only one measure was below the 60<sup>th</sup> percentile, namely "Individualized Consideration". The largest range was related to "Intellectual Stimulation" which explores how the leader engages the raters in problem-solving and providing creative and novel solutions (20%).

Table 4.20 provides the percentile scores of the individual principals related to the 5 factors of transformational leadership, based on the rater surveys. Again, Individualized Consideration is noted as the lowest ranking factor in relation to the other four. Sixty-eight percent of the principals, in Inspirational Motivation, when measured against national norms, ranked highly. Forty-eight percent were at the 90<sup>th</sup> percentile or higher. Seventy-six percent of the leaders, in terms of total transformational leadership factors, scored above 3.00, forty-eight percent of whom were female.

**Table 4.20 Rater Survey - Percentile Scores for Individual Principals**

Principal	Idealized Influence - Attributes	Idealized Influence - Behaviours	Inspirational Motivation	Intellectual Stimulation	Individualized Consideration	Total Rater Score
22	90	90	95	90	80	3.68
7	90	95	90	80	70	3.52
5	90	90	90	80	60	3.44
18	90	80	80	80	70	3.41
20	70	80	80	80	80	3.38
8	70	80	90	60	60	3.37
13	80	90	90	60	70	3.36
15	70	90	95	60	50	3.32
23	70	80	90	60	50	3.28
11	80	80	90	60	50	3.26
19	70	80	90	50	60	3.22
3	60	80	70	60	60	3.19
4	50	80	80	60	70	3.17
9	70	70	90	60	60	3.17
21	60	60	70	60	70	3.12
24	70	60	80	50	60	3.12
12	60	60	60	60	50	3.09
17	70	90	60	50	40	3.09
1	60	80	80	40	40	3.08
16	60	60	90	40	30	2.94
10	50	60	50	60	50	2.9
14	40	50	50	30	30	2.62
25	50	60	80	20	10	2.55
2	20	30	40	40	20	2.43
6	10	5	10	10	30	1.84

For data analysis, Table 4.21 outlines the aggregate scores of each component from both the rater and leader surveys in relation to both transformational and transactional leadership as well as the outcomes of leadership.

**Table 4.21 Aggregate Scores**

	Rater Mean	Leader Mean	Difference
Transformational Leadership	3.16	3.40	-0.24
Transactional Leadership	2.20	2.47	-0.27
Extra Effort	2.86	2.87	-0.01
Effectiveness	3.41	3.35	0.06
Satisfaction	3.52	3.50	0.02

### 4.3.3 Discussion of Initial Data

In both the leader and rater surveys, more principals were identified as demonstrating transformational leadership behaviours in comparison to transactional leadership or passive-non-leadership behaviours. In some instances, leaders gave a higher ranking for their behaviours (*Inspirational Motivation, Idealized Behaviours, Intellectual Stimulation, and Individualized Consideration*). This is not uncommon (Avolio and Bass, (2004). However, it is important to note that “*Contingent Reward*”, a transactional factor, was rated higher than the transformational factor of “*Individualized Consideration*”.

A deeper investigation is warranted into the two factors with the highest differential, namely *Intellectual Stimulation* and *Individualized Consideration*. Twenty-eight percent of the leaders were noted below the 50<sup>th</sup> percentile on both of these factors. Bass and Avolio (2004) suggest that intellectual stimulation occurs when a leader actively encourages creativity and innovation, challenges to the status quo and risk taking. An analysis of the data for the specific principals suggests that the behaviors are present but not frequent. These results suggest that principals should be consistent and focus on ways to model, empower and engage teachers to be innovative and seeks strategies that encourage risk taking. These behaviors - creativity, innovation and risk taking - also align with a broader organizational focus on 21<sup>st</sup> century skills for all learners.

Likewise, leaders who demonstrate individualized consideration make genuine connections with employees, focusing on interpersonal connections and actively encourage professional growth. An analysis of the individual data for these principals suggests that the behaviors are present but not consistently demonstrated. While the scores for all raters suggest that each principal treats them as an individual, rater scores indicate note limited time given to teaching and coaching. The results for principals also indicate they would like to spend more time engaging directly with teachers in terms of teaching and coaching, with a focus on individualized professional development. This may also point to the comfort level of the principal in the instructional leadership role as well as an increased need for visibility in the classroom and direct engagement with teachers.

The scores recorded for both raters and principals have higher ratings in transformational versus transactional behaviors. The principal responses indicate a higher mean (2.47) than the raters, perhaps due to their specific knowledge of the managerial tasks and activities that they do in order to ensure an effective school. This suggests that the principal is strongly aware of the role of procedures and structures necessary to create an effective learning

environment. These management behaviors and actions provide the foundation for leading and engaging others.

In relation to the *Outcomes of Leadership*, the scores were quite similar. Both raters and leaders ranked *Satisfaction* as the highest outcome, with raters providing a higher score, followed by *Effectiveness* and *Extra Effort*. These rankings address the perceived effects of the leader on the rater’s sense of effectiveness and job satisfaction. Specifically, the questions focus on the ability of the leader to meet organizational requirements, job-related needs, and representing the teacher to a higher authority.

*Contingent Reward*, a dimension of transactional leadership, also had a higher mean rater score than “*Individualized Consideration*” and in the 50<sup>th</sup> percentile for both the principals and raters. Bass (1985), (2004) suggests that contingent reward leadership provides clarity for performance targets, expectations, and rewards when goals are met. Bass and Avolio (2004) posit that this transactional dimension provides a foundation for effective leadership and greater outcomes of leadership (*Effort, Effectiveness, and Satisfaction*) are possible by augmenting transactional with transformational leadership (p.22)

#### 4.4 Quantitative Analysis- Stage One

The purpose of the first part of this study was to investigate whether a significant relationship existed between transformational and transactional leadership variables and a teacher’s sense of effort, effectiveness, and satisfaction. Also explored was the impact of possible intervening variables on leadership and teacher effectiveness and satisfaction. The following hypotheses were formulated as noted in Table 4.22.

**Table 4.22 Hypotheses – Stage One**

Hypotheses	
1.	A teacher’s sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.
2.	A teacher’s sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.
3.	There is a relationship between school configuration and transformational leadership scores.
4.	There is a relationship between school location ( i.e. rural/urban) and transformational leadership scores
5.	There is a relationship between size of the student population and transformational leadership scores
6.	There is a difference between male and female teacher groups mean leadership scores for principals.
7.	There is a difference in teacher group mean leadership scores between male and female principals.

8.	There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.
9.	There is a relationship between principal seniority and perceptions of transformational leadership behaviours.

Prior to analysis, the data were checked for multicollinearity and independence of observations. Correlation and regression analysis were used to evaluate the relationship between principal behaviours and teacher’s sense of effectiveness, effort, and satisfaction. Regression analysis is conducted to determine the predictive power of the variables as well as their relative contribution.

### Correlations

To quantify the relationship between the rater transformational leadership scores and the “*Outcomes of Leadership*” scores, correlation coefficients were calculated. The Pearson(*r*) product-moment correlation coefficient was used to evaluate the relationship between these variables. The Pearson coefficient measures the strength and direction of the linear relationship between two variables and is reported as a number between 1 and -1. A correlation of 0 means that no linear relationship is present. A positive or negative value suggests the direction of the relationship and is strongest the closer to 1 or -1.

Table 4.23 displays the Pearson coefficients for each of the five factors of transformational leaders in relation to the composite “*Outcomes of Leadership*” score that indicate the teachers’ sense of effectiveness, effort, and satisfaction.

The analysis of the data revealed a statistically significant positive relationship between the five dimensions of transformational leadership and the outcomes of leadership. These findings suggest that the more teachers perceived their leader as transformational or effective, the higher their levels of effectiveness, effort, and satisfaction.

**Table 4.23 Coefficients Table**

	Correlations	
	Outcomes of Leadership	
Inspirational Motivation	$r^2$	0.692**
Intellectual Stimulation	$r^2$	0.723**
Individualized Consideration	$r^2$	0.655**
Idealized Influence - Attributes	$r^2$	0.714**
Idealized Influence - Behaviours	$r^2$	0.734**

\*\* Correlation is significant at the 0.01 level (2-tailed).

Further analysis of these variables using the Pearson  $r^2$  indicated that approximately 0.726 (73%) of the variability in teachers' sense of effectiveness, effort, and satisfaction could be accounted for by their perceptions of the principals' transformational or effective leadership behaviours.

## Regressions

Similarly, regression analyses were conducted to explore significant relationships between the transformational leadership behaviours of the principal and the teachers' sense of effectiveness, effort, and satisfaction - the outcomes of leadership. The impact of each variable, particularly related to the five factors of transformational leadership, was determined in relation teacher effectiveness, effort, and satisfaction, the outcomes of leadership.

The impact of each variable is determined through a review of the t-statistics (t-tests) and significance values (p). Where t-statistics are greater than  $\pm 1.96$ , or significance values (p) lower than 0.05, the coefficient is considered statistically significantly different from zero, at a 95% confidence interval.

**Hypothesis 1: A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.**

To test this hypothesis, we estimate the following model:

$$Outcomes_i = \beta_0 + \beta_1 IA_i + \beta_2 IB_i + \beta_3 IS_i + \beta_4 IM_i + \beta_5 IC_i + \sum_p \alpha_p^p P_p + E$$

$i = 1 \dots 191$

$p = 1 \dots 25$

Where

y= the outcomes of leadership

i= the number of cases, (n=191)

P = Number of principals, (n=25)

IA = Idealized Attributes

IB = Idealized Behaviours

IS = Intellectual Stimulation

IM = Inspirational Motivation

IC = Individualized Consideration

$P_i$  = Principal Fixed effects

The results of the linear regression are shown in Tables 4.24 and 4.25. The total variance explained by the model was 76.4%  $F(30, 150) = 16.16, p < .01$ . The t-statistics for each transformational leadership variable in the model were greater than  $\pm 1.96$  and are, therefore, statistically significant at the 5% level. These results are robust to the inclusion or exclusion of principal fixed effects.

**Table 4.24 Outcomes of Leadership - Regression Model**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.872 <sup>a</sup>	.761	.713	.34415

a. Predictors: (Constant), P25, P6, P16, P2, P23, P21, P17, P12, P9, P20, P15, P14, P11, P24, P19, P13, p5, P3, P22, P10, P7, P4, I\_STIM, P18, P1, I\_Attrib, I\_considge, I\_Motivat, I\_BEHTOT, p8

**Table 4.25 Outcomes of Leadership - Regression Coefficients**

Coefficients <sup>a</sup>			
Model	Unstandardized Coefficients		Sig.
	B	t	
1	(Constant)	.634	.527
	Inspirational Motivation	2.618	.010
	Intellectual Stimulation	3.092	.002
	Individualized Consideration	3.228	.002
	Idealized Influence - Attributes	2.627	.010
	Idealized Influence - Behaviour	2.111	.036
	P1	-.053	.958
	P2	-.517	.606
	P3	.650	.517
	P4	.179	.858
	p5	1.002	.318
	P6	-.164	.870
	P7	.155	.877
	p8	.288	.774
	P9	.278	.782
	P10	-.017	.986
	P11	-.087	.931
	P12	.709	.479
	P13	-.289	.773
	P14	-.095	.924
P15	-.387	.699	
P16	.404	.687	
P17	.755	.452	
P18	.374	.709	
P19	.736	.463	



	P20	.086	.931
	P21	.307	.470
	P22	.293	.892
	P23	.306	.396
	P24	.274	.753
	P25	.284	.901

a. Dependent Variable: Outcomes of Leadership

Of significance was the impact of Individualized Consideration ( $t = 3.23$ ,  $p = .002$ ). Idealized Attributes ( $t = 2.653$ ,  $p = .010$ ) and Intellectual Stimulation ( $t = 3.09$ ,  $p = .002$ ), suggesting the very strong measured effect of an influential leader who recognizes the individual contributions, talents, and strengths of a teacher and provides them with the stimuli that enhance their intellectual engagement. This intellectual stimulation may also point to the instructional leadership and strategic mindset of the principal

Consequently, we can accept the hypothesis that there is a statistically significant relationship ( $p < 0.05$ ) between transformational leadership behaviours and a teacher's sense of effectiveness, extra effort and satisfaction.

**Hypothesis 2: A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.**

Regression analysis was conducted to identify the impact of transactional leadership behaviours on a teacher's sense of effectiveness, effort, and satisfaction.

Table 4.26 displays the Pearson coefficients for each of the three factors of transactional leadership in relation to the "Outcomes of Leadership" composite score that indicate the teachers' sense of effectiveness, effort, and satisfaction.

Analysis of the data revealed a significant positive correlation ( $p < 0.01$ ) in relation to the "Contingent Reward" factor and a negative correlation ( $p < 0.01$ ) for Management by Exception (Passive).

**Table 4.26 Coefficients Table - Outcomes of Leadership and TRL**

Factor	Pearson Coefficient (r <sup>2</sup> )
Contingent Reward	.704
Management by Exception (Active)	.057
Management by Exception (Passive)	-.343

Further analysis of these variables using the Pearson  $r^2$  indicated that approximately 0.549 (55%) of the variability in teachers' sense of effectiveness, effort, and satisfaction could be accounted for by their perceptions of the principals' transactional leadership behaviours.

Similarly, Regression analyses were conducted to explore significant relationships between the transactional leadership behaviours of the principal and the teachers' sense of effectiveness, effort, and satisfaction. The impact of each transactional variable was determined in relation teacher effectiveness, effort, and satisfaction.

To test the hypothesis, we estimate the following model:

$$Y_{Outcome_i} = \beta_0 + \beta_1 CR_i + \beta_2 MBEA_i + \beta_3 MBEP_i + \sum_p \alpha^p_i P_i + E$$

$i = 1 \dots 191$

$p = 1 \dots 25$

Where

Y = Outcomes of Leadership

$i$  = the number of cases, (n=191)

P = Number of principals, (n=25)

CR = Contingent Reward

MBEA = Management by Exception (Active)

MBEP = Management by Exception (Passive)

$P_i$  = Principal Fixed effects

**Table 4.27 Outcomes of Leadership - Regression Model**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.825 <sup>a</sup>	.681	.616	.40678

a. Predictors: (Constant), P25, P6, P2, P16, P12, P23, P21, P19, P17, P9, P20, p5, P3, P24, P15, P14, P13, P11, P18, P1, P22, T\_MBEA, T\_MBEP, p8, P4, T\_CReward, P7, P10

**Table 4.28 Outcomes of Leadership - Regression Coefficients (Transactional Leadership)**

	<b>Model</b>	<b>t</b>	<b>Sig</b>
1	(Constant)	4.048	.000
	Contingent Reward	10.411	.000
	Management by Exception (Active)	-.562	.575
	Management by Exception (Passive)	-2.483	.014
	P1	-.099	.922
	P2	-1.503	.135
	P3	.742	.459
	P4	.114	.910
	P5	1.371	.173
	P6	-1.238	.218
	P7	.579	.563
	P8	.772	.441
	P9	.345	.731
	P10	.214	.831
	P11	.161	.872
	P12	.518	.605
	P13	.312	.755
	P14	-.523	.602
	P15	.314	.754
	P16	1.203	.231
	P17	.165	.869
	P18	1.028	.306
	P19	1.046	.297
	P20	.806	.421
	P21	.376	.707
P22	1.232	.220	
P23	.961	.338	
P24	-.525	.600	
P25	-.934	.352	

a. Dependent Variable: Leadership Outcomes

Regression results are noted in Table 4.28. The t-statistics for the transactional leadership variables - Contingent Reward ( $t= 10.41$ ) and Management by Exception (Passive) in the model were greater than  $\pm 1.96$  and are, therefore, statistically significant at the 5% level. These results are robust to the inclusion of principal fixed effects.

These findings suggest that a teacher's sense of effectiveness, extra effort, and satisfaction is positively impacted by the reward systems and structures implemented by the principal. As well, the negative correlation suggests that when the leader fails to engage and avoids problems it

has an impact on teacher behavior. This aligns with the research of Bass (1985) and Bass and Avolio (2004) who note the relationship between transformational and transactional leadership, suggesting that transactional leadership provides the foundation for transformational leadership and that augmentation of both increases the outcomes of leadership i.e. teacher satisfaction, extra effort, and effectiveness.

Consequently, we can accept the hypothesis that there is a statistically significant relationship ( $p < 0.05$ ) between transactional leadership behaviours and a teacher's sense of effectiveness, extra effort and satisfaction.

### **Intervening Variables**

It is essential to consider other determinant variables that may impact leadership behaviours. Potential intervening variables were considered that may explain raters' report of their principals' leadership behaviours. They include principal gender, rater gender, grade configuration of the school, school size, years of service and school location. An analysis of this research question involved the testing of the following hypotheses:

**Hypothesis 3: There is a relationship between school configuration and transformational leadership scores.**

**Hypothesis 4: There is a relationship between school location and transformational leadership scores.**

**Hypothesis 5: There is a relationship between student population and transformational leadership scores.**

**Hypothesis 6: There is a difference between male and female teacher groups mean transformational leadership scores for principals.**

**Hypothesis 7: There is a difference in teacher group mean transformational leadership scores between male and female principals.**

**Hypothesis 8: There is a relationship between teacher seniority and perceptions of transformational leadership.**

**Hypothesis 9: There is a relationship between principal seniority and perceptions of transformational leadership.**

Correlations and regressions were explored related to the following variables with not upheld hypotheses indicating that there would be no relationship between the intervening variables and

effective leadership as defined by transformational leadership behaviours and the outcomes of leadership. For this analysis, the aggregate score for transformational leadership was used.

### School Configuration

**Hypothesis 3: There is a relationship between school configuration and transformational leadership scores.**

To test this hypothesis, we estimate the following model:

$$TFL_i = \beta_0 + \beta_1 ELM_i + \beta_2 JH_i + \beta_3 K12_i + \sum_p \alpha^p_i P_i + E$$

where

Y= TFL (transformational Leadership)

i= the number of cases, (n=191)

p= Number of principals, (n=25)

ELM = Elementary School (K-6)

JH = Junior High Schools

K12 - K-12 (All grade schools)

$P_i$  = Principal fixed effects

**Table 4.29 School Configuration Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.472 <sup>a</sup>	.222	.164	.51126

a. Predictors: (Constant), P10, P6, P2, P9, p5, P7, P4, P3, P1, p8, JH, K12, K6

**Table 4.30 School Configuration - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.93	.552		5.41	.000
K6	.293	.555	.246	.527	.599
Junior High	-.021	.542	-.015	-.038	.969
K-12	.134	.608	.077	.220	.827
P1	-.196	.180	-.075	-1.09	.277
P2	-.536	.250	-.155	-2.13	.034
P3	.070	.307	.027	.229	.819
P4	.054	.313	.021	.173	.863
P5	.164	.180	.063	.913	.363
P6	-1.44	.301-	-.323	-4.78	.000
P7	.246	.180	.094	1.37	.172
P8	.094	.171	.038	.549	.583
P9	-.179	.202	-.061	-.890	.375
P10	-.064	.199	-.025	-.323	.747

a. Dependent Variable: Transformational Leadership

The regression results do not indicate a statistically significant relationship between school configuration and transformational leadership behaviours. Principal fixed effects were included in the regression model thus the results are robust. In two instances, (P6 = -4.78 and P2 = -2.13) the principal variables accounted for a significant negative relationship with school configuration that is not explained by the transformational leadership variable. Consequently, the hypothesis is not upheld.

### School Location

**Hypothesis 4: There is a relationship between location (rural/urban) and transformational leadership scores.**

To test hypothesis 4, we estimate the following model:

$$TFL_i = \beta_0 + \beta_1 rural_i + \beta_2 Urban_i + \sum p \alpha^p_i P_i + E$$

Where

y= Transformational leadership

i= 1.....191

p= 1.....25

Where

$i$  = the number of cases, ( $n=191$ )

$p$  = Number of principals, ( $n=25$ )

Rural = Rural school setting

Urban = urban school setting

$P_i$  = Principal Fixed effects

**Table 4.31 School Location - Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.274 <sup>a</sup>	.075	.022	.41987

a. Predictors: (Constant), URBAN, RURAL

**Table 4.32 School Configuration - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.31	.188		17.65	.000
Rural	-.365	.221	-.413	-1.65	.108
Urban	-.216	.210	-.257	-1.03	.312

a. Dependent Variable: Transformational Leadership

The regression results do not indicate a statistically significant relationship between school location and transformational leadership behaviours. Consequently, the hypothesis is not upheld.

## Student Population

**Hypothesis 5: There is a relationship between size of the student population and transformational leadership scores.**

To test Hypotheses 5, the regression model tested was:

$$TFL_i = \beta_0 + \beta_1 POP_i + \sum p \alpha^p_i P_i + E$$

Where

$y$  = Transformational Leadership

$i$  = 1.....191

$p$  = 1.....25

Where

i= the number of cases, (n=191)

p= Number of principals, (n=25)

POP = Student (school) population

$P_i$  = Principal Fixed effects

**Table 4.33 Student Population - Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.285 <sup>a</sup>	.081	.056	.41262

a. Predictors: (Constant), Student Population

**Table 4.34 Student Population - Regression Coefficient**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.90	.122		23.81	.000
Student Population	.001	.000	.285	1.79	.082

a. Dependent Variable: TFL

The regression results do not indicate a statistically significant relationship between student population (t=1.79, p=.082) and transformational leadership behaviours. Consequently, the hypothesis is not upheld.

### Principal and Rater Gender

**Hypothesis 6: There is a difference between male and female teacher groups mean transformational leadership scores for the principal.**

**Hypothesis 7: There is a difference in teacher group mean transformational leadership scores between male and female principals.**

To test Hypothesis 6 and 7, the following regression model was run:

$$TFL_i = \beta_0 + \beta_1 PGENDER_i + \beta_2 RGENDER_i + \sum p \alpha^p_i P_i + E$$

Where

y= Transformational Leadership

i= the number of cases, (n=191)

p= Number of principals, (n=25)

PGENDER = Principal Gender



RGender = Rater gender

**Table 4.35 Principal and Rater Gender - Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.103 <sup>a</sup>	.011	.000	.56014

a. Predictors: (Constant), RGENDER, PGENDER

**Table 4.36 Principal and Rater Gender - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	3.15	.043		73.46	.000
Principal Gender	.263	.192	.100	1.37	.172
Rater Gender	.074	.192	.028	.388	.699

a. Dependent Variable: Transformational Leadership

The regression results do not indicate a statistically significant relationship between principal gender ( $t = 1.37, p = .172$ ) rater gender ( $t = .388, p = .699$ ) and the identification of transformational leadership behaviours. Hypotheses 6 and 7 are not upheld.

### Rater Years of Service (Seniority)

**Hypothesis 8: There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.**

To test Hypothesis 8, the following regression model was run:

$$TFL_i = \beta_0 + \beta_1 RSEN_i + \sum_p \alpha^p P_i + E$$

Where

y= Transformational Leadership

i= 1.....191

p= 1.....25

Where

i= the number of cases, (n=191)

p= Number of principals, (n=25)

RSEN = Rater seniority

$P_i$  = Principal fixed effects

**Table 4.37 Rater Seniority Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.056 <sup>a</sup>	.003	-.002	.56073

a. Predictors: (Constant), Rater Seniority

**Table 4.38 Rater Seniority Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.98	.080		37.16	.000
Rater Seniority	.013	.005	.191	2.67	.008

a. Dependent Variable: Transformational Leadership Scores

The regression results indicate a statistically significant relationship between rater seniority and the identification of transformational leadership behaviours ( $t = 2.67$ ,  $p = .008$ ). The hypothesis is supported.

### Principal Seniority

**Hypothesis 9: There is a relationship between principal seniority and perceptions of transformational leadership behaviours.**

To test Hypothesis 9, the following regression model was run:

$$TFL_i = \beta_0 + \beta_1 PSEN_i + \sum_p \alpha^p P_i + E$$

where

y = Transformational Leadership

i = 1.....191

p = 1.....25

Where

i = the number of cases, (n=191)

p = Number of principals, (n=25)

P = Rater Seniority

$P_i$  = Principal Fixed effects

**Table 4.39 Principal Seniority Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.278 <sup>a</sup>	.077	.051	.41361

a. Predictors: (Constant), Years of Service

**Table 4.40 Principal Seniority Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
(Constant)	2.73	.213		12.78	.000
Principal Seniority	.021	.012	.278	1.73	.092

a. Dependent Variable: Transformational Leadership

The regression results do not indicate a statistically significant relationship between principal seniority and the rater identification of transformational leadership behaviours. Therefore, Hypothesis 9 is not supported.

## Discussion

The positive and significant relationship between teacher seniority and leadership behaviours may also be explored in the context of teacher engagement and effectiveness. In terms of professional relationships with the principal, more senior teachers may engage differently and have a heightened sense of effectiveness due to their work experiences. This may also be explored in relation to the model of distributed/shared leadership where the teacher plays an active role in the leadership of the school.

## Summary

Part one of this research study focused on the impact of transformational and transactional behaviours on teacher effectiveness, effort, and satisfaction. The following hypotheses were explored and the results are noted in Table 4.41:

**Table 4.41 Hypotheses and Findings Summary**

Hypotheses		Findings
1.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.	Accepted
2.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.	Accepted
3.	There is a relationship between school configuration and transformational leadership scores.	Rejected
4.	There is a relationship between school location ( i.e. rural/urban) and transformational leadership scores.	Rejected
5.	There is a relationship between size of the student population and transformational leadership scores.	Rejected
6.	There is a difference between male and female teacher groups mean leadership scores for principals.	Rejected
7.	There is a difference in teacher group mean leadership scores between male and female principals.	Rejected
8.	There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.	Accepted
9.	There is a relationship between principal seniority and transformational leadership scores behaviours.	Rejected

The results for the relationship between transactional leadership behaviours and the “Outcomes of Leadership” align with Bass and Avolio’s (2004) premise that transactional leadership that often suggests the role of manager versus leader, provides the foundation for transformational leadership. Within the school context, it points to the principal’s ability to develop and maintain a system that provides stability to the organization. Some of these key managerial dimensions include staffing, teacher evaluation, instructional scheduling and support, fiscal responsibilities, school - community relations and ensuring effective procedures for routines and student expectations.

Further exploration of intervening variables revealed the effect of teacher seniority on the identification transformational leadership dimensions. This result is indicative of the experiences and knowledge of teachers’ relationships with their principals. Significant relationships were also identified between both transformational and transactional dimensions of principal behavior and a teacher’s sense of effectiveness, extra effort and satisfaction.

Simply put, this component of the study focused on the relationships between the principal and the teacher. Transformational leadership has a positive impact on teacher effectiveness, effort, and satisfaction - the outcomes of leadership. It is evident, by recognition of the impact of transformational leadership coupled with transactional components, that this relationship is important and a critical element of supporting collective achievement. In a school context,

though, should not a key component of leadership be related to students? What is not directly evident, through the survey analysis, is the impact of transformational leadership on student achievement.

Does leadership matter? Stage Two of this study attempts to explore this relationship through the construct of transformational leadership.

#### **4.5 Quantitative Analysis- Stage Two**

The relationship between the transformational leadership behaviours of the principal and teachers' sense of effort, satisfaction, and effectiveness is evident in results noted in the first section of this study. Teacher perceptions of these principals were captured through survey data and identified the dimensions of leadership that have an impact on their sense of effectiveness, extra effort, and satisfaction.

Integral to this research is the work of schools in fostering student success. Indeed, student achievement is the *raison d'être* of any school system. This part of the research will use statistical analysis to explore the relationships between transformational leadership, teacher effectiveness, and student success.

#### **Data Sources**

For the original pilot study, a longitudinal panel was created to capture student achievement data and school demographics from 2004-2012. Based on feedback from the pilot, the panel was updated and extended to capture school demographics, leadership changes, student achievement results and school climate data from 2004-2015.

The data for the 25 schools that participated in the teacher survey was captured along with the survey data. The following hypotheses will be explored:

**Hypothesis 10: Principal leadership has a direct impact on student achievement.**

**Hypothesis 11: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement.**

**Hypothesis 12: Principal leadership has a direct impact on student perceptions of climate and culture.**

**Hypothesis 13: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.**

To test these hypotheses, multivariate linear regressions were conducted to evaluate the association between principal leadership, the outcomes of leadership and student achievement and school climate perceptions.

#### **4.5.1 Leadership and Student Achievement**

**Hypothesis 10: Principal leadership has a direct impact on student achievement.**

To test this hypothesis, it is necessary to run separate regressions for each student achievement variable. Thus, the following sub-hypotheses were formulated:

**Hypothesis 10.1: Principal leadership has a direct impact on student attainment (Honors Graduation).**

**Hypothesis 10.2: Principal leadership has a direct impact on student attainment (Academic).**

**Hypothesis 10.3: Principal leadership has a direct impact on student attainment (General).**

**Hypothesis 10.4: Principal leadership has a direct impact on student achievement (Grade 9 Math).**

**Hypothesis 10.5: Principal leadership has a direct impact on student achievement (Grade 9 Language Arts).**

**Hypothesis 10.6: Principal leadership has a direct impact on student achievement (Grade 6 Math).**

**Hypothesis 10.7: Principal leadership has a direct impact on student achievement (Grade 6 Language Arts).**

**Hypothesis 10.8: Principal leadership has a direct impact on student achievement (Grade 3 Math).**

**Hypothesis 10.9: Principal leadership has a direct impact on student achievement (Grade 3 Language Arts).**

Linear regressions were conducted to evaluate the positive association between leadership behaviours and student achievement. The regression model tested was:

$$\text{Student Achievement}_i = \beta_0 + \beta_1 \text{TFL}_i + \beta_2 \text{TRL}_i + E$$

Where

y= student achievement results

i= 1.....191

p= 1.....25

Where

i= the number of cases,

p= number of schools, (n=25)

TFL = Transformational Leadership

TRL = Transactional Leadership

Student Achievement = Honors Graduation, Academic Graduation, General Graduation, Grade 9 Math, Grade 9 Language Arts, Grade 6 Math, Grade 6 Language Arts, Grade 3 Math, Grade 3 Language Arts

The results of the linear regressions are shown in Tables 4.41- 4.50:

**Table 4.42 Leadership Behaviours and Student Achievement - Model Summary**

Model	R	R Square	Adj. R Square	Std. Error of Est.
Honors	.876	.768	.536	.132
Academic	.986	.972	.945	.020
General	.939	.882	.763	.127
Grade 9 Math	.414	.171	-.658	.152
Grade 9 Language Arts	.409	.168	-.165	.040
Grade 6 Math	.131	.017	-.310	.104
Grade 6 Language Arts	.400	.160	.055	.054
Grade 3 Math	.647	.418	.225	.152
Grade 3 Language Arts	.245	.060	-.065	.095

Predictors: (Constant), TRLScore, TFLScore

## Coefficients Tables

**Table 4.43 Honors Graduation**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-25.56	10.01		-2.55	.125
TFLSCORE	7.52	2.93	1.24	2.56	.124
TRLSCORE	.832	.426	.95	1.95	.190

a. Dependent Variable: Honors Graduation

**Table 4.44 Academic Graduation**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-10.36	1.48		-7.00	.020
TFLSCORE	3.27	.434	1.26	7.54	.017
TRLSCORE	.174	.063	.463	2.77	.109

a. Dependent Variation: Academic Graduation

**Table 4.45 General Graduation**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	36.92	9.59		3.85	.061
TFLSCORE	-10.79	2.81	-1.33	-3.84	.062
TRLSCORE	-1.01	.408	-.854	-2.47	.132

a. Dependent Variable: General Graduation

**Table 4.46 Grade 9 Math**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.09	.755		1.40	.296
TFLSCORE	-.014	.255	-.043	-.056	.960
TRLSCORE	-.192	.375	-.389	-.512	.660

a. Dependent Variable: Grade 9 Math



**Table 4.47 Grade 9 Language Arts**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.798	.174		4.58	.006
TFLSCORE	-.001	.077	-.011	-.019	.986
TRLSCORE	-.060	.082	-.402	-.727	.500

a. Dependent Variable: Grade 9 Language Arts

**Table 4.48 Grade 6 Math**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.502	.281		1.79	.124
TFLSCORE	.017	.077	.101	.220	.833
TRLSCORE	.014	.133	.049	.106	.919

a. Dependent Variable: Grade 6 Math

**Table 4.49 Grade 6 Language Arts**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.754	.129		5.85	.000
TFLSCORE	.057	.033		1.74	.101
TRLSCORE	-.032	.050	-.155	-.651	.524

a. Dependent Variable: Grade 6 Language Arts

**Table 4.50 Grade 3 Math**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.182	.410		-.443	.673
TFLSCORE	.207	.112	.651	1.85	.114
TRLSCORE	-.005	.195	-.010	-.028	.979

a. Dependent Variable: Grade 3 Math

**Table 4.51 Grade 3 Language Arts**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.591	.232		2.55	.022
TFLSCORE	.056	.063	.236	.892	.387
TRLSCORE	.008	.089	.024	.092	.928

a. Dependent Variable: Grade 3 Language Arts

### Findings

The results of the regressions are shown in Tables 4.42 - 4.50 when student achievement outcomes are predicted with two independent variables, transformational and transactional leadership. A statistically significant relationship is noted with principal leadership, specifically for high school graduation results.

At the high school level, both transformational and transactional leadership had a positive impact on both honors and academic graduation rates as well as a negative impact on general graduation status.

At the Honors level, there was a positive relationship between both transformational ( $t= 2.56$ ,  $p=.124$ ) and transactional leadership ( $t= 1.95$ ,  $p= .190$ ) on student attainment. At the academic graduation level, there was a stronger positive relationship between both transformational ( $t= 7.54$ ,  $p= -.017$ ) and transactional ( $t=2.77$ ,  $p=.109$ ) leadership. These results suggest the direct influence of the principal on student success.

Conversely, a negative relationship is indicated with General Graduation status with both transformational ( $t= -3.84$ ,  $p= 0.062$ ) and transactional ( $t= -2.47$ ,  $p= 0.132$ ) leadership, suggesting a direct association of the principal's behaviors in influencing students to pursue a stronger academic program.

No significant relationships were noted at the junior high and elementary levels.

Hypothesis 10 is supported, with statistically significant relationships noted for high school attainment.

#### 4.5.2 The Outcomes of Leadership and Student Achievement

Part one of this research study identified the impact of principal leadership on teacher effectiveness, extra effort and satisfaction as defined by the “Outcomes of Leadership” in the Multifactor Leadership Questionnaire. The results indicate that there is a relationship between transformational and transactional leadership dimensions with a teacher's' sense of effectiveness, effort, and satisfaction.

This section of the study will explore the relationship between these “Outcomes of Leadership” and student achievement along with student perceptions of climate and culture.

Similar to the process for Hypothesis 10, regression analysis will be used to explore the relationships between the student achievement variables and teacher effectiveness as defined by the outcomes of leadership.

**Hypothesis 11: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement.**

To test this hypothesis, it is necessary to run separate regressions for each student achievement variable. Thus, the following sub-hypotheses were formulated:

**Hypothesis 11.1: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student attainment (Honors Graduation).**

**Hypothesis 11.2: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student attainment (Academic).**

**Hypothesis 11.3: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student attainment (General).**

**Hypothesis 11.4 Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 9 Math).**

**Hypothesis 11.5: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 9 Language Arts).**

**Hypothesis 11.6: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 6 Math).**

**Hypothesis 11.7: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 6 Language Arts).**

**Hypothesis 11.8: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 3 Math).**

**Hypothesis 11.9: Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement (Grade 3 Language Arts).**

Linear regressions were conducted to evaluate the positive association between leadership behaviours and student achievement. The regression model tested was:

$$\text{Student Achievement}_i = \beta_0 + \beta_1 \text{OCL}_i + E$$

i= 1.....191

p= 1.....25

Where

i= the number of cases,

p= Number of schools, (n=25)

OCL = Outcomes of Leadership

Student Achievement= Honors Graduation, Academic Graduation, General Graduation, Grade 9 Math, Grade 9 Language Arts, Grade 6 Math, Grade 6 Language Arts, Grade 3 Math, Grade 3 Language Arts.

The results of the linear regressions are shown in Tables 4.52 - 4.61.

**Table 4.52 Student Achievement Model Summary**

Model	R	R Square	Adj. R Square	Std. Error of Est.
Honors	.706	.498	.331	.159
Academic	.980	.961	.948	.029
General	.839	.704	.606	.164
Grade 9 Math	.275	.076	-.232	.131
Grade 9 Language Arts	.208	.043	-.116	.039
Grade 6 Math	.163	.026	-.113	.096
Grade 6 Language Arts	.240	.057	.002	.056
Grade 3 Math	.626	.393	.305	.144
Grade 3 Language Arts	.245	.060	.002	.092

Predictors: (Constant), TRL SCORE, TFL SCORE

## Coefficients Tables

**Table 4.53 Honors Graduation - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant) OUTCOMES	-2.83	1.75		-1.61	.205
	.939	.544	.706	1.73	.183

a. Dependent Variable: Honors Graduation

**Table 4.54 Academic Graduation - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant) OUTCOMES	-1.43	.209		-6.80	.006
	.560	.065	.980	8.60	.003

a. Dependent Variable: Academic Graduation

**Table 4.55 General Graduation - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant) OUTCOMES	5.25	.181		2.91	.062
	-1.50	.561	-.839	-2.67	.075

a. Dependent Variable: General Graduation

**Table 4.56 Grade 9 Math - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant) OUTCOMES	.822	.433		1.89	.154
	-.073	.147	-.275	-.496	.654

a. Dependent Variable: Grade 9 Math

**Table 4.57 Grade 9 Language Arts - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant) OUTCOMES	.724	.124	.	5.89	.001
	-.021	.039	-.208	-.521	.621

a. Dependent Variable: Grade 9 Language Arts

**Table 4.58 Grade 6 Math - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.501	.198		2.54	.039
OUTCOMES	.027	.061	.163	.436	.676

a. Dependent Variable: Grade 6 Math

**Table 4.59 Grade 6 Language Arts - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.762	.099		7.70	.000
OUTCOMES	.031	.030	.240	1.12	.323

a. Dependent Variable: Grade 6 Language Arts

**Table 4.60 Grade 3 Math - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-.169	.296		-.572	.585
OUTCOMES	.195	.092	.626	2.12	.071

a. Dependent Variable: Grade 3 Math

**Table 4.61 Grade 3 Language Arts**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	.609	.177		3.44	.003
OUTCOMES	.054	.053	.245	1.01	.326

a. Dependent Variable: Grade 3 Language Arts

## Findings

The results of the regressions shown in Tables 4.53 - 4.61 pertain to student achievement outcomes predicted with one independent variable, the outcomes of leadership. At three student achievement levels, a statistically significant relationship is noted with, specifically for high school graduation results and Grade 3 Math.

At the high school level, the outcomes of leadership had a positive impact on academic graduation rates as well as a negative impact on general graduation status.

At the academic graduation level, there was a positive relationship ( $t= 8.60$ ,  $p= -.003$ ). These results suggest the indirect influence of the principal on student success via teacher attitudes and sense of effectiveness as indicated by the outcomes of leadership.

Conversely, a negative relationship is indicated with General Graduation status ( $t= -2.67$ ,  $p= .075$ ), suggesting the indirect influence of the principal in encouraging students to pursue a stronger academic program and movement from General Graduation programming. This is also indicative of the teacher's influence on students as a result of principal leadership. This teacher behavior translates to student performance.

These findings suggest the individualized consideration and intellectual stimulation of the principal with teachers in relation to academic support and professional development in these academic areas. It further suggests the engagement of the principal with the teacher in meeting the academic needs of students and motivating students to attain higher academic levels as evidenced by the change in General Graduation rates.

Only one significant relationship was noted at the junior high and elementary level, namely the Grade 3 Language Arts ( $t= 2.12$ ,  $p= .071$ ). Again, this suggests the indirect influence of the principal on student success via the teacher's sense of satisfaction, effort, and effectiveness. In relation to the leader, this suggests the direct engagement of the principal with the teacher related to student learning. From a teacher perspective, this could point to the appropriate engagement of the leader with the teacher related to the specific curricula. It may also suggest that the leader works closely with the teacher in relation to these specific curriculum areas via direct classroom visits, extra resources, conversations on learning and professional development. These findings align with previous studies (Marzano, Leithwood, Robinson) noted in the literature review that identifies the teacher as having the most impact on student success.

These findings further support the direct impact of the principal behaviours, actions and competences of the teacher, and ultimately the student, in relation to student achievement.

Hypothesis 11 is supported, with statistically significant relationships noted for high school graduation and Grade 3 Language Arts achievement.

### 4.5.3 Impact on Culture and Climate

Along with student achievement, the impact of principal leadership is also explored in relation to student perceptions of the climate and culture of the school, as identified through student survey results. The following hypotheses were formulated to explore the relationships between leadership behaviours, the outcomes of leadership and student perceptions of climate and culture.

**Hypothesis 12 - Principal leadership has a direct impact on student perceptions of climate and culture.**

**Hypothesis 13 - Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.**

Linear regressions were conducted to evaluate the association between these variables.

#### Leadership and School Climate

**Hypothesis 12 - Principal leadership has a direct impact on student perceptions of climate and culture.**

To test this hypothesis, it is necessary to create separate hypotheses for each of the specific grade level school climate surveys at Grades 2,5,7,8,9,10,11 and 12. Each of these will be reported separately.

The following regression model was run:

$$\text{School Climate Outcomes}_i = \beta_0 + \beta_1 TFL_i + \beta_2 TRL_i + E$$

Where

y= School Climate outcomes

i= the number of cases, (n=191)

p= Number of principals, (n=25)

TFL = Transformational Leadership

TRL = Transactional Leadership

SCO+ School Climate Outcomes (Grade 2, 5, 7, 8, 9, 10, 11, and 12)



**Table 4.62 School Climate Outcomes - Model Summaries**

Model	R	R Square	Adj. R Square	Std. Error of Est.
Grade 12	.974	.949	.847	11.64
Grade 11	.603	.364	-.273	12.52
Grade 10	.389	.151	-.697	10.42
Grade 9	.523	.274	0.017	7.09
Grade 8	.632	.399	.199	5.55
Grade 7	.132	.017	-.228	6.22
Grade 5	.518	.269	.208	2.98
Grade 2	.508	.258	.193	5.21

**Dependent Variable - School Climate Results****Table 4.63 Grade 12 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-591.74	179.05		-3.31	.187
TFLSCORE	182.15	67.43	.740	2.70	.226
TRLSCORE	34.25	27.45	.342	1.25	.430

a. Dependent Variable: Grade 12 Climate and Culture

**Table 4.64 Grade 11 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-94.51	948.01		.992	.426
TFLSCORE	-245.03	277.68	-.708	-.882	.471
TRLSCORE	-42.385	40.301	-.844	.105	.403

a. Dependent Variable: Grade 11 Climate and Culture

**Table 4.65 Grade 10 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	341.119	788.54		.433	.707
TFLSCORE	-89.39	230.97	-.359	-.387	.736
TRLSCORE	1.47	33.52	.041	.044	.969

a. Dependent Variable: Grade 10 Climate and Culture

**Table 4.66 Grade 9 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	91.69	9.33		9.82	.000
TFLSCORE	-7.13	2.52	-.548	-2.82	-.010
TRLSCORE	3.83	3.94	.189	.972	.341

a. Dependent Variable: Grade 9 Climate and Culture

**Table 4.67 Grade 8 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	16.25	22.02		.738	.488
TFLSCORE	8.42	7.89	.400	1.07	.327
TRLSCORE	8.39	9.85	.319	.851	.427

a. Dependent Variable: Grade 8 Climate and Culture

**Table 4.68 Grade 7 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	54.41	24.11		2.26	.054
TFLSCORE	.468	5.58	.030	.084	.935
TRLSCORE	3.02	8.45	.126	.357	.730

a. Dependent Variable: Grade 7 Climate and Culture

**Table 4.69 Grade 5 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	59.27	5.32		11.14	.000
TFLSCORE	3.07	1.44	..402	2.12	.044
TRLSCORE	2.48	2.24	.208	1.10	.281

a. Dependent Variable: Grade 5 Climate and Culture

**Table 4.70 Grade 2 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	91.69	9.33		9.83	.000
TFLSCORE	-7.13	2.53	-.548	-2.82	.010
TRLSCORE	3.83	3.94	.189	.972	.341

a. Dependent Variable: Grade 2 Climate and Culture

The results of the regression analysis indicate some significant relationships, particularly at Grades 2, 5, 9 and 12. The relationships vary in this data with both positive and negative relationships. What is evident is that there are more positive correlations as the age/grade level of the student increases, perhaps indicative of both maturity level and more direct engagement with the principal. For example, in the Grade 2 results, there is a negative relationship between transformational leadership ( $t = -2.82$ ,  $p = .010$ ) and student perceptions of climate and culture whereas in Grade 5 the relationship is positive ( $t = 2.12$ ,  $p = .044$ ). This may be indicative of a more visible relationship of the principal with these older students through student leadership activities, field trips, and co-curricular events.

Similar findings may be suggested for the Grades 9 and 12 results. At the Grade 12 level, the maturity level of the student, the ongoing active engagement with the principal and the cognizance of the relevance of climate and culture in a school is evident in the results, particularly related to transformational leadership ( $t = 2.70$ ,  $p = .226$ ). At this level, the principal may communicate high expectations for behavior and academics to both teachers and students. Students are more engaged with school climate activities that are co-designed with teachers and supported by the school principal. Conversely, the Grade 9 results related to the transformational behaviours of the principal ( $t = -2.82$ ,  $p = .010$ ) may be representative of the maturity level of the student and, perhaps, the desire to disengage with authority, despite their good efforts.

Hypothesis 12 is supported, with statistically significant relationships noted for Grade 3, Grade 5, Grade 9 and Grade 12 levels.

## Outcomes of Leadership and School Climate

The impact of teachers, as a result of principal leadership, on school climate is also explored. The following hypothesis is formulated:

**Hypothesis 13 - Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.**

A regression model was run:

$$SCO_i = \beta_0 + \beta_1 OCL_i + E$$

Where

i= the number of cases,

p= number of principals

SCO= School Climate Outcomes ( Grade 2, 5, 7,8,9,10,11,12)

The results of the linear regressions are shown in Tables 84-92

**Table 4.71 School Climate and Culture - Model Summary**

Model	R	R Square	Adj. R Square	Std. Error of Est.
Grade 12	.666.	.444	.166	27.14
Grade 11	.239	.057	-.257	12.44
Grade 10	.371	.138	-.149	8.57
Grade 9	.183	.033	-.128	7.47
Grade 8	.386	.149	.028	6.11
Grade 7	.034	.001	-.110	5.92
Grade 5	.477	.227	.196	2.99
Grade 2	.508	.258	.227	5.11

**Table 4.72 Grade 12 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	-424.64	.376.46		-1.13	.376
OUTCOMES	153.88	121.82	.666	1.26	.334

a. Dependent Variable: Grade 12 Climate and Culture Surveys

**Table 4.73 Grade 11 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	123.20	137.40		.897	.436
OUTCOMES	-18.18	42.66	-.239	-.426	.699

a. Dependent Variable: Grade 11 Climate and Culture Surveys

**Table 4.74 Grade 10 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	128.26	94.63		1.35	.268
OUTCOMES	-20.36	29.38	-.371	-.693	.538

a. Dependent Variable: Grade 10 Climate and Culture

**Table 4.75 Grade 9 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	45.69	23.36		1.95	.098
OUTCOMES	3.39	7.45	.183	.455	.665

a. Dependent Variable: Grade 9 Climate and Culture

**Table 4.76 Grade 8 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	41.22	17.11		2.41	.305
OUTCOMES	6.15	5.55	.386	1.11	.305

a. Dependent Variable: Grade 8 Climate and Culture

**Table 4.77 Grade 7 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	61.08	14.21		4.30	.002
OUTCOMES	.457	4.46	.034	.103	.921

a. Dependent Variable: Grade 7 Climate and Culture

**Table 4.78 Grade 5 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	63.16	4.19		15.07	.000
OUTCOMES	3.46	1.28	.477	2.71	.012

a. Dependent Variable: Grade 5 Climate and Culture

**Table 4.79 Grade 2 Climate and Culture - Regression Coefficients**

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	97.98	7.14		13.72	.000
OUTCOMES	-6.28	2.17	-.508	-2.89	.008

a. Dependent Variable: Grade 2 Climate Surveys

## Discussion

At the elementary level, both positive and negative associations are noted in relation to student perceptions of school climate and the outcomes of leadership. The negative relationship noted in the Grade 2 results ( $t = -2.89$ ,  $p = .008$ ) may be associated with a young student's perception of teachers and leaders. For example, a teacher may suggest that there is effective group leadership with appropriate structures, and organizational requirements, particularly in relation to behavioral guidelines and interventions. The maturity level of Grade 2 student may not recognize this nor realize the value rules related to student behavior. Conversely, at the Grade 5 level ( $t = 2.71$ ,  $p = .012$ ) the positive relationship may suggest the students do recognize the leadership role of both the teacher and the principal in dealing with behavioral concerns and their individual well-being. Rules, procedures, and practices related to school climate are more clearly understood and perhaps indicative of both student and teacher engagement with the principal.

Hypothesis 13 is supported, with statistically significant relationships noted for Grade 3, Grade 5, Grade 9 and Grade 12 levels.

## 4.6 Limitations

### Sampling

The schools used in this sample were identified as part of the original study that noted the impact of changes in principals on student achievement. The majority of schools in the longitudinal panel (2004-2015) experienced changes in principals. Careful analysis of the data

confirms my hypothesis that the schools that experience a principal change in the 2013 and 2014 academic years are not systematically different. Had I chosen a different period to measure principal changes, I believe the results would be the same. The limitation is that I would be unable to collect the MLQ survey data from the current teachers and supervisors in those schools which is a central part of my research.

### **Endogeneity**

One potential limitation of the analysis not addressed is endogeneity for schools experiencing a principal change. i.e., the schools that experience a principal change may be different than those that do not in some systematic way. For example, imagine the scenario where only schools that are doing poorly experience a principal change. If this were the case, then the results of the thesis would apply to schools that were doing poorly but not necessarily apply to schools that were doing well. However, the author's extensive knowledge and experience in the district in the past 20 years, and the qualitative interviews, indicate that the schools that experience a principal change are not systematically different than those that do not. Considering this result, it is unlikely that endogeneity plays a role in explaining these results. As such, the results in the thesis, I would argue, apply to all schools.

### **Heterogeneity**

Concerning the heterogeneity and the impact of principal leadership across subject areas, the fundamental point that emerges from my research is that principal leadership improves the overall environment within the school, evidenced in the MLQ survey results and, therefore, student outcomes. These results are unable to explain the heterogeneity across grades and subject levels. Further research is called for that would build this direct link and help explain the potential of heterogeneity. One possible hypothesis to explain this would be to explore specific grade levels and classrooms in terms of the relationships between the principal, the teachers, and the students. It may also be beneficial to explore if there are significant relationships between student achievement and variables such as:

- District initiatives for student achievement for both leaders and teachers
- School Development plans
- Previous year achievement results in assessment data

Another hypothesis that may be explored is to identify how much of the change in student achievement is related to the current principal or the residual impact of the work of the previous principal.

## 4.7 Conclusions

The intent of this research is to explore the relationship between principal leadership and student achievement. The findings of this quantitative study provide further insight into the research questions, “What are the attributes, actions, behaviours, and thinking of school leaders that impact student success?” This chapter has summarized the procedures for data preparation and analysis. Along with the procedures for data preparation and analysis, it has presented the two studies conducted as well as the resultant findings and limitations. A summary of the research results is provided in Table 4.80.

**Table 4.80 Summary of Research Results**

Hypotheses		Findings
1.	A teacher’s sense of effort, effectiveness, and satisfaction is associated with the transformational behaviours of the principal.	Accepted
2.	A teacher’s sense of effort, effectiveness, and satisfaction is associated with the transactional behaviours of the principal.	Accepted
3.	There is a relationship between school configuration and transformational leadership scores.	Rejected
4.	There is a relationship between school location and transformational leadership scores.	Rejected
5.	There is a relationship between student population and transformational leadership.	Rejected
6.	There is a difference between male and female teacher groups mean leadership scores for principals.	Rejected
7.	There is a difference in teacher group mean leadership scores between male and female principals.	Rejected
8.	There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.	Accepted
9.	There is a relationship between principal seniority and perceptions of transformational leadership behaviours.	Rejected
10.	Principal leadership has a direct impact on student achievement.	Accepted
11.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student achievement.	Accepted
12.	Principal leadership has a direct impact on student perceptions of climate and culture.	Accepted
13.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.	Accepted



Relevant findings were discovered, particularly in relation to the direct impact of transformational leadership on student achievement. Where no associations are recognized, particularly in relation to student achievement and climate perceptions at the Junior High level, opportunities for future research and insights are warranted. Negative relationships between variables such as student achievement and teacher effort, effectiveness and satisfaction also suggest further exploration.

Ultimately, key school leader actions, behaviours and thinking have been identified through the lens of both transformational and transactional leadership, noting both the results of each on student success and leadership outcomes for teachers. The findings suggest that transformational leadership is positively related to leadership outcomes, particularly at the Elementary and K-12 level. These insights will play a key role in the discussion of the results of both the qualitative and quantitative studies as well as the implications for a Leadership Framework and future school system practices.

The next chapter will provide the qualitative component of this mixed methods study as well as the convergent findings from both the quantitative and qualitative research.

## Chapter 5 Qualitative Study of Leadership Insights from School Principals

### 5.1 Introduction

The previous chapter discusses the relationship between the principal and student performance through an analysis of the quantitative results of a longitudinal panel. As well, impact of leader behaviours on both teachers and students is investigated through the use of quantitative evidence based on the construct of transformational leadership. While this data provide quantitative evidence to support the hypotheses, they do not address specifically the attributes, behaviours, knowledge, and actions of the principals. Irving (2006) notes, "The primary way a researcher can investigate an educational organization, institution or process is through the experience of the individual people" (p.10). The aim of this qualitative study is to explore the attributes, actions, thinking, and behaviours of leaders through discussions with principals. The analysis attempts to provide a deeper understanding of the relationship between the principal and student achievement. The attempt of this research design was to draw in the different voices of a school. The interviews with the principals capture their lived experiences and relate, from their perspective, how they lead, manage and engage their school community.

Analysis in the previous chapter provides insight into the research questions; however, an understanding of the relationships between the principal, the teachers and students may be enhanced through qualitative analysis. In this instance, the findings from the initial pilot study provided the rationale for selection of the informants and the foundation for the subsequent interview questions. This qualitative phase explores the informant experiences, actions, behaviours, thinking and insights to provide more depth of understanding. This phase of this research uses semi-structured interviews to capture these insights and attempt to create knowledge through the subjective understanding of experiences (Seidman, (2008).

As proposed by King (2004), interviews were conducted to further gain an understanding of the research question from the perspective of the informants with a focus on how their behaviours, thinking, knowledge and actions developed. Interviews offer a unique opportunity to probe into the perceptions and actions of informants and reinforce interpersonal connections. The interview structure provided a direct focus on the qualities, competencies, practices, skills, knowledge, actions and attitudes of the informants.

An overview of the qualitative research process was provided in Chapter 3. This chapter demonstrates how the data revealed the motivations, actions, attributes, behaviours and thinking of school leaders which may be associated with student success.

## 5.2 Findings

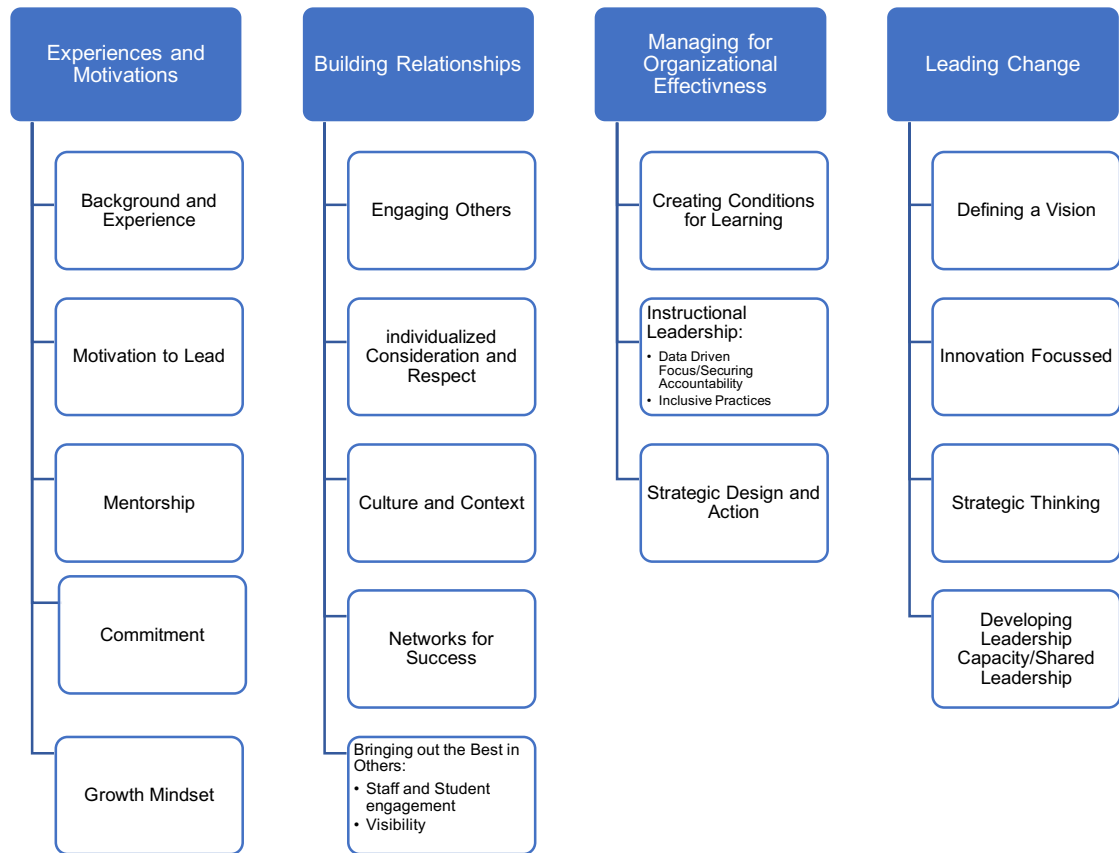
The purpose of this analysis is to explore the behaviours, knowledge, dispositions, competencies, decision-making processes and strategic actions of principals who are in their first or second year at a new school. Their insights and shared experiences provide insight into their work as leaders and how their specific work creates change in student performance, school culture, teacher behavior, and engagement. The quantitative results of the pilot study suggest the association of a change in leadership at the school level to student achievement. This qualitative study attempts to explore the “how” and “why” of the impact of principal leadership on student success.

The analysis revealed key themes related to the work of principals as leaders. The emergent themes capture the central thinking, knowledge and strategic actions of the principals in relation to their work as leaders to create change in their organization to impact student achievement, namely:

- Experiences and Motivations
- Building Relationships
- Managing for Organizational Effectiveness
- Leading Change

Figure 5.1 identifies these major themes, supported by subthemes as identified in the analysis. Each will be discussed in detail, with several subthemes, as well as illustrative quotations in the following sections:

**Figure 5.1 Emergent Themes from Qualitative Study**



### 5.3 Principals of Change - Experience, Motivation, and Self-Awareness

The aim of this section is to identify the experiences, motivations, and self-awareness of each of the informants in relation to their role as principal. This section highlights the findings related to the personal and professional characteristics of the leaders, their motivations, learning agility and experiences that have contributed to their thinking, knowledge and strategic actions as school principals.

#### Diverse Backgrounds and Experience

While all informants have a Masters of Education Degree in common, there is diversity amongst them related to their educational backgrounds and experiences. There is a range of Undergraduate Degrees, often with a focus in a specialty area such as music, physical education, guidance, learning resources and technology for those in K-6 schools. All informants have previous administrative experience as assistant principals. For thirteen informants, this was their first principalship. Six principals previously held the assistant principal position at their

current school. Two informants have worked in senior positions with the School District either as a Supervisory Officer or Program Specialist.

Several informants alluded to work experiences outside of education, namely in business and social work that have transferred to their current work as a principal, particularly in relation to managerial and organizational competencies:

*[18] "I was in the "real world" as a culture director and facilitator of highly specialized events, very complex organizational skills.... I had a lot of private sector and public sector work which required, I think, all the skills I draw heavily on as an administrator. I can thank my lucky stars for my real-life experience...I did before I was in education"*

The reference to being in the "real world" and "real-life experience" suggests that from the perspective of these principals, working in a school setting is different from work in other organizations yet the skills required to do the work of a principal are relevant in both school and external work environments.

### **Motivation to Lead**

To explore their thinking on leadership and motivation to be a principal, informants were asked to share their motivations to be the principal of their current school. When asked, "Why did you want to be principal of this school?", the primary motivation for all informants was to take on a leadership role. However, there were different underlying reasons for many of them. For some, it was directly related to the need to be the leaders for change (i.e., a strong sense of leadership and ownership):

*[13] "I see the bigger picture. It's a different dance (at different schools). I just wanted to expand more and take on some new challenges"*

*[122] "When you are not the person who is in.... I can't say command but, in essence, that is what I do mean...you see things that are overlooked (that) you could have approached differently. I always like to be part of the change"*

*[121] "I had a child go to the school and felt it needed to be moved in a different direction. I applied; I am here with an open mind and trying to listen"*

What stands out is the use of the word "different". Many informants referred to their desire for change and the belief that they could do things differently. While respectful of past principals,

there was a strong sense that they identified the need for a different direction, for change, when they assumed the leadership role in the school.

“Different direction” and “change” may also be linked to self-awareness. While they had a strong connection with their previous school and felt a sense of accomplishment, other informants spoke of a need to move in order to have an impact as a principal, recognizing that change is difficult and may create a sense of loss:

*[I1] “I knew I needed change. I had used all my bag of tricks at the previous school, I used everything I could possibly give, I had given all the ideas and change I could make, I felt for my growth and for the school’s growth it was a good time to look for a different type of a leadership role”*

*[I26] “It was time to because I felt that anything I had anymore. I decided to go for something completely different. I mourned for my old school cause my connection was too strong there. It was home but it needed fresh blood”*

## **Mentorship**

One principal expressed a motivation to lead as the result of the support of another leader who acted as a mentor in the system that had acknowledged his leadership. The principal was hesitant to self-promote but appreciated the acknowledgement from others:

*[I18] “I didn’t aspire to get into administration but when Allan (a senior leader) approached me regarding some possible positions.... I ended up as VP the following year”*

Other principals also noted the importance of recognition from colleagues and the support of another leader as essential to their choice to become a principal:

*[I1] “Wiser people than me (suggested) that I go back to a school in a different administrative type of role to understand the full implications of leadership. They were right. I think that it prepared me to be a better leader but also opened my eyes to leadership at the school level”*

These findings suggest both the importance of mentorship and sponsorship in building a pipeline of leaders. Senior leaders acting as sponsors are able to work closely with emerging leaders and develop both confidence and competencies for new roles. As a sponsor, leaders ensure that new candidates are given appropriate stretch assignments and create opportunities

to recognize this work. As mentors, experienced leaders work closely with new mentors to build a trusting relationship for support and guidance.

## **Commitment**

In seven cases, the principal had been the assistant principal at the school and wanted to provide continuity and build on experiences. It may be of interest to note that the general hiring practices of the school district usually moved the assistant principals to another school for principalships but, in these instances, they were promoted to principal perhaps due to the following reasons:

*[124] "I think that it is a really strong move because it keeps the continuity there,"*

*[120] "I felt I had a lot of respect already built and support from the staff when I moved into the role. They knew my work ethic and expectations. I'm now fully responsible for building the team here. We are going to work together"*

*[111] "I have got a great relationship with the families and the kids in the building. To me, I was obligated to be their principal, it wasn't a choice - I had to do it...this is my school"*

The passion and commitment of these leaders is obvious and suggests a strong connection to the culture and vision of their school community. They are cognizant of the impact of change on organizations and recognize the importance of high expectations, relationships, and continuity, particularly in terms of strategic goals and actions.

## **Growth Mindset for Change**

While satisfied in the current context, principals note a timeframe for their leadership at the school and state ambitious goals for future assignments. This suggests that, as leaders, they embrace change and have positioned themselves to lead with a growth mindset, setting a vision for their work at the current school as well as desirable professional goals for their next roles. These findings indicate a need for a school district to carefully consider the length of time a principal spends at a particular school as well as the direct work that they do through professional growth and evaluation models to ensure the suitability and promotion of principals to new leadership assignments that align with the principals' ambition, knowledge, and skills:

*[17] "I know I will be here for the next few years. For me there is a moral paradox to what we do, we have to make sure every student has the*

*opportunity to succeed... I need to enhance my leadership abilities and develop my skills further...so I can be employed at a bigger school"*

*[18] "I am a missionary at heart. It's how we were raised. My husband says I like to keep the "me" in Messiah! If you can walk in anywhere and leave it better when you leave, you must"*

*[127] "I am all about change and change is good. We all have a shelf life. We are all like milk, we all need fresh milk. After 5 years, they get to know you, your idiosyncrasies, your strengths, what makes you tick. (Schools) need fresh milk"*

*[110] "In five years, I will probably be somewhere else. Do I see myself at the District? If the position was the right one.... yes. I am great in human resources, I am good with facts and figures and understanding. I like to interact, I love learning, I love school. I'd like something different"*

The findings indicate, from all the principals, that they embrace change and are cognizant of the difference they can make in their school. Still with a focus on change, from a behavioral perspective, the learning agility of principals was explored - their perceptions of their own adaptability to new environments as well as their capacity and ability to remain composed under pressure and recover positively from setbacks.

### **Adaptable and Aware**

The findings suggest that coupled with a growth mindset is a strong willingness to learn about and adapt to a new school community. Many of these principals have moved to new schools that were quite different than their previous administrative role, i.e., moving from an assistant principal role in a large school to small K-6 school to be the principal. Others have moved from an affluent school to an inner city setting or from a middle school to an elementary school.

Conversations and observations with staff, students, and others appear to be a key element in the principals adapting to a new school. They place value on the expertise in the building and across the district so they can learn about their new school. Many referenced taking the first few weeks to observe the school in action before making any changes:

*[121] "The most important thing I would probably do at this point is listen. I have listened to some of the concerns that I get and I listen for the ideas they have as well"*



The findings indicate similar backgrounds of the informants as well as their motivations to lead. The data suggest they display a growth mindset, share common attitudes toward change as well as a strong sense of self-awareness and the ability to reflect and adapt with sensitivity to the new school community.

#### **5.4 Building Relationships**

The principals reported experiences demonstrate that a critical component of improving student success is the establishment and development of relationships with staff, students, and the broader school community. The ability to establish positive and respectful relationships was noted by all informants as well as their knowledge of the impact of their own interpersonal skills and ability to deal with emotions.

They share their focus on communication, the need for trust and individualized consideration along with their ability to be cognizant of the context and atmosphere of the school community when forging relationships with a focus on student success.

#### **Engaging Others**

One principal attributes the skill to build relationships as essential to building knowledge and a collective view:

*[17] "I'm a people person. I think that is ultimately ... I smile and I say hello, I remember people's names and I talk to people, I talk to kids and I ask them what they need and what they want, I speak to communities and I listen. I find out what is needed, and what is wanted and I do my very best to put that in place where it is manageable and feasible. So that people aspect means I get an awful lot of knowledge very quickly and with that knowledge I can make decisions based on priorities that are commonly held by others. I am not just floating off on my own boat, and just doing what I think is right, taking the collective view and taking what will work and what's most important."*

Likewise, one principal immediately addressed the need for a change in atmosphere through the building of positive relationships with staff and students:

*[14]" The staffing engagement is going very well, I have been hearing back from people that they are feeling valued, they are being thanked, acknowledged and I'm getting that over and over again and kind of*

*recognizing what they are doing. That is a big piece for that. The students come easy, I think that is something that I really enjoy.”*

The principals make great effort in home/school communication and reach out to the parent community in a variety of ways. Many even greet all the students at the entrance in the morning and frequently visit classrooms. All informants ensure that parents are aware of the school goals and encourage them to participate in activities at the schools. Outreach is also provided to support learning at home through a variety of communication strategies such as social media, phone calls, face to face meetings and newsletters. Other principals acknowledge the importance of knowing the context of the broader school community in terms of one's communication style and interaction with parents. A principal in a rural school made the following comment:

*[I22] “I have a pretty good relationship with my parent community and I will tell you why I think it is so. It is what it is. It's because they consider me from the bay (a rural setting) and you know how things work here and you don't put on airs and I am very blunt and to the point.”*

This clearly demonstrates the need for contextual and cultural awareness in terms of communication and relationship building. It is evident that leadership practices and styles may need to adjust to particular contexts to engage the school community. While one strategy may be effective in a rural setting, it is likely that a similar style may not work in an alternate location. This would be a critical element to explore in leadership development so as to clearly engage a school community with a focus on student success.

Another rural principal suggests that community engagement is critical to student success:

*[I18] “One thing I wanted to do was help build that culture of academia and the second thing was I wanted to engage the community, I figure if you are a small rural school, if you don't have your community on board, what's the point.”*

Principals also focus on improving the reputation of the school and establishing expectations for engagement, positioning themselves as the leader of a positive organization:

*[I10] “I wanted to change the attitude immediately. They were calling (the school) “The Brook”. It's like you are going to the “pen” (jail). I don't like that; I don't use it. Our reputation is not great. It's a lot of fighting, a lot of drugs. We are not known for good things. Every morning, I greet every single person. I*

*do that 190 days a year, to each person and that welcoming environment starts, I think it's a positive feedback loop."*

It is evident that communication strategies along with contextual awareness are central to the practices of principals. Positive messaging, coupled with visibility, is central to the success of a principal. Analysis suggests that the careful, language of a leader builds reputation, engagement, and expectations that are grounded in both positive action and contextual awareness.

### **Individualized Consideration and Respect**

Many principals noted that the immediate changes they made to the school were related to a need to build an atmosphere of mutual trust and respect with the school community. Challenges were stated in relation to building staff relationships, particularly as a new principal to a school, indicating the importance of trust and transparency in their daily work:

*[123] "In terms of relationships, it is still very much a work in progress. I think it is really important because if people don't trust me, then ... and I am an open book. I am not trying to do ... I don't have a hidden ... I say to them, I don't have a hidden agenda, I have got no problem telling you ... so we need to increase our standards, we don't need to increase my marks, I need to increase the standards in this building."*

Others noted inheriting challenging relationships between parents and teachers, and therefore, had to establish respectful strategies for engagement. Again, the emphasis is on change is apparent as well as the need for self-control:

*[19] "Last year it was crazy because everything, no matter what email you sent out, no matter what went out in the newsletter, somebody had something to say about it. You could do as much good as you wanted but everything was coming back. For three months, we were mesmerized. Parents were in here all the time. We put the building security policy in place. You had to stick to your guns because it had to change but is all mullered over now. They found a big change with that. They are able to deal with it better. They know they have my support. That is a good thing."*

*[116] "Parents, oh my gosh, the input and entitlement that they have to come into the building and to the school, but it has very little to do with education. People will come and see me about the strangest things and I am thinking -*

*really? This is what you are concerned about? It's not about results. They need to feel they have a voice, so I let them have a voice. It is worthy of some change."*

These findings suggest that principals need to be aware of the impact of change on staff and the broader community while remaining focused on the vision for success. As well, professional relationships are developed when effective communication is in place; the principal is visible and respectful, ensuring that interpersonal relationships are handled thoughtfully and with empathy.

### **Networks for Success**

Another vital relationship identified by the principals was the one with their peers, the administrative network across their region and district. They see the network of colleagues, including their assistant principal, as essential to their own growth and development as a principal. Each acknowledged confidantes, mentors and "go-to people" that they call almost daily to discuss operational issues, staffing challenges, problem-solving or trusted advice. Many recognized their initial principals meeting when senior principals ensured that they felt welcome and made connections, particularly if they were new to the region:

*[I27] "That came with some struggling to determine who you are, where you fit in and some other things. I will never forget it. They said come over here, young fella, and sit with us. They were just very open."*

*[I17] "When I have a question, I will call my Senior Education Officer - there is key people who would really have good information depending on what you are looking for and to make sure."*

*[I6] "In a school board so large, people are rallying around each other's strengths but in doing that they are finding that the expertise lies within. It has allowed principals to feel more validated with their peers."*

One principal also referred to her network as, "The Group":

*[I26] "We are like-minded thinkers. Although we have different skills and we think about things differently and we pick up the phone to call one or the other for different reasons because we know we all have different skill sets."*

It was interesting to note that this particular reference included three of the informants. All three expressed similar thoughts on "The Group" particularly related to the value of it to their actions

as principals as well as each other's awareness of the strengths and challenges of each member.

The principals also state value from the knowledge they gain through formal relationships designed by the school district, namely the Family of Schools structure. They see this as an opportunity to connect on curriculum and student issues as well as to identify each other's strengths and expertise. Many referenced other district professional development programs that were designed to support school leaders such as succession planning and Leadership at Work.

These findings promote the impact of both formal and informal relationships for the principal. There was a major emphasis on engagement in the informal networking opportunities, the ongoing support and interactions as well as formalized District structures designed to focus on leadership through peer engagement. This suggests the need for Districts to design and implement opportunities for leadership networking, mentoring and ongoing professional development for both new and senior leaders related to curriculum development and leadership practice.

## **Bringing Out the Best in Others**

### **Staff Engagement**

Cognizant of the impact the teachers have on student achievement, all the informants are keenly aware of the necessity of forging a strong relationship with their teachers in order to facilitate effective group collaboration, bring out the best teaching practices and promote a professional atmosphere grounded in trust and respect.

Visibility is noted of equal importance for staff, as it is students and parents. A new first-year principal stated:

*[[27] "When you sit in a room with ten people and talk about changes we need to happen in our school, eight will probably accept what you say at face value, two will probably challenge. Your actions are more important than the theory. What you are doing every day is being watched to see what do you respond to, what do you commit yourself to and how you bring about change through action."*

Several also discussed their "open door policy" as a means of engaging and supporting staff, indicating that this was another change in practice for the school:

*[13] "You support the students by supporting the teachers. We talk about taking children from where they are and we take our staff from where they are too."*

Many have built their ability to engage staff via learning experiences in previous settings and recognize how their own actions and behaviours have an impact on others:

*[113] "In my previous school, the prevailing attitude was a negative one. Here, it is positive and that was very refreshing for me. I came into this saying, if there is any negative attitude, we are going to deal with it up front, we are going to address it and we are not tolerating it. If you don't have a good work environment, it means the children are not going to have a good learning environment. You always need to remember that you are the principal, you are in a power position and you need to remember dignity."*

The ability to read the level of staff support, particularly from an emotional stance, was suggested by the principals as well:

*[11] "I had a lot of work to do but in meeting the staff on the first day, I knew that I would be embraced. I sensed that fairly quickly. It didn't take me very long to know that even in doing little things would reap big rewards in positive feedback and support that I would receive from staff."*

Encouraging staff engagement may also happen directly in the staffroom. Many informants reflected on their level of engagement with staff in this setting and have carefully lead changes in the conversation and atmosphere, promoting a respectful working environment:

*[17] "Myself and the assistant principal make every effort to be in the staffroom, listen to what is going on, change the talk. If you change that, I think you change people's opinions. I want people to feel comfortable and respected in that room."*

In K-12 settings, the principals discuss the importance of bridging the divide between the elementary and high school teachers since they sometimes can operate as two different schools under the one roof. They create this by adjusting schedules, increasing visibility across the school and designing opportunities for whole staff engagement, particularly with a student success focus.

Principals are aware that when they follow another leader who had been at the school for an extended time, there is an adjustment period for staff that may be hesitant to try new strategies and ideas:

*[119] "There was tension. They are starting (to relax). That is a change but it was hard. There is a big difference now but it takes time. When we came in, you could cut the tension, you could feel it."*

In this instance, the tension had translated to student anxiety. The principal demonstrated a strong sense of emotional awareness and used this knowledge to manage and regulate the behavior:

*[119] "One key asset that I bring to this role - I would have to say it is my relationship building. It is just what I do to connect the school and the community and make everyone feel part of the learning environment. The students are really happy here and we have had parents say the students had never been happy at their school but now they love their school."*

Each of the principals expressed the importance of quickly addressing, establishing and building relationships within the school and across the District to foster an atmosphere to engage in meaningful conversations about students and learning. At the center of each conversation regarding building relationships, is a commitment to students:

*[127] "Sometimes all they need to see is that you are committed to moving a school ahead. We are committed to children, there is a lot of respect that comes from that and then you get buy-in."*

## **5.5 Managing for Effective Instruction and Organizational Effectiveness**

To explore the relative importance of the role of manager with the principals, I asked the questions, "What did you want to change immediately?" in relation to the organizational practices at the school. Several referenced student safety concerns and the physical appearance of the building. By deliberately improving the safety and physical appearance of the building, the principals feel that they send a clear message to the school community about the importance they place on the quality of conditions for learning as well as the well-being of staff and students:

*[I1] “The red door had an effect! If you put out ghetto, you get ghetto. If you put it out there that you are good as everybody else then you start feeling as good as everybody else. When we spruced ourselves up, everybody felt good about themselves and we are proud to be in this building.”*

## **Creating Conditions for Learning**

Others noted the established home-school communication structures as a challenge. Again, while procedural, for the principals, these challenges linked to the overall focus on student engagement, knowing the routines, safety and appealing surroundings enhance the learning atmosphere.

All principals related their actions and efforts as a manager of the school. Their self-awareness and change knowledge was evident since they were keenly aware of even the impact of minor tweaks to the practices, procedures, and organization of their new school. From the simple act of a freshly painted door to in-depth discussions with staff on assessment practices, each is approached with thoughtfulness and empathy. They all note the essential skill of devising efficient and effective procedures in the office so that administrative tasks are handled in order to spend explicit time focusing on curriculum design and delivery to ensure success for all students. They recognize the significance of these tasks:

*[I11] “They seem trivial in the big scheme of things but to someone, somewhere up the line, they are very, very important. I am going to use the word “Resent”, but resent might be a little strong, why we complain about those sometimes is that when they are not in place we can see the significance of it.”*

*[I17] “I hope that I make places better by putting structures and systems in place that make work easier for teachers and better for students. That is my hope anyway.”*

While conscientiousness is a common quality, informants do express frustration with the time that these managerial tasks take and often cite the afterschool hours that they work to spend time on instruction goals. They reference the importance of technology tools that assist with smooth management strategies, organization, and communication as well as the importance of sharing practices with other principals. Emails, online conferences, and texting are noted as key elements of staff and school communication, particularly related to administrative tasks to save time for deeper discussions at staff and professional development meetings.



## Consistent Approaches

Principals referenced how they explored current practices in the school related to addressing student behavior and attendance that has an impact on the learning environment for all. Consistent, whole school approaches are based on clearly defined policies, procedures and high expectations coupled with high standards for academic achievement. A strong sense of alignment and building staff ownership is evident whether it is a focus on the wise use of instructional time or the impact of behavioral concerns. It is common for the principals to ensure that it became a school focus to create an environment for learning and success:

*[17] "We have our behavioral matrix in place and very real expectations throughout the school there is not much explicit teaching of the rules or ownership amongst staff. Everybody likes to do their own little thing so the alignment of practice wasn't here. We have been working on that quite heavily."*

*[19] "I wanted to make sure I had a process in place to deal with these (behavioral challenges) - a fair continuum of escalation/consequences that was communicated. I wanted to make sure that was in place to protect instructional time."*

## Instructional Leadership

The principals also shared their actions and knowledge regarding the implementation of effective structures for learning, both from a teacher and student perspective. Many reference the importance of walkthroughs, both structured and informal classroom observations, as a way of connecting with both students and teachers. This structure also allows them the opportunity to build their curriculum knowledge, dialogue around pedagogy and observe student learning in action. They "Walk the Talk", suggesting that they influence their organization by engaging in the daily practices of teachers and students and develop pedagogy related to student success. For them, it is not just about visibility; these walkthroughs build the capacity of the principal to give meaningful feedback to teachers and provide the data for rich dialogue with staff related to pedagogy and accountability.

In the smaller, rural schools, informants also have teaching duties, noting the fine balance between their work as a teacher and leadership role. K-6 principals discuss their active engagement, particularly in literacy development. Middle and High School principals not only

draw on their curriculum expertise but student engagement skills to support and develop teaching practices.

### **Data-Driven Focus**

The principals are finely attuned to their student achievement results and resultant structures and goals for change. It seems that an essential part of their learning about their new school involved digging into the student achievement data. The data discussions included external and internal sources, academic indicators, district frameworks and school-created structures related to attendance, student behavior and ongoing assessment results. It was interesting to listen to them become so animated in this discussion and related actions. It was obvious in their shared experiences that they feel quite accountable for student success as the leaders of the school and, often, the focus of their work is to build shared accountability within their school:

*[13] "Data's been a very big focus. For some reason, data is a bad word among staff a lot of times. We have been very strategic in promoting and trying to put forth to everybody that it (data) is the focus. Looking at our data and understanding our children and doing what we need to do. We simplified it as much as we can so it wasn't an overwhelming piece. We sent it out to them and followed up with conversations and activities to dig into it. Identify where we need to go."*

A wide range of data were used to inform changes in learning and teaching and school structures. The use of data were also shared in terms of identifying, monitoring and supporting the progress of students who were not reaching their academic potential. In some instances, new principals had to implement structures to collect and discuss data, creating a sense of mutual accountability for student success:

*[11] "We had CRT data but none of my other data were ever submitted to the Department. We had no internal data in a sense. There was probably data in the classrooms but the administration was not aware of it. So there was no accountability for data. So one of the things we are starting now is data collection."*

Middle and High School principals specifically discuss graduation requirements, with an emphasis on designing programs for students to maximize the abilities and to ensure ample post-secondary opportunities. Their work towards this includes frequent conversations with students, parents, and teachers as well as a strong focus on school schedules:

*[118] "I want to do two things and that is to try to keep the movement towards an academic culture. Our plan is all about Numeracy and Literacy. That is where we are. One of the things I have been able to do is engage the community, a hell of a lot more than it used to, and I think with the right staff I've got here, we've moved in the right direction towards academic."*

Similarly, K-6 principals have a focus on the design of structures and practices that support student achievement. They communicate that there is value placed on the expertise of the staff in order to improve student performance:

*[12] "As a school team, we looked at the (Gr. 3) data and saw a four-year trend; they were having issues in reading in Grade 1 and 2. So we pulled our benchmark kit and that is going to be the focus of our staff meeting next time to dig in there."*

The data suggest that the principals are attuned to implementing structures that are motivating and conducive to rich discussions on data and student achievement with teachers. One principal shared how the design and location of PD days refreshes his teachers and encourages stronger dialogue and action planning:

*[124] "I feel it is a big piece because teachers need to be aware. It's one thing for me to stand up in a staff meeting and preach data to a tired, exhausted bunch of teachers. Today they went to Coffee Matters instead. I told them you don't need to be here; the data is hard enough to look at - go somewhere comfortable. I know they are going to come back with feedback tomorrow and they are going to own that then. That makes a difference in the classroom because they will go back to their committees, their grade levels, their PD days and it will spread."*

## **Inclusive Practices**

Many principals share that a primary focus of their daily work is the support of students with special needs. While some have backgrounds in special services delivery, all the principals note the importance of knowing the students in your school that require extra support as well as the implementation of policies and structures to facilitate individualized support, assessment and inclusive program delivery. Student needs, dignity, and achievement are at the forefront as principals address structural challenges to create an inclusive learning environment:

*[I3] "I need to spend my time getting to know these students because if your special services is up and running well, and you are using your resources adequately, that's going to calm a lot of waters so you be able to do the things that need to be done."*

*[I1] "The whole student support services framework changed. In the past, there was absolutely no accountability for documentation and paperwork. We tracked down all the paperwork and if it wasn't done, it was mandated that it had to be done. Programs were all over the building and not kept according to policy. Now it is all kept per policy. Special services have been 100% revamped."*

In supporting the redesign of programs in his school, one middle school principal linked the importance of change to a struggling Grade 9 student's self-awareness:

*[I21] "They know academically they have reached the end of the line. They have reached the limit in what they can handle with their peers. It is a real struggle in Grade 9 and there is a whole host of things to combine to create the perfect storm."*

## **Strategic Actions and Design**

There is frequent discussion of structures such as school development goal/action teams, committees, staff meetings and professional development (PD) days. The emphasis is on the strategic design and content of these structures to ensure a focus on student achievement and develop a collective ownership amongst staff of the work and results:

*[I13] "We pitched a one year plan. We have student achievement and Safe and Caring as our goals. (I said) I want you to talk about what piece you want to take ownership of, and we own it all, but what piece are you going to work on. There was a little bit of like mediocre was fine (from staff)."*

While each principal has identified some unique structures, there are common elements that are identified by the informants that impact the organizational effectiveness of the school. With thoughtful and fresh ideas, the principals focus on creating a safe and caring academic environment, collective ownership for student learning and structures that have a positive impact on the work of teachers in the classroom. As one succinctly said:

*[117] “I think you need a system in place whereby people are where they are and supposed to be, if you have students who understand that there are responsibilities and consequences, and teachers see you follow through on these consequences in a fair manner. We look at each situation for its uniqueness and we handle them all differently but with sense and guidelines and processes to go through. By putting systems in place for staff and students, you create a better place.”*

## **5.6 Leading Change**

### **Defining a Vision**

The data clearly suggests that one of the most impactful elements of leadership for the principals is creating and establishing a clear sense of purpose and direction for the school. Simply put, they all have a vision for student success. It is their vision that guides their actions and decisions for the school. As both a driving and thoughtful force for change, they develop a collective vision with their school community and use it to guide decisions and actions. They ensure that the vision is clear, understood and supported. It is the benchmark that any new policies, initiatives or changes should meet:

*[113] “So right from the get-go, at the very first staff meeting, I let people know what I stand for. That (vision) drives everything in the school. If you are looking for new resources, for whatever, everything we do is going to be driven by this.”*

Many of the principals noted that they reviewed the plan prior to commencing their principalship at the school to observe it in action during their first few weeks in the building. These actions suggest again their knowledge and appreciation of the process of change as well as consideration for the teachers who action the plan daily in their classroom.

*[126] “People are watching me and seeing what I am trying to change and that makes people uncomfortable if you change too much, too fast.”*

Consistent and clear communication is noted as an essential element of the work as leaders. Several principals reflected on the inherited school development plans and described how they enacted resultant changes with their staff to build collective vision, ownership, and action:

*[119] “Last year, when I came in, we (the principal and assistant principal) looked at the school development plan. After a month and a half, we looked again and I said: “this is not reality, this has to go”. We are not going to use this plan this year because it was beautiful on paper and had all these Professional Learning Communities that they (teachers) were engaged in, it was working for a minority. It was not working for all because people were driven to do something that they didn’t even understand what they were doing - they didn’t even know. I asked them what their goal was and none of them knew. Only three people knew, from a staff of 55. We switched all that. We are doing things that we need to do, to move forward, right, because they do need a switch. We are still working on it.”*

### **The Power of Culture**

Some principals attributed the lack of collective vision to the culture of the school. This data suggests that to lead change, principals need to be attuned to the underlying culture of the school and understand its complexities. As change leaders, they hold positive expectations and employ actions that encourage their school community to create a collective sense of ownership for the vision of student success. Principals, who had identified staff culture and morale challenges, noted the change in attitude towards staff because of a respectful and honest approach, recognition of the need for clarity and engagement of all staff:

*[119] “That’s been a huge change for people here and they really like the change. Before, it was like something that didn’t change. So, everyone knows where we are going to be. We are getting more directed and “less fluffed”. I read out (the old plan) and said, “So what do you do with that? Is there a strategy?” We need something we can put our teeth into, we are changing and kind of making them something attainable so that you can look back in a measurable way and say, “we did get that done”. People are liking that.”*

*[121] “It’s tough. I had friends say to me, “Now you are going to go in (as principal) and blow it all up and start again. I know there are people who would appreciate that approach but I said, “No way”- with such a strong group of teachers, you really can’t do that. You don’t want to alienate staff and not only are they fantastic teachers but there are students and teachers - they are coming at it from that perspective.”*

*[110] “We need to move forward and a lot of that comes down to respect, respect is huge in our job. Once people see that you are respecting other people’s roles and that we will work through things, they will come on board too and you will get mutual respect back.”*

Again, the theme of change dominates the conversations, yet not in an overbearing manner. The principals approach their role as leaders of change thoughtfully and passionately. They are clear on what they want to see happen recognizing that it will only happen with collective ownership and action. At times, they also recognize their unique role as leader in ensuring that the vision for students moves forward. As the principal, as the leader, sometimes the decision to move the vision forward lies with them:

*[15] “I was thinking, there will be a breakfast program here. Every school needs a breakfast program, if there is one child hungry, that is one too many. It’s not the child’s fault that they are coming without breakfast. We have our start date soon and we will be fighting for it the whole time.”*

### **Strategic Implementation of Strategies**

With a strong vision of student success, the principals provide clarity of direction and purpose, working closely with their staff to create achievable goals for success. Each of them referenced key District goals and how they link their actions to the broader vision of the District. There is a common language amongst them related to innovative strategies that promote inclusion and rich learning environments for students. Initiatives for literacy and numeracy development dominated each conversation, indicating a deliberate attempt to improve engagement and success for each student. Rather than broad strokes, the principals used very specific curriculum language and data to provide clarity, direction, and purpose. Their knowledge as instructional leaders was evident.

At the elementary level, the emphasis was on the literacy frameworks, strategies, and technology implementation to enhance learning and inclusionary practices. At the secondary level, there was a focus on moving students to an academic versus general program, strategic planning of course offerings and encouraging student engagement:

*[122] “Staff delved into (it) further and had good discussions - it’s the way school development is supposed to work but for them it’s new. We noticed our biggest deficiency was in reasoning (Math) and based on that we dug further into our data. One of the glaring things that came from our data were our rates in facts and probability.”*

*[118] “There is a culture change that has happened here now. If I had them in front of me, I’d share our Grade 10 Math results and our Grade 9 data were fantastic.”*

*[15] “What’s big? The literacy block and implementing guided reading to ensure all of our students have the opportunity to achieve above where they are and whether that is at grade level or above grade level - getting that piece in there. If they above grade level, we still have a responsibility to move them ahead in their literacy development.”*

## **Strategic Thinking**

Analytical skills and strategic thinking are common among the informants. When asked to explicitly talk about how they engage in problem-solving, they became quite introspective. I specifically asked the question, “When you are faced with a big challenge, how do you go about solving it? Is there a black and white response?”

Often, when it came to student safety and programming issues, they attest that these are intense but simple decisions. Decisive action needs to be taken to address the needs of the student whether it related to building security, child protection, inappropriate behaviours that disrupt the learning environment or reallocation of resources to address programming needs. In these instances, they draw on their skills and experiences to make decisions without broader consultation and engagement while cognizant of the impact on those involved:

*[17] “You are making a decision to go nuclear. You understand and you accept that. It’s a case of doing what is needed to be done, understanding the sacrifices that were being made.”*



One principal refers to the ability to think strategically as being able to do a “workaround”:

*[17] “It’s when you take a tricky and difficult situation - you have the black and white - you can ignore it or chose to deal with it, whatever that might be. Your “workaround” is that you (engage) them differently, you build a relationship - there are always other options out there rather than the ones that come immediately to mind.”*

A dominant element of all the discussions on thinking and decision-making is the focus on the best interests of the students. The principals present as having the ability to hold and appreciate multiple perspectives. Empathy and compassion is apparent and they value time for thoughtful reflection. The findings suggest that it is essential for them to recognize complexity, deal with multiple perspectives and not always need to make the final decision:

*[125] “I can’t say it’s a compromise. I think some people may be on the outside looking in who don’t have all the details, some would say it’s a compromise but I think it is bigger than that. I think it is bigger than a compromise because I think you are thinking about what is best for the student as well as how it is going to work for the teachers too.”*

*[13] “You have to look at a “C” solution because you know the reality and you have to come to an understanding, you don’t necessarily have to agree with it but you have to come to an understanding. You’ve got to make decisions.”*

*[19] “I look at many angles. How is the student feeling, how does the parent feel when I call home? This is not a blame game. I try to put myself in the parent’s shoes when they hear the phone ring from school. The biggest thing I can do is understand.”*

*[14] “I can be accused of listening to different solutions and giving it a lot of thought. I guess I just take a different approach. It’s just to be thoughtful around the perspectives of the people affected by it. Kind of to see what the best is, you know, different options around it by just looking at different perspectives on it.”*

As the lead thinkers in the school, they engage in debate and encourage multiple perspectives from their teachers, again, grounded in respect and a sense of collective ownership. As leaders, they also recognize the need to be visibly decisive:

[127] *“I find and I have learned that the more consultation that you do and the more you involve people and engage people in issues, the more success you will have in rolling out a decision. There is a balance between engaging staff and all the stakeholders and being seen as a decision maker because if you just sit in your office and every decision comes from you, you are not seen as someone who is going to listen and engage. But if you go with everything and if you bring every decision and you float everything to the staff, you are going to be perceived as, “gee, this guy can’t make a decision.”*

Again, self-awareness seems to be linked to their ability to think as leaders:

[16] *“I am always open to new solutions, I really am, and I think that if I see a solution as the only way I perceive it, I think it is more about ego than anything else.”*

The principals place value on their previous experiences that have helped them develop their ability to think analytically and solve problems creatively. They have learned to seek out all the knowledge and data that is available to assist them with their thinking:

[11] *“It might be experience too because I have had such vast experience and I have come across a lot of stuff which I can draw on. It’s in that bank of knowledge up there that you can just draw on quickly...so I don’t know if that’s creative, it just seems natural.”*

## **Shared Leadership**

Critical to their role as leader is the mandate to build the leadership capacity in the school, drawing on the wisdom, experiences, and knowledge of their colleagues. The principals recognize the direct and powerful roles of both their assistant principals and the teacher in the classroom and place value on their knowledge, cognizant of their role as principal to nurture this growth. Each principal was quick to identify other leaders in their schools and highlight their contributions; “They have great visions for this school to move forward. It’s really not quite collective yet but they have aims” [17].

Several principals suggest the duality of the role of these teacher leaders, noting their power. For them, it is essential to be aware of this power since it has an impact on goal achievement:

*[126] "You know your key players pretty quickly. They have a lot of control and control over how people think. They want to see results and they want to see it yesterday but they are all committed to the same goal. So, you work with them, their individual differences, their individual manners in dealing with things. They may be confrontational at times but you just accept what they have to offer."*

This "position of power" subtheme was identified in several interviews in terms of its negative impact on the role of the principal and required significant intervention:

*[117] "These teachers were in a very strong position of power before I got here and felt they were in control. I had to smooth over conflicts and (eventually) had to say thank you for your time and commitment."*

Conversely, in some schools, the power of shared leadership had not been tapped. For principals, this required the ability to be a role model, provide support and structures to encourage teachers as leaders since they identified the potential for teacher growth to support student success:

*[13] "I knew there was potential but it hadn't been tapped in years. I had a lot of work to do but in meeting my staff on the first day I knew it would be embraced. Even doing little things, positive feedback, would reap big rewards. When I modeled that I was a worker bee, it didn't take long for the worker bees to start following me."*

All principals implemented structures to support teacher leadership and considered these teachers an essential part of the school leadership team, integral to creating cultural change. This cultural change, this leadership growth, is not always an easy task:

*[123] "It didn't work out like it was supposed to be like so I kind of ditched the idea. I didn't know if it did more harm than good. It's in progress and pushing that as much as I can without getting a total meltdown."*

Others try to ensure inclusion of all lead teachers on school leadership teams and provide examples of leadership structures and resources that they use to make the teachers feel valued. These range from food, substitute teachers to cover classes during the day, release time and District support. They see the value of this investment in teacher leadership in supporting individual student success:

*[120] "It was a "during school" team. It was part of improving our learning and valuable enough to pull our team during the normal workday. We look at our student achievement data, our academic indicators. We make sure our plan is solid. The conversations would make your heart melt. The whole room just bars everything out and we are just looking at student achievement."*

The principals point to key tasks that teachers assist with at the school in terms of resource development, research, curriculum meetings, and place value on this work since it allows them to adopt a broader vision. Teacher recruitment was also mentioned by several principals to hire new staff to bring different ideas and strengths to the current school team.

Essential to developing this shared leadership is a sense of trust and respect. Recognizing teachers as leaders create a stronger sense of ownership, which has a direct impact on what happens in the classroom in relation to teaching and learning. One principal suggested that developing teacher leaders is a major role since:

*[13] "You support the students by supporting the teachers. We should take our staff from where they are too. Try to bring them further. You know, it's not about looking after teachers and not the students (as principal). It's looking after and providing the teachers with the tools they need has to have a positive effect on (student success)."*

This heightened sense of ownership and trust is linked to clear expectations for performance and constant communication. Shared leadership also points to the need for constant reflection on the part of the principal so as not to overwhelm the teacher and, sometimes, direct conversations to draw on the teacher strengths:

*[16] "So I asked.... I want you to take the lead on that. What that did was take a person who was shared (among schools), well it empowered that person to focus on student needs and probably showed the rest of the staff that student needs come first."*

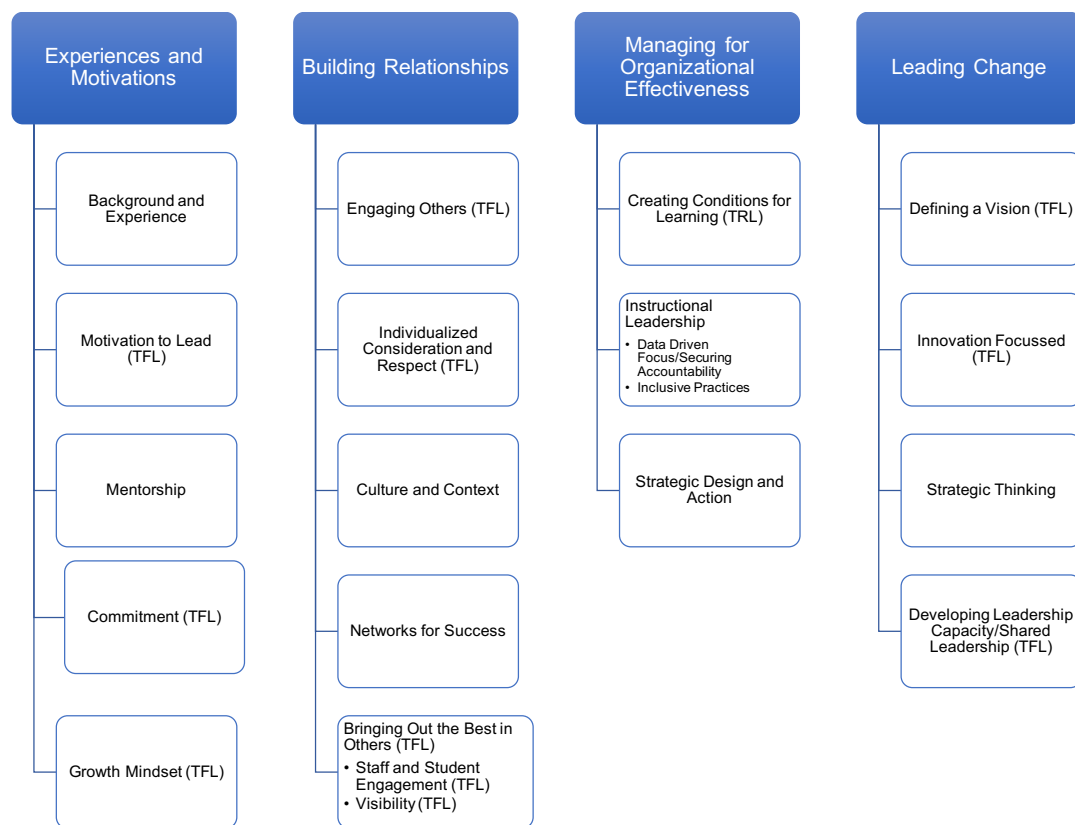
These findings suggest that principals who impact student success provide a variety of opportunities to share leadership and connect with their teachers so that a common vision and purpose for student success is evident.

## 5.7 Discussion

This chapter, as part of the research design, built on the insights of the initial quantitative findings. This qualitative component was designed and implemented with the resultant interviews providing rich data for analysis.

It is evident that the apriori themes associated with transformational leadership were represented in the qualitative data. Specifically, as outlined in Figure 5.2, there is a convergence between the actions and behaviours shared by the principals via interviews in relation to the transformational behaviours identified by their teachers and managers in the survey.

**Figure 5.2 Convergent Findings**



What was not evident in the quantitative study, but emerged in the qualitative work, were themes related to the school culture and context, the value of mentorship and networking, the backgrounds and experiences of the principals in relation to their leadership story and the strategic thinking employed in decision making. These additional leadership attributes highlight the evolution from a simplistic leadership model, such as transformational leadership, to one that integrates multivariate, multistage models of leader attributes. This was an identified gap in current leadership models (Graca and Passos, (2015; Leithwood and Sun, (2012).

As well, the panel data analysis findings suggest the association of the actions, behaviours, and thinking of principals on student success. Table 94 notes the convergence of the findings from both studies. Evident in both the quantitative findings and the thematic analysis, were the leadership behaviours associated with transformational leadership in the context of schools. The findings of the qualitative study provide deeper insight into the research question, “What are the attributes, actions, thinking and behaviours of principals who have an impact on student success?”

**Table 5.1 Findings from Quantitative and Qualitative Studies**

Category	Survey Findings	Qualitative Themes
Transformational Leadership	In both the leader and rater surveys, more principals were identified as demonstrating transformational leadership behaviours in comparison to transactional leadership or passive non-leadership behaviours. In some instances, leaders gave a higher ranking for their behaviours ( <i>Inspirational Motivation, Idealized Behaviours, Intellectual Stimulation, and Individualized Consideration</i> ).	<ul style="list-style-type: none"> <li>• Individualized</li> <li>• Consideration and Respect</li> <li>• Motivation to Lead</li> <li>• Strategic Thinking</li> <li>• Bringing out the Best in Others</li> <li>• Defining a Vision</li> <li>• Strategic implementation of strategies</li> <li>• Growth Mindset</li> <li>• Shared Leadership</li> </ul>
Transactional / Instructional Leadership	“Contingent Reward”, a transactional factor, was rated higher than the transformational factor of “Individualized Consideration”. Both raters and principals suggest higher scores in transformational versus transactional behaviours. The principal responses indicate a higher mean (2.47) than the raters, perhaps due to their specific knowledge of the managerial tasks and activities that they do in order to ensure an effective school. This suggests that the principal is strongly aware of the role of procedures and structures necessary to create an effective learning environment. These management behaviours and actions provide the foundation for leading and engaging others.	<ul style="list-style-type: none"> <li>• Instructional Leadership</li> <li>• Data Driven/Securing Accountability</li> <li>• Strategic Resource Management</li> </ul>
Outcomes	In relation to the <i>Outcomes of Leadership</i> , the scores were quite similar. Both raters and leaders ranked <i>Satisfaction</i> as the highest outcome, with raters providing a higher score, followed by <i>Effectiveness</i> and <i>Extra Effort</i> . These rankings suggest the perceived effects of the leader on the rater’s sense of effectiveness, effort and job satisfaction	<ul style="list-style-type: none"> <li>• Strategic Resource Management</li> <li>• Bringing Out the Best in Others</li> <li>• Individualized Consideration and Respect</li> <li>• Shared Leadership</li> <li>• Creating Conditions for Learning</li> </ul>

Relevant themes emerged specifically related to the experiences, motivations, behaviours, dispositions, thinking, knowledge and actions of the leader in creating a school that is focused on student success, namely:

1. Experiences and Motivations
2. Building Relationships
3. Managing for Organizational Effectiveness
4. Leading Change

This chapter explored the views of principals related to their work as leaders. The previous chapter presented the quantitative evidence that identified the relationship between principal attributes, behaviours and actions, teachers and student success. The next section will provide the convergent findings of both the quantitative and qualitative studies with a focus on the key insights from each

### **5.7.1 Convergent Findings**

Figure 5.2 outlines the convergence of the findings from both studies. Evident in both the quantitative findings and the thematic analysis, were the leadership behaviours associated with transformational leadership in the context of schools.

The findings of the panel data analysis that explored the relationship between principal leadership, student achievement, and school climate are also linked to the knowledge gained from the qualitative studies. Table 5.2 outlines the key findings from this phase of the quantitative study in relation to the insights from principals.

**Table 5.2 Convergent Findings**

Hypotheses		Quantitative Findings	Qualitative Insights
1.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transformational behaviours of the principal.	accepted	Principals identify the importance of engagement with staff, individualized consideration, motivation, intellectual discussion and strategic thinking. Also noted was the importance of engaging all teachers and valuing teacher leadership.
2.	A teacher's sense of effort, effectiveness, and satisfaction is associated with their perceptions of the transactional behaviours of the principal.	accepted	Principals highlight the need for common structures, routines and instructional leadership to impact teacher engagement and student success.
3.	There is a relationship between school configuration and transformational leadership scores.	rejected	Not an emergent theme.
4.	There is a relationship between school location (i.e. rural/urban) and transformational leadership scores.	rejected	Principals note the importance of contextual and community knowledge in their engagement and actions.
5.	There is a relationship between size of the student population and transformational leadership scores.	rejected	Not an emergent theme.
6.	There is a difference between male and female teacher groups mean leadership scores for principals.	rejected	Not an emergent theme.
7.	There is a difference in teacher group mean leadership scores between male and female principals.	rejected	Not an emergent theme.
8.	There is a relationship between teacher seniority and perceptions of transformational leadership behaviours.	accepted	Shared leadership is noted and valued by principals. Evidence suggests they are aware of the role of senior teachers in the school and the impact of teacher leadership on student growth. Principals quickly identify their senior leaders in the school, knowing the power they exert on the staff and school development.
9.	There is a relationship between principal seniority and transformational leadership scores.	rejected	Not an emergent theme



10.	Principal leadership has a direct impact on student achievement.	accepted	Principals seem keenly aware of the role as instructional leader and directly engage in practices that support student success. Individualized consideration was noted for students and teachers who require extra support, the importance of hiring the right staff, professional development and their own engagement in professional learning that supports student achievement.
11.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has a direct impact on student achievement.	accepted	Principals reported working closely with teachers on a regular basis and actively engage them in conversations and actions related to student learning. They said they are visible in the classrooms and engage in direct conversations on student learning. Principals reported careful consideration is given to manpower planning and staff development, cognizant of the importance of the role of the teacher in student success. My analysis of the data suggests principals place great value on their teachers and employ various strategies to support them professionally and personally.
12.	Principal leadership has a direct impact on student perceptions of climate and culture.	accepted	Principals identify their role in creating a positive school climate through ongoing communication, visibility and engagement with the school community. They report actively monitor the climate of the school and employ strategies to ensure that it is a positive learning community.
13.	Teacher effectiveness, effort, and satisfaction, as defined by the outcomes of leadership, has an impact on student perceptions of climate and culture.	accepted	Principals report actively engaging teachers in strategies related to creating a climate for success. They provide consistent structures and expectations related to behavioral outcomes and hope to both inspire and motivate their staff to create a student-centered, inclusive learning community.

Jointly, results of both studies highlight transformational and instructional leadership behaviours and attributes that are relevant for a principal to impact student achievement. A positive relationship between the transformational leadership behaviours of principals and the leadership outcomes identified by teachers and supervisors is evident along with some statistically significant relationships between student achievement, school culture, and principal leadership.

Additionally, principals highlight key attributes, actions, thinking and behaviours that they suggest contribute to the success of their work and impact the learning environment of their schools, clearly linking their work with teachers to a focused impact on student success.

The conclusion, Chapter Six, will provide a comprehensive discussion of this mixed-method study results and possible implications. The chapter will also note the theoretical contributions of this study along with considerations for management and practice.

## Chapter 6 Conclusions

The intent of this mixed-methods research study is to add to the body of knowledge related to the link between principal leadership and student success. First, is there a relationship between the transformational leadership behavior and leadership outcomes in schools? Second, is there a relationship between leadership behaviours, leadership outcomes, student achievement and school climate? Third, are there other attributes, actions, and behaviours that principals identify as key to their success as leaders? This section discusses both study findings and possible implications.

### 6.1 Support for Transformational Leadership/Transformational School Leadership Theory

In the educational context, there is substantial empirical research that supports transformational leadership theory (Griffith, 2004; Leithwood and Jantzi, 1999; Marks and Printy, 2003; Robinson et al., 2009) and this study provides further evidence. There is a strong positive correlation between transformational leadership and leadership outcomes. Also evident was the focus on instructional leadership, in both the quantitative and qualitative components of the study. Like existing research (Hallinger and Heck 2010; Louis and Wahlstrom, 2010; Marks and Printy, 2003; Leithwood and Sun, 2012; Robinson et al., 2009) elements of both transformational and instructional leadership were noted and reflect the focus on improving student achievement both through direct student interaction and indirect influence through engagement with the teacher and promoting shared leadership.

Not evident in the quantitative study, but emerged in the qualitative work, were post-priori themes related to the school culture and context, the value of mentorship and networking, the backgrounds, and experiences of the principals in relation to their leadership story and the strategic thinking employed in decision making. These additional leadership attributes highlight the evolution from a simplistic leadership model, such as transformational leadership, to one that integrates multivariate, multistage models of leader attributes. This was an identified gap in current leadership models (Coelli and Green, 2011; Graca and Passos, 2015; Leithwood and Sun, 2012; Marks and Printy, 2004; Zaccaro, 2012) and is a contribution of this research.

The findings of transformational leadership attributes and instructional leadership were expected given the existing studies on which the research was modeled. The results also highlighted both the direct and indirect influence of the principal as school leader (Hallinger, 2010; Leithwood et al., 2006; Marzano, 2003; Robinson, 2007) on student achievement results.

Significant relationships were only noted at some grade levels, particularly at high school. Results were mixed across grade levels in relation to both student achievement and school climate. For example, no relationship was evident at the Junior High level between transformational leadership or leadership outcomes. From a maturity perspective, given the nature of the junior high student and school setting, it was not unusual to find this result. Likewise, only one relationship was noted for the Grade 3 and 6 student achievement results. This aligns with similar research (Leithwood, and Louis, 2004; Marzano et al., 2003) who find that the principal effects on student achievement are small yet significant and points to the direct influence of the classroom teacher as the most significant relationship.

The qualitative findings also aligned with previous research (Day, 2016; Lloyd and Rowe, 2008; Robinson, 2011) that highlights the attributes and actions of the school principal in relation to instruction, climate, and student achievement.

## **6.2 Research Study Contributions**

This research study has contributed to both managerial practice and theoretical knowledge. This section outlines two contributions that this study makes to the literature and four management recommendations for school systems. This section also highlights two publications, “Data-Driven Leadership” (Murray, 2015), and “Leader, Know Thyself” (Murray, 2016) along with an integrated leadership framework (Murray, 2015) that highlights the contribution of this research study to both theoretical knowledge and management practice.

### **6.2.1 Contribution to Theoretical Knowledge**

This research study has made several contributions to theoretical knowledge in the field of education and leadership. First, this study contributes to and aligns with existing research that suggests the impact of transformational and instructional leadership on student achievement (Day, 2016; Leithwood and Louis, 2004; Lloyd and Rowe, 2008; Marzano et al., 2003, Robinson, 2011). While contextual, gender and demographic variables were explored in the quantitative study, this research suggests that they do not have an impact on the identification or presence of transformational leadership.

A second contribution, through the qualitative study, is the identification of additional leader attributes and actions that contribute to the impact of principal on student achievement and school climate. These findings include the relevance of background experiences both professional and personal, mentoring, networking and relationships with colleagues, contextual knowledge, and strategic thinking. These attributes, experiences, and skills move beyond the

simplistic nature of the transformational leadership model. This gap in the literature had been identified and builds on the integrated leadership model proposed by Zaccaro (2012) and others, cognizant of the multidimensional nature of both leaders and schools.

The final contribution of this research is related to the location and context of this study. While educational leadership studies in the Canadian context are common, with a predominance of research completed by Leithwood and colleagues, this study is unique to the Newfoundland and Labrador context in both its methodology and findings. Other local published studies (Anderson, 2002; Galway, 2012; Sheppard, 1996; Sheppard and Brown, 2014; Sheppard, Brown and Dibbon, 2009; Sheppard, Hurley and Dibbon, 2010; Treslan, 2006; Tucker and Fushell, 2011) explore the nature of leadership in education however the use of longitudinal panel data is not evident nor is the mixed methodology. This researcher was unable to find any other studies in the Newfoundland and Labrador context that has employed such a broad scope, encompassing student achievement results, school climate surveys, principal interviews and principal rater surveys. Therefore, both the context and scope and methodology used in this study are additional contributions to the literature. The use of the transformational leadership construct and psychometric will expand on the work of transformational school leadership (Leithwood et al., 1994, 1999, 2000, 2015). Like the research of Darling-Hammond (2007), Clifford, Behrstock-Sherratt and Fetters (2012) and Wahlstrom et al., (2010), this research will expand on the attitudes, experiences, behaviours, learning and actions of principals within the context of their school community. From a practice perspective, the intent is to create a leadership framework that which, if used by a school district, would result in better outcomes and allow for a systematic structure for leadership recruitment and development that is founded on both key research and the practices and perspectives of current principals.

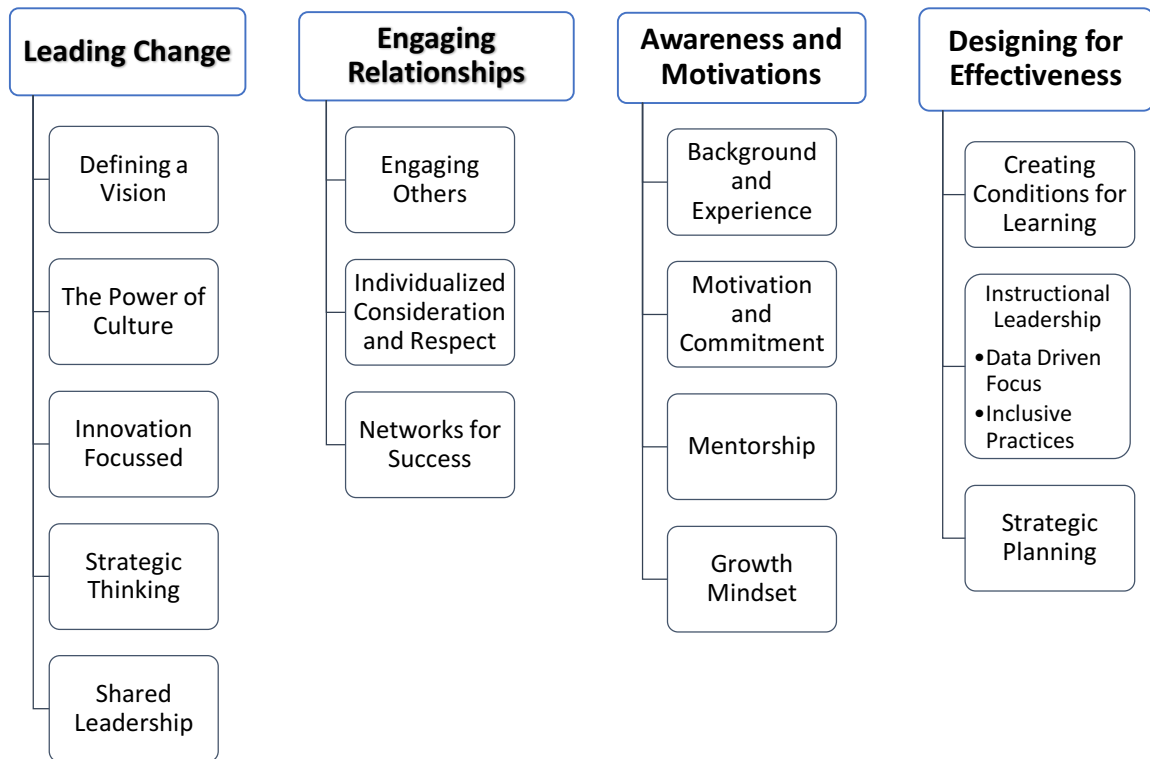
### **6.2.2 Management Contributions and Recommendations**

Both the findings and recommendations from this research have been formally shared with the school system studied and through publications. In Winter 2015, “Data-Driven Leadership” (Murray, 2015) was published by in the Canadian Association of Principals Journal, that is shared with all schools across Canada and online. This article highlighted the results of the initial study as well as the qualitative findings. In the same journal, a subsequent article, “Leader, Know Thyself” (Murray, 2016) identified the importance of networking, communication and relationship building.

At the system level, the results of the study were first shared verbally with the Director and Assistant Director of Education and then via a proposed “Leadership Framework” in 2015 that has since been modified to capture the final research findings (Figure 6.1).

Subsequently, the findings and framework were used to create leadership professional growth and evaluation policies and resources for the school district. In August 2015, the researcher used the “LEAD” leadership framework (Figure 6.1) to develop and deliver leadership development sessions for new principals, assistant principals, and District leaders. The next section outlines these recommendations in more depth along with others related to managerial practices.

**Figure 6.1 Proposed Leadership Framework**



Source: LEAD Framework- Murray, 2015

## 6.3 Management Recommendations

### 6.3.1 Cultivating Leadership for Student Success

Based on the findings presented in this research study, the following recommendations for both strategy and policy and practice should be considered by district leaders in relation to school principals that are reflective of the identified key attributes of successful leaders. To move

forward as a district, like a school, there needs to be a strategic shift in thinking to a focus on talent and motivation. As with students, there should be a move from traditional, haphazard, “one size fits all” events to a defined leadership model for principals that is focused on talent, engagement, best practices, stakeholder feedback and action learning - all with a focus on cultivating leadership for student success. By doing so, as informed by this research, the school leader will be valued by and engaged with teachers who, ultimately, have the strongest influence on student outcomes. It is this synergistic relationship between the principal, the teacher and the student that creates the impact on student success.

### **Talent Management**

An integrated transformational and instructional leadership model can serve as the foundation for talent development and management. These leadership behaviours and attributes, as noted in the Leadership Framework (Figure 18), can serve as the foundation for a strong leadership program for both new and established leaders that reflects the local context and is directly linked to student success. While the use of psychometrics is not common district practice in the local context, pre-and post-evaluation is warranted to establish areas for growth and “fit” for various contexts.

Principals clearly identify the importance of networking and establishing relationships with other colleagues. This could be established both formally and informally. It is integral to communicate the attributes of successful principals and highlight these at every opportunity. Leadership training and development should be ongoing, inclusive and individualized, considering the specific needs of principals with relation to the identified areas for growth as defined by the framework.

### **Recruitment and Retention**

This research clearly identifies key attributes and behaviours of principals that impact student achievement. To recruit and retain principals that impact student success, school districts should consider the findings of this study to create new, innovative strategies for engagement. The identified leadership attributes from this research could inform the development of an employee value proposition that articulates the role of the principal and the value it provides to teachers and students. This would manage the expectations of possible candidates and help attract suitable talent.

The district could consider, in partnership with current principals, the identification of high potential teachers and provide them leadership development opportunities, coaching, stretch

assignments and mentorship. With current principals, districts could explore the option of voluntary turnover or job sharing, within the confines of a collective agreement, to allow principals opportunities for new schools, growth, and development.

### **Professional Growth and Appraisal - Policies and Practices**

The performance appraisal policy should also reflect the attributes, skills, and behaviours of successful principals. A clear linkage between the professional growth plan of the principal to student achievement and school climate should be evident in the District's strategic development framework and cascaded to encompass the engagement of the principal at the teacher and classroom level. The use of teacher, student, and community evaluations will also be constructive and aligned with the behaviours, actions and attributes essential for student success that is identified in this research. Districts need to ensure rigor and consistency in assessing principal growth and implement via policy development knowing that principal leadership is essential to student success.

## **6.4 Research Study Limitations**

This section presents some of the limitations of this mixed-method research study. These limitations include the use of the MLQ and variable operationalization.

### **Use of the MLQ**

Transformational leadership theory is used in both business and education studies. In this study, it is applied in the context of school leadership and integrates instructional leadership as a key component, similar to other quantitative and mixed methods studies in this field.

There are several limitations to consider. As noted, the use of the MLQ allowed this research to be compared to other published studies (Day, 2016; Leithwood, Seashore and Louis, 2004; Lloyd and Rowe, 2008; Marzano et al., 2003, Robinson, 2011) however the instructional leadership component, essential to a school leader model, was not fully captured via the quantitative data. Nevertheless, the instructional leadership component was captured in the qualitative study.

A 360-degree approach was employed for the survey, collecting data from multiple raters, including the principal, teachers, and supervisors. The collection of multi-rater perceptions is preferable and recommended by the survey creators (Bass and Avolio, 2004). However, researchers (Avolio, Bass, and Jung, 1995; Bass and Avolio, 1989b, Lievens, 2010; Yukl and Van Fleet, 1991) suggest that the MLQ scores may be prone to potential bias.



Firstly, the halo effect may impact the results since raters may be challenged to differentiate between the various transformational leadership behaviours. Studies by Tepper and Percy (1994) as well as Den Hartog, Muijen and Koopman (1994) posit that all four transformational leadership scales were highly correlated unlike the three factors of the transactional leadership scale, that are easily distinguished. For this study, exploratory factor analysis was conducted to address this concern and to highlight the loadings of transformational leadership factors using the 3 - factor model proposed by Avolio and Bass (1995).

Avolio and Bass (1995) also suggest that the MLQ survey results are biased by the possibility of social response bias. Avolio, Bass and Jung (1995) contend that raters identify transformational behaviours as ideal, therefore more socially desirable. This as with any survey there is a possibility of socially desirable responses even with random sampling. To overcome this bias, the survey was administered randomly to multiple raters (peers, teachers, and supervisors) and the respective results were compared. This limitation is not expected to affect the reliability or validity of the findings given that the survey results fell within the normal distribution of responses with minimal outliers.

### **Variable Operationalization**

Several limitations were addressed in Chapters 3 and 4 related to sampling, endogeneity and heterogeneity. Another limitation is in relation to the student variables in the longitudinal panel. While the high school and junior high results were consistent variables for the whole panel (2004-2015), there were some changes to the assessments at the Grade 3 and 6 levels. Student variables for climate and culture did not span the entire panel, only for the years 2011-2015. Again, these limitations are noted yet did not impact the findings since the cleaned data used for the regression analysis for the 25 principals did not include any missing data points.

While principal tenure is accurate, there is a possibility that incorrect information was provided by the raters. A more accurate process would have been to obtain this data from the Human Resources Division at the District since it is publicly available.

### **6.5 Future Research Suggestions**

This research study supports existing research on principal leadership and has contributed new findings to the literature. The findings support that transformational leadership behavior and leadership outcomes have an impact on student achievement. The findings also identify attributes, actions, behaviours and thinking of effective school leaders that may be developed

through a local leadership framework that integrates talent management, recruitment and retention strategies, professional appraisal and policy development.

This study focused on the work of principals in schools and their work as leaders in relation to student success. While some studies do exist, it would be warranted to adopt the methodology of this study to explore the impact of district leaders on student achievement. Are the same transformational behaviours, instructional leadership focus and the additional attributes identified for principals apparent in senior leadership as well?

The use of a survey such as the MLQ, while providing valuable data to both the leader and the organization, solely addresses perceptions of the relationships between the leader and followers. It may be an essential source of data for the leader in terms of actions and professional learning yet it does not explore the impact of leader attributes, actions, behaviours, and thinking. Additional methodologies such as case studies, action research, and longitudinal surveys may add value to this research and provide deeper evidence of the relationship between school leaders, teachers and student achievement.

As noted in the discussion of limitations throughout this study, additional research is warranted to explore the direct of the principal, and other variables, on student success. The high school sample is small in this study and warrants further exploration, perhaps through a case study. Likewise, endogenous variables, such as the residual influence of the previous principal, may be an opportunity for further research.

While teachers and supervisors were engaged as raters for the quantitative study, future qualitative research could engage the same in interviews to discuss the role of principal leadership in their work with students. Perhaps the most meaningful interviews would be with students as we attempt to uncover the leadership actions, behaviours and attributes that they define as critical to their success.

## **6.7 Final Remarks**

The role and impact of the principal as a leader is a topic for frequent research and debate. This was explored in depth in the literature review and will continue to be an area of rich debate and discussion as the nature of education evolves and societal demands increase. Likewise, the attributes, behaviours, thinking, and actions of a leader continue to dominate both academic and management literature, requiring a critical mind to navigate the constant onslaught of “what to do”, “how to think” and “how to be”.

Through an exploration of the impact of transformational leadership on student and school climate and by engaging in deep conversations with principals about their work, the result of this study has been twofold. First, this study has created new knowledge and contributed to the field of research about the impact of the principal on student achievement.

Secondly, this knowledge is used in the local context studied to create a leadership framework that supports, develops and cultivates leaders at all stages, all with a focus on the success of students. Grounded in both theory and practice, it is the hope of this researcher that it provides a model for the ongoing recruitment and development of leadership talent essential for organizational growth and student success.

The intent of this research study was simply to answer the question, "Does leadership matter?" and the simple answer is, "Yes".

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# Appendix A - Online Survey Request

The screenshot displays the SurveyMonkey web interface in a Safari browser window. The browser's address bar shows the URL [surveymonkey.net](https://surveymonkey.net). The page title is "Cultivating Leadership in Education- The Principal Effect (R...". The interface includes a top navigation bar with buttons for "Upgrade", "Score my Survey", "Preview & Test", "Print", and "Next".

On the left side, there is a "QUESTION BANK" sidebar with a search bar and several categories of questions:

- Recommended Questions
- Previously Used Questions
- All Categories (500+ questions)
- Community (33 questions)
- Customer Feedback (173 questions)
- Customer Satisfaction (100 questions)
- Demographics (91 questions)
- Education (306 questions)
- Events (90 questions)
- Healthcare (251 questions)
- Human Resources (328 questions)

Below the question bank are sections for "BUILDER", "THEMES", "LOGIC", and "OPTIONS", each with a help icon.

The main content area is titled "Cultivating Leadership in Education- The Principal Effect" and shows a progress indicator of "1 / 10" with a 10% completion bar. The survey text is enclosed in a dashed border and includes:

Thank you for participating in this survey. Your responses are both anonymous and confidential. This questionnaire is used to describe the leadership style and impact of the individual noted below as you perceive it.

Please answer all items in this survey.  
If an item is irrelevant or if you are unsure or do not know the answer, leave the answer blank.  
Please check only one box alongside each statement unless otherwise requested.  
Please answer this questionnaire anonymously.  
It should take approximately 30-40 minutes to complete.

This survey consists of two sections:

**Section 1**  
The first section consists of the **Multifactor Leadership Questionnaire**. It is a standardized survey that focuses on the leadership style of your current principal as you perceive it. If you require further information about this questionnaire, please visit [www.mindgarden.com](http://www.mindgarden.com).

**Section 2**  
The second section consists of statements related to your views on leadership at your school.

Thank you for taking the time to assist with this research. If you have any further questions, please contact the researcher, Susan Murray, at [smurray92@gmail.com](mailto:smurray92@gmail.com).

An "Edit" button is visible on the right side of the survey text area. A "Feedback" button is located in the bottom right corner of the page.

## Appendix B - Interview Protocol

### 1. Introduction

- 1.1 How long have you been in this position?
- 1.2 What was your previous position? Why did you choose to move to this new role?
- 1.3 Tell me about your educational background and work experience.

### 2. Leadership Role (Transformational/Transactional/Instructional Leadership)

- 2.1 What did you know about this school before you came here?
  - (Demographics, reputation, location, staff size, configuration, student achievement)
- 2.2 What were your first impressions? What surprised you?
- 2.3 What things did you feel you needed to change immediately?
  - 2.3.1 Climate/structures/transactional
  - 2.3.2 Instructional leadership
  - 2.3.3 School Improvement/strategic plan
- 2.4 Describe how you spend your day
- 2.5 Tell me about the strategic plan for your school
  - 2.5.1 Do you have key people on your staff – “go-to” people?
  - 2.5.2 How do you engage others?
- 2.6 How do you deal with difficulties?
- 2.7 How are you viewed as a leader?
- 2.8 What is a key asset you bring to the role?
  - 2.8.1 How does this add value to the success of your students?

### 3. Learning

- 3.1 Who supports you?
- 3.2 Do you have a network?
- 3.3 How have you prepared for this role?
  - 3.3.1 Learning experiences

#### **4. Thinking/Strategy**

4.1 When you are faced with a difficult decision, how do you deal with it?

#### **5. Professional Vision**

5.1 Commitment to role

5.2 Vision for school and professional success

## Appendix C – Coding Samples

The screenshot shows a software interface with a sidebar on the left containing categories like SOURCES, INTERNALS, EXTERNALS, MEMOS, NODES, CASES, CLASSIFIC..., COLLECTI..., QUERIES, and MAPS. The main area displays a tree view under 'INTERNALS' with the following items:

Name	Sources	Referen...	Created On	Created...	Modified On	Modified By	Color
INSTRUCTIONAL LEADERSHIP	31	1,033	Jan 25, 2015, 5:12...	SEM	Today, 3:52 PM	SEM	
keep group organized and on task	26	62	Jan 25, 2015, 5:02...	SEM	Feb 15, 2015, 11:59...	SEM	
Managing	29	89	Jan 25, 2015, 5:06...	SEM	Feb 15, 2015, 11:54...	SEM	
Organized and task oriented	28	104	Jan 25, 2015, 4:47...	SEM	Feb 15, 2015, 11:54...	SEM	
perseverance	30	259	Jan 6, 2015, 8:56 P...	SEM	Feb 15, 2015, 12:20...	SEM	
pervasive needs	20	52	Dec 28, 2014, 8:36...	SEM	Today, 3:40 PM	SEM	
policy	12	24	Jan 25, 2015, 4:58...	SEM	Feb 14, 2015, 8:54...	SEM	
Student focused	30	258	Jan 25, 2015, 5:31...	SEM	Feb 15, 2015, 12:19...	SEM	
LEADING	30	223	Jan 25, 2015, 5:07...	SEM	Oct 26, 2015, 7:51...	SEM	
culture	29	179	Jan 25, 2015, 5:37...	SEM	Feb 15, 2015, 12:19...	SEM	
Develop others	30	160	Jan 25, 2015, 4:45...	SEM	Feb 15, 2015, 12:19...	SEM	
knowledge of change process	27	123	Jan 25, 2015, 4:57...	SEM	Feb 15, 2015, 12:13...	SEM	
Professionalism	17	28	Feb 2, 2015, 9:25 P...	SEM	Feb 15, 2015, 12:20...	SEM	
teacher leadership	30	159	Jan 6, 2015, 8:52 PM	SEM	Feb 15, 2015, 12:19...	SEM	
MEMORABLE QUOTES	27	75	Jan 6, 2015, 9:25 PM	SEM	Feb 15, 2015, 12:19...	SEM	
MOTIVATIONS AND DRIVE	0	0	Jan 6, 2015, 9:22 PM	SEM	Today, 3:42 PM	SEM	

The bottom of the interface shows 'No Item Open' and 'OPEN ITEMS'.

The screenshot shows the same software interface with a different tree view under 'INTERNALS' with the following items:

Name	Sources	Referen...	Created On	Created...	Modified On	Modified By	Color
BUILDING RELATIONSHIPS (TFL)	30	2,368	Jan 6, 2015, 8:51 PM	SEM	Today, 3:42 PM	SEM	
Be supportive	30	196	Jan 25, 2015, 5:06...	SEM	Nov 2, 2015, 1:01 PM	SEM	
bring out the best in others	28	190	Jan 25, 2015, 5:02...	SEM	Nov 2, 2015, 1:01 PM	SEM	
communication	30	255	Jan 25, 2015, 4:52...	SEM	Nov 2, 2015, 1:01 PM	SEM	
emotional intelligence	29	221	Jan 6, 2015, 8:51 PM	SEM	Feb 15, 2015, 12:13...	SEM	
Engaging	29	196	Jan 25, 2015, 5:07...	SEM	Nov 2, 2015, 1:01 PM	SEM	
facilitate group collaboration	30	123	Jan 25, 2015, 5:01...	SEM	Nov 2, 2015, 1:01 PM	SEM	
foster respect	27	109	Jan 25, 2015, 4:47...	SEM	Nov 2, 2015, 1:01 PM	SEM	
individualized consideration	29	166	Jan 6, 2015, 8:53 PM	SEM	Nov 2, 2015, 1:01 PM	SEM	
networks	29	62	Jan 6, 2015, 8:52 PM	SEM	Nov 2, 2015, 1:01 PM	SEM	
prior knowledge	20	56	Jan 25, 2015, 4:43...	SEM	Nov 2, 2015, 1:01 PM	SEM	
Relationships with peers	30	321	Jan 25, 2015, 4:40...	SEM	Nov 2, 2015, 1:01 PM	SEM	
mentor	16	32	Jan 25, 2015, 4:41...	SEM	Nov 2, 2015, 1:01 PM	SEM	
thirsty for change	17	29	Jan 25, 2015, 4:54...	SEM	Nov 2, 2015, 1:01 PM	SEM	
Trust	15	32	Feb 2, 2015, 9:35 P...	SEM	Nov 2, 2015, 1:01 PM	SEM	
Visibility	20	45	Jan 29, 2015, 9:41...	SEM	Nov 2, 2015, 1:01 PM	SEM	

The bottom of the interface shows 'No Item Open' and 'OPEN ITEMS'.

## Appendix D - Ethics Approval

### Section A: Research approval application

Section A must be completed in full and submitted prior to any data collection. If you have any questions regarding the form, please discuss them with your programme director or academic supervisor (if one has been appointed).

Approval must be obtained *before* the research project commences.

#### Summary of proposed project and research methods

What makes an effective school leader? Can we define the characteristics of effective school leaders, using student achievement results as our indicators, in order to identify and develop high potentials for leadership positions?

The purpose of this research project is to explore the relationship between successful leadership and organizational success. Using 10-year longitudinal data of all schools and leaders in my organization, I will explore the relationship between the school leader and student success. Data will include student achievement results, student and leader demographics and changes in school leadership. Quantitative analysis will be conducted using Stata to explore the relationship between successful schools and leadership. Based on these results, surveys, assessments and interviews will also be conducted with a sample of school leaders to identify the common competences, behaviors and traits of successful leaders.

Further details are available in the completed research proposal for this project and may be accessed by contacting the author.

### 1. Questions about proposed research (University ethics requirements)

Please reply to all of the following questions concerning your proposed research by marking with an 'x' as appropriate.

		Yes	No
1.1	Have the participants and subjects of the study been chosen because they are patients and/or clients of the National Health Service or Social Services in the UK, or equivalent health or social care systems in another country?		x
1.2	Are the participants and subjects of the study unable to give free and informed consent because they are not over the age of 18, or as a consequence of their mental capacity? (For more details on how mental capacity might impair the ability to give free and informed consent, please consult the Mental Capacity Act 2005)		x



1.3	Are you asking questions that are likely to be considered inappropriate or to cause distress to any of the participants?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.4	Are any of the subjects in a special relationship with the researcher that could affect their ability freely to give informed consent?	<input type="checkbox"/>	<input checked="" type="checkbox"/>
1.5	Is your project funded by a Research Council or other external source (excluding research conducted by postgraduate students)?	<input type="checkbox"/>	<input checked="" type="checkbox"/>

If you have answered Yes to any of these questions, your proposal will be reviewed in accordance with the requirements of the University Research Ethics Committee.

If you are unsure whether any of these conditions apply, please contact your programme director or academic supervisor (if one has been appointed) for further advice.

## 2. Questions about proposed research (administration of investigation process)

Please respond to all the following questions concerning your proposed research project by marking with an 'x' as appropriate.

		Yes	No
2.1	The research involves only archival research, access to company documents/records, access to publicly available data and/or questionnaires, surveys, focus groups or other interview techniques.	x	
2.2	The need to reimburse expenses or make other payments to any research participants has been reviewed.	x	
2.3	Participants will be/have been advised that they may withdraw at any stage if they so wish.	x	
2.4	Arrangements for ensuring personal privacy, commercial confidentiality and data protection during and after the project and for the disposal of material will be in line with University guidelines.	x	
2.5	Arrangements for providing subjects with research results if they wish to have them have been considered.	x	
2.6	Research instruments (questionnaires, interview guides, etc) will be reviewed against the policies and criteria noted in The University Research Ethics Committee Notes for Guidance.	x	
2.7	The arrangements for publishing the research results and, if confidentiality might be affected, for obtaining written consent of this have been reviewed.	x	
2.8	Information Sheets and consent forms will be prepared in line with University guidelines for distribution to participants, as appropriate. This contains details of the project, contact details for the principal researcher and advises subjects that their privacy will be protected and that their participation is voluntary and that they may withdraw at any time without reason.	x	
2.9	Completed consent forms, where required, will be retained and submitted with the final report on completion of the project for retention by Henley Business School.	x	

If you have answered No to any of these questions, contact your programme director or academic supervisor (if one has been appointed) for further advice.

### 3. Safeguarding personal safety and security of the researcher(s) and research participants

If the research is to be conducted outside of an office environment or normal place of work and/or outside normal working hours please note the details in the comments box below and state how the personal safety and security of the researcher(s) and research participants will be safeguarded.

Comments
<p>The interviews are exclusively planned online (standardised survey) or in a safe office environment (face-to-face interviews)   normal place of work or in exceptional places in public places like a library section. At all times the personal safety and security of both researcher and research participants will be warranted.</p> <p>Given that the research will be conducted in a School District, a Research request has been submitted and approval has been granted.</p>

I confirm that I have read and understood the ethics requirements of the University of Reading and will abide by those requirements in the course of my research.

Signed (student):

Date:

Print name: Susan E. Murny

Student number:

(Note to Research Associate: a signature is not required for Section A if submitting electronically via the RISISweb portal. In submitting via the RISISweb portal you are confirming that declarations regarding your proposed research are true and correct to the best of your knowledge, that you have read and understood the ethics requirements of the University of Reading and will abide by those requirements in the course of your of your research).

### Approval review (supervisor)

Academic supervisor to mark with an 'x' as appropriate:

I have reviewed this application as **Approved** and confirm that it is consistent with the requirements of the University Research Ethics Committee procedures.

This proposal is **Not approved** and

is returned to the applicant for further consideration

or

has been referred for further review in accordance with University of Reading Ethics Committee requirements

Name (supervisor): WALID HEJZI

Signed (supervisor):

Comments (where application has been refused)

(Note to supervisor: a signature is not required for Section A if you are submitting proposal feedback electronically via the RISISweb Portal. In approving the proposal in the RISISweb Portal you are also confirming your approval of the proposed research from an ethical point of view. If you are not able to so approve the proposed research, you should not approve the proposal and should advise the appropriate assignments office.)

Further action (office use only)



**OFFICE OF THE ASSOCIATE DIRECTOR OF EDUCATION**

Jeff Thompson  
709-757-4663

Chairperson: Milton Peadar  
CEO/Director of Education: Darrin Pike

**Conditions of Approval for Research Project: Cultivating Leadership in Education - Susan Murray**

Your request to conduct research in our district is approved subject to the conditions / requirements checked below:

- 1. A list of selected schools must be forwarded to my office before the research can begin.
- 1a. The list of targeted schools has been received.
- 2. Final approval to conduct this study will rest with the principal of each targeted school and the targeted group of teachers/students where applicable.
- 3. Conducting the research will in no way negatively impact instructional time for students and teachers.
- 4. Conducting this research must not put any burden of responsibility on our school administrators or other staff unless they specifically agree to it. Such agreement must not negatively impact instructional time.
- 5. Participation in the study will be voluntary and participants will be able to opt out at any time without prejudice. This must be clearly communicated to the participants at the outset.
- 6. For students under 16 years of age, the researcher must secure parental consent and confirm such consent with the principal before the research proceeds. Students 16 years of age and older must provide their own consent. Regardless of age, youth must be clearly informed from the outset that they may refuse to participate, even if their parents consented to their participation.
- 7. Anonymity of participants must be ensured.
- 8. Before the research project can begin, it must receive final approval from your university's Research Ethics Committee and a copy of this approval must be sent to the Associate Director of Education as per the contact information listed below.
  - 8a. Ethics Committee approval letter has been received
  - 8b. Not applicable
- 9. Given the inherent potential risk in this research project that some participants may relive a traumatic experience which can cause emotional or psychological stress, counseling services and other appropriate supports must be available during and subsequent to the data collection process.
- 10. A copy of the research findings and resulting papers/reports must be directed to the Associate Director of Education and to the regional Assistant Directors of Education (Programs) where applicable.
- 11. Research results must be made available to the schools involved and the individual participants who request them.
- 12. The Newfoundland and Labrador English School District takes no responsibility in conducting this research, and will not be held liable for any negative impacts relating to this research effort.

Signature of Approval:   
 Jeff Thompson  
 Associate Director of Education

July 29, 2014  
 Date

Signature of Compliance: \_\_\_\_\_  
 researcher

  
 Date

A signed copy of this form MUST be returned to the address below and to the target schools before research can begin:

Attention: Associate Director of Education  
 Newfoundland and Labrador English School District Suite 601, Atlantic Place  
 215 Water Street  
 St. John's, NL A1C 6C9  
 jeffthompson@esdnle.ca

## Informed Consent Form (Letter to Principals)

Title: Cultivating Leadership in Education

Researcher: Susan E. Murray, Doctoral Candidate  
Henley Business School, University of Reading, UK

Dear \_\_\_\_\_:

You are invited to participate in a research project entitled, “Cultivating Leadership in Education”. This form is part of the process of informed consent. It is intended to give you the basic idea of what the research is about and what your participation will involve. It also describes your right to withdraw from the study at any time. In order to decide whether you wish to participate in this research study, you need to understand enough about its risks and benefits to be able to make an informed decision. Take time to read this carefully and to understand the information given to you. Please contact me directly if you have any questions or need more information about the study.

It is entirely up to you to decide if you want to participate in the research. If you decide not to take part in this research or if you decide to withdraw from the research once it has started, there will be no negative consequences for you, now or in the future.

I have received approval from the CEO of your School District to contact principals in the East Region of the Newfoundland and Labrador School District to invite them to participate in this research project. I am a doctoral student (Doctorate of Business) with the Henley Business School, University of Reading, UK. I have worked as a teacher, an administrator, a program specialist and a Senior Education Officer. I will be conducting the research, and analyzing and reporting the collected data as part of my doctoral thesis on educational leadership under the supervision of Dr. Walid Hejazi, Rotman School of Management, University of Toronto.

This study uses a mixed methodology and involves both quantitative and qualitative research, including individual interviews, leadership profiles, and case studies. Current publically available school district strategic plans and reports as well as school demographic and external achievement results will also provide data for the research. The leadership survey data will be provided to you as well at your request.

### **Purpose and Publication**

The purpose of this study is to explore the findings of this study will form an integral part of my doctoral thesis and may lead to journal publications and conference presentations. Any publications resulting from this study will be made available to participants.

### **Interview, Time Required, and Voluntary Participation**

At this time, I am asking you to participate in **one** online leadership profile survey in the next few weeks and a face-to-face interview at a convenient time in November/December 2014 and **one** interview, either face to face or online via Skype.

The survey, which is 360 in nature, requires you to ask for feedback on your leadership from a peer, a SEO and several teachers on your staff, along with self- completion. The survey has 45 questions related to leadership. The results of the survey will be confidential and the data will be stored as per the regulations and policies of Henley Business School. Your participation is entirely **voluntary** (and I will share your results with you on request).

As part of the research, I will also be inviting you to participate in a face-to-face/online interview at a mutually convenient time. An overview of the questions will be provided in advance of the interview. If at any point you decide to withdraw from the study, the data already collected will not be used for the project. Participation is voluntary and there will be no negative consequences for you if you or any participant decides to withdraw.

### **Possible Benefits**

There are no immediate benefits to you directly as part of this research but it is hoped that the findings will help to deepen our understanding of leadership practices that impact student success and, subsequently, design leadership development programs with this focus. Also, it is hoped that these findings will help inform recruitment processes and professional development for district and school leaders.

### **Possible Risks**

There are minimal possible risks to your involvement in this study. Only you and the researcher will know your survey and interview data. Your decision to participate or not to participate will have no influence on your current or future employment status.

### **Information is Confidential**

Any information provided by participants, including their identity, and that of any individuals who might be identified through the confidentiality of the data gathered through the interview will be maintained to the extent possible (and within the bounds of Canadian and provincial laws), and will not be seen by anyone except the researcher and her supervisor. The information including any recordings will be stored for a five year period in a secured locked storage cabinet in the principal researcher's office at home. Following the five-year period, all collected original data including any recordings will be destroyed.

Please note that every reasonable effort will be taken to keep your participation in the study anonymous and confidential. Likewise, because of the sample size, district leaders, principals, and teachers in the course of their interactions with one another, may learn about each other's participation in the project.

No mention will be made in any publication or presentation of a specific school board, schools, or individuals. Every reasonable effort will be made to protect the identity of participants within the bounds of Canadian and provincial laws.

### **Ethical Approval**

The project has been subject to ethical review in accordance with the procedures specified by the University of Reading Research Ethics Committee and has been given a favorable ethical opinion for conduct. Permission for this research has also been granted from the Newfoundland and Labrador English School District.

### **Consent**

Your signature on this form confirms that:

- You have read the information about the research
- You are aged 18 or over
- You have been able to ask questions about the research
- You understand what the study is about and what you will be doing
- You understand that you are free to withdraw from the study at any time, without having to give a reason, and that doing so will not affect you now or in the future
- You understand that any data collected from you up to the point of your withdrawal will be destroyed



**Your Signature**

I have read and understood what this study is about and appreciate the risks and benefits. I have had adequate time to think about this and had the opportunity to ask questions and my questions have been answered.

- I agree to participate in the research project understanding the risks and contributions of my participation, that my participation is voluntary, and that I may end my participation at any time.
- I agree to be audio-recorded during the interview
- I agree to the use of quotations but do not want my name to be identified in any publications resulting from this study.

A copy of this informed consent has been given to me for my records.

Name of Participant:.....

Signed:.....

Date:.....

Thank you for considering this request. I look forward to your reply.

Kindest Regards,

**Susan**

**Contact Details of Researcher**

## Appendix E - Variables and Data Sources

Principal Variables/Codes	Source
School Year	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Principal Gender / (0=Female, 1=Male)	Eastern School District- Directory
Principal Seniority	Eastern School District- Seniority Listing
First Principal Change/ (1pc)	Eastern School District- Directory
Second Principal Change/ (2pc)	Eastern School District- Directory
Third Principal Change/ (3pc)	Eastern School District- Directory
School Location	Eastern School District- Directory
Rural	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Urban	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
School Configuration	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
K-6	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
K-Level 4	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 7-Level 4	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 7-9	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Level 1-4 (High School)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Population	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Parent Education/Income Level	
< Grade 9	Statistics Canada/Eastern School District
Grade 9-12	Statistics Canada/Eastern School District
High School Graduation	Statistics Canada/Eastern School District
Trade Or Some Postsecondary	Statistics Canada/Eastern School District
Some University	Statistics Canada/Eastern School District
Bachelor's Degree	Statistics Canada/Eastern School District
Above Bachelor's Degree	Statistics Canada/Eastern School District
Income Per Capita	Statistics Canada/Eastern School District
Student Attainment Variables	
Honours Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Academic Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
General Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Achievement Variables	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Reading Multiple Choice (Mc)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Listening Mc	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Demand Writing	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Poetic Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Informational Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Visual Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Listening	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Reading Multiple Choice (Mc)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Listening Mc	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )

Grade 6 Demand Writing	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Poetic Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Informational Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Visual Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Listening	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 9 Language Arts (Composite)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade3 Math Mc	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Reasoning	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Communication	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Connections And Representations	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Problem Solving	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Math Mc	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Reasoning	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Communication	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Connections And Representations	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Problem Solving	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 9 Math (Composite)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Other Variables	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Attendance Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Retention Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )

<b>School Climate Surveys</b>		
Grade 2 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 2 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 2 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 2 Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 2 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 2 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 5 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Participation	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 7 Drugs and Alcohol	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Participation	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 8 Drugs and Alcohol	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Participation	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 9 Drugs and Alcohol	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Participation	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 10 Drugs and Alcohol	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Student Satisfaction	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Learning Opportunities	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Participation	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 School Climate	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Expectations	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Safety	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Bullying and Harassment	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>
Grade 11 Drugs and Alcohol	Education Statistics	<a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a>

Grade12 Student Satisfaction	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Learning Opportunities	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Participation	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 School Climate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Expectations	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Safety	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Bullying and Harassment	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade12 Drugs and Alcohol	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )

## Appendix F - Pilot Study for Proposed Research

### Pilot Study for Proposed Research

Cultivating Leadership in Education

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SUSAN MURRAY

#### **ABSTRACT**

What makes an effective school leader? The intent of this study is to explore the relationship between the school principal and student achievement in order to define the characteristics of effective school leadership. This paper will also address the feasibility of the study and identify areas for future research and consideration.

## **1. Introduction**

The pilot conducted between September 2013 and February 2014 tested the feasibility of the research on leadership. The format of the pilot consisted of the evaluation of quantitative longitudinal data and a series of interviews and surveys with recognized educational leaders from the Eastern School District in Newfoundland. This paper addresses the 9 criteria for the Pilot Study Report for the Henley Business School, University of Reading.

## **2. Purpose of study**

The purpose of this research project is twofold. The primary purpose is to determine the interest of leaders in the area of leadership development in relation to the traits, skills, and behaviours of successful school leaders as related to organizational success. Secondly, it was to conduct an initial quantitative analysis of the panel of data as well as garner both feedback on the results and suggestions for further data to investigate. This pilot study will allow me to test the feasibility of my draft research proposal in terms of its scope, approach and design and possible limitations. It will also determine if other data sources need to be considered such as the use of a standardized leadership profile to assess the traits of successful leaders or to identify high potential candidates.

## **3. Research for the Design Feasibility**

Using 9-year longitudinal data of schools and leaders in my organization, I explored the relationship between the school leader and student success. Data includes student achievement results, student and leader demographics and changes in school leadership. Quantitative analysis was conducted to explore the relationship between successful schools and leadership. Aligned with current research (Leithwood and Mascall, 2008; Robinson, Lloyd, and Rowe, 2008; Sammons, Gu, Day and Ko, 2011), this study tests the direct impact of the school leader, i.e., school principal, variables on student achievement. Specifically, the variables of principal gender, seniority and principal changes at the school are investigated along with other indirect variables such as demographics and socioeconomic status.

In order to explore the feasibility of my research question, two key components were explored: 1) Exploratory data analysis of longitudinal data and 2) thought leader surveys and interviews. The findings of each are explained in detail in subsequent sections of this paper. The feedback on the research proposal resulted from verbal comments made during the semi-structured interviews and survey findings. Verbal feedback from current leaders was useful in refining both scope of the research and the research design.

## **Current Literature and Research Perspective**

The findings from this study clearly link to the research reviewed in the initial working paper in both business and education fields. Emergent findings both directly and indirectly link to the literature on transformational leadership, change management, high potentials and leadership development that was reviewed in the initial working paper.

Careful attention was given to ensure that the current literature had been thoroughly reviewed. Since the completion of the initial working paper, several key pieces of research have emerged and provided additional information related to the research topic. The use of Google Alerts has provided regular updates for the researcher on current trends in the literature in this field and will be used in the development of the research proposal as well as current reading in academic journals in both business and education.

### **4. Research for the Design Feasibility**

#### **5. Part 1: Exploratory Data Analysis**

#### **6. Data Overview**

The sample consists of 9 years of data of 116 schools in the former Eastern School District. For the purposes of this study, I have only included schools that are currently in existence in the 2013-2014 school year.

A time series panel of data (2004-2012) related to the 116 schools including student achievement results, school and community demographics and a listing of school principals was produced. Panel analysis, a quantitative method common in the social sciences, was conducted on this multidimensional data through the use of statistical regressions.

Data were gathered from government websites and categories for each variable were identified. Data were coded to ensure confidentiality despite the public nature of the information. The primary database consists of 1,048,575 observations on 70 separate variables.

#### **7. School Leadership**

School leaders, specifically principals, have been noted for each year since 2004. At this time, assistant principals have not been included in the data, which may be considered a limitation for later work. Changes in leadership at the school level have also been indicated as first, second or third order change. Data has been coded related to the principals' gender and their seniority is noted as years of service with the average seniority of the principals at 22.36 years (Table 1).



**Table 1: Principal Years of Service**

Variable	Obs	Mean	Std. Dev.	Min	Max
Years of Service	1037	22.36123	6.82465	1	37.73

Of the 116 schools, 19% (x=22) have not had changes in leadership. 81% of schools had a first principal change, 14% had a 2nd principal change and 2% had a third principal change in the span of 9 years. While there is a 44% female / 56% male gender breakdown in principalships across the district, at the high school level, the gender breakdown is quite different- 25% female versus 75% male.

## **8. School Demographics**

For each school listed, information regarding grade level configurations, student population, student attendance rates and urban and rural settings have been collated.

## **9. Socioeconomic Indicators**

Information is provided for each school using information compiled by the District in 2008 based on census and community accounts data from Statistics Canada and its provincial counterpart. This data is a proxy for the level of parent education and income per capita.

## **10. Student Achievement Results**

Yearly provincial assessments are conducted at Grades 3, 6 and 9 in the subject areas of Math and Language Arts. These results are included in the panel. While these assessments are not standardized in comparison to other international assessments like the Programme for International Student Assessment (PISA) conducted annually by the Organisation for Economic Co-operation and Development (OECD), they do assess key stage outcomes in Language and Math.

The Primary and Elementary assessments are conducted at the Grades 3 and 6 levels in both Math and Language Arts. There is no comprehensive grade. Instead, results are provided based on rubrics for students achieving at Level 3 or higher, the provincial standard. Yearly assessments may also assess different program strands.

The Intermediate Provincial Assessment, conducted in Grade 9, does include a comprehensive grade but also notes students achieving at Level 3 or higher, the provincial standard. Results are provided for both Math and Language Arts.

At the high school level, provincial assessments are also completed in specific course areas- Math, Social Studies, French, English and the Sciences. All of these are included in the dataset. These courses are part of the provincial curriculum and essential to high school graduation. Courses listed are also indicative of the rigor of the academic program provided at each school in terms of honors, academic or general graduation status.

### **11. Graduation Rates**

For schools with senior high status, both retention and graduation rates are included in the data. They are further delineated to include the status of the student upon graduation i.e. honors, academic or general graduation status based on student achievement results.

Regression analysis was conducted using the majority of identified variables.

### **12. Reliability and Correlation Analysis**

Regression analysis was conducted using the majority of identified variables and results are reported in Appendix A. Rather than use the specific high school course assessment variables, for the purposes of this study, the graduation rates are used student achievement indicators. At the grade 9 level, the composite (total) scores were used for the achievement variable. Grade 3 and 6 achievement data were used individually since a composite score is not provided.

### **13. Linear Regressions**

Linear regressions were conducted to identify the relationship between the principal and student achievement. The hypothesis states:

H<sub>0</sub>,achievement: principal leadership does not have an impact on student achievement  
The alternative hypothesis states:

H<sub>A</sub>achievement: principal leadership does have an impact on student achievement

To explore the relationship between student achievement and the leadership variables that may impact it, regression analysis is conducted to determine the predictive power of the variables as well as their relative contribution.

The purpose of this pilot study is to identify these independent leadership variables and, thus, the model has not been fully defined. Each variable will be explored in terms of its statistical significance and possible inclusion in the final regression model. The fit of the initial model will also be assessed at this time.

Therefore, tests for assumptions with respect to the independence of observations, linearity, homoscedasticity, multicollinearity, and detection of unusual points and normality of residuals will be conducted after the feasibility is explored further.

The impact of each variable will be determined through a review of the t-statistics (t- tests) and significance values. Where t-statistics are greater than  $\pm 1.96$ , or significance values (p) lower than 0.05, the coefficient is considered to be statistically significantly different from zero, at a 95% confidence interval. Therefore, variables will be considered statistically significant if  $p < 0.05$  and  $t > \pm 1.96$ . In the case of statistical significance, consideration will also be given to the size of the estimated effects (i.e., the coefficient values).

#### **14. Initial Findings**

Regressions were conducted on each independent variable identified in the data. The results are reported in Table 3, Appendix A. Variables that were not considered statistically significant ( $t < \pm 1.96$ ,  $p > 0.05$ ) were reviewed. While some were dropped, others such “principal gender” ( $t = 1.77$ ,  $p = 0.02$ ) were explored in terms of the confidence interval. Table 2 provides a summary of the findings related to the principal variables in terms of the hypothesized relationship with student achievement.

**Table 2: Summary of Findings**

Variable	Comments	Hypothesized relationship
<b>Principal Gender</b>	Generally, the principal gender variable has a small/moderate impact on high school graduation results, some Grade 6 Language Arts results and attendance and retention rates.	No relationship
<b>Principal Seniority</b>	Small-Moderate correlation between years of service and honors graduation, general graduation, Grade 9 LA, and attendance rates	Strong relationship
<b>First Principal Change</b>	Highest number of correlations at all Grade levels (3,6,9, high school) and subject levels as well as attendance and retention rates	Moderate positive relationship
<b>2nd Principal Change</b>	Second highest number of correlations- high school grad rates, Grade 6 LA, Grade 9 LA, Grade 3, 6 and 9 Math and attendance	Moderate relationship
<b>3rd Principal Change</b>	Third highest number of correlations- General and high School grad rates, Grade 3 Reading, Grade 6 reading, Grade 9 LA, grade 3 and 6 Math	Small relationship

### 15. Other Variables to Consider

While the variables above are directly related to the principal, other variables of significance are noted in the regression tables (Appendix A). Table 2.1 provides a summary of these findings.

**Table 2.1: Other Variables for Consideration**

Variable	Comments	Hypothesized Relationship
School Community (Rural vs. Urban)	Impact at the high school level	Strong relationship
Student Population	Impact on high school achievement results	Strong relationship
Income per capita	Impact on high school results	Strong relationship at all levels
Attendance Rate	Impact on high school results	Strong relationship at all levels
School Configuration	Impact on high school results	Strong relationship at high school level

### 16. Fit of the Model

Given the identified variables that were statistically significant, initial models were derived for several student achievement variables- Graduation Rate and Honours Graduation Rate. The

strength of the models was tested through linear regression analysis. In order to assume a normal distribution, several assumptions of normality were also tested.

### **17. Multicollinearity**

The presence of multicollinearity implies that two or more of the independent variables are highly correlated, in which case one cannot identify the independent effects each of the correlated variables is having on the dependent variable. In the presence of multicollinearity, the estimates of the standard errors is biased upwards, thus reducing the t statistics. The correlation coefficients were checked using the Pearson Correlation.

Multicollinearity would be present if any of the variables exceed 0.700. Since this is not evident, there is no evidence of multicollinearity.

### **18. Independence of Observations**

The Durbin Watson statistic test is used to ensure the residuals from a regression are independent over time – that is, whether the data is autocorrelated. This statistic is always between 0 and 4 with a value of 2 indicative of no autocorrelation in the sample. The “Graduation” model returned a statistic value of 1.36 and the “Honours” model a value of 1.12. While not strong, it is closer to 2 than 0 and we can carefully consider the observations as independent.

### **19. Determining the Fit of the Model**

The fit of the model assesses the quality of prediction of the dependent variable and is assessed based on these values: R, R<sup>2</sup>, Adjusted R<sup>2</sup> and the standard error of the estimate

### **20. Multiple Correlation Coefficient (R), Total Variation (R<sup>2</sup> and Adjusted R<sup>2</sup>)**

The R-value is one measure of the quality of prediction. Values range from 0 to 1 and values increase as the independent variables become better at predicting the values of the dependent variable. For the “Honours Graduation” model, an R-value of 0.229 indicates a model with a 22.9% level of prediction. The R-Square (R<sup>2</sup>) value denotes the coefficient of determination and represents the amount of variance in the dependent variable as explained by the independent variables (Hair et al., 2010). An R<sup>2</sup> value of 0.053 indicates that the independent variables explain 5.3% of variability in the dependent variable. The Adjusted R<sup>2</sup> value of 0.039 implies the independent variables explain only 3.9% of the variability in the dependent variable.

## **21. Implications for Techniques of Data Analysis and Limitations**

Initial regression analysis suggests the need to explore further leadership variables in order to build a stronger model for prediction. It is possible to gather further quantitative evidence from a variety of data sources to include information about school climate and culture as well as more recent demographical information. Given the quantitative nature of this data set, it also suggests that a standardized psychometric for leadership be explored to provide further statistical evidence. It may be argued that to fully develop the model, stronger qualitative evidence may need to be gathered and a mixed methods approach applied.

While correlations in the data are evident, causality is not implied. Further investigation using multiple methods is required to make causal claims.

## **22. Part 2- Surveys and Interviews with Thought Leaders**

### **23. Identification of Sampling Frame, Recruitment Approaches and Issues**

With initial statistical analysis conducted, the primary research findings were shared with educational leaders across the district. For the purposes of this pilot study, 12 school leaders were chosen to take part in the review of the findings and interviewed to review the identified variables and discuss in terms of missing data and future direction for the research. Initial findings were discussed in light of their own practice and experience.

Research instruments included a survey developed by the researcher as well as interview questions based on the primary data analysis.

Twelve recognized leaders were surveyed and/or interviewed for this study. Initial communication with them outlined the purpose of their involvement. The leaders selected represented a range of teachers, principals, senior district staff, university faculty and the Director of Education. These leaders were representative of the sample population based on school location (rural, urban) experience, gender, and school configuration. Initial contact was made via email invitation. All of the identified leaders agreed to participate. Surveys were developed using an online survey instrument (SurveyMonkey) and completed prior to the interview. Interviews were conducted face-to-face at a site of the leader's choice and recorded for transcription purposes. Protocols were established prior to the interview with confidentiality ensured.

The purpose of the surveys and interviews was to identify gaps in the research along with further variables for consideration. Hair et al. (2010) suggest that sharing the findings results will allow the researcher to identify missing data that “are a property of the population to which we seek to generalize” (p. 51).

#### **24. The Survey and Interview Findings**

A survey was conducted using similar variables included in the dataset. Survey items included Likert scales, item ranking and yes/no items. Participants were invited to provide feedback on items to be included for future consideration.

Future interviews for subsequent research will be designed using appropriate quantitative sampling procedures that will be outlined in the subsequent research proposal. A reliability analysis was not conducted on the survey items in the sense it is for exploratory purposes only as part of the pilot study.

Semi-structured interviews were conducted over a two-week period. A priori questions were identified to ensure key ideas were covered. Written notes were taken during the interview as well as a recording for referencing purposes. Keywords and ideas were identified as a result related to the intent of this study.

All participants identified similar variables of interest (principal gender, rural, urban, principal change). What clearly emerged from the interviews was that further investigation is required into the traits and behaviours of principals along with the continued demand for professional development, early leader identification, and development as well as a continued focus on student achievement as “the first line of business” (Collins, personal communication, 2014). The interview findings suggest the need to employ multiple methods of data collection to delineate variables of leadership coupled with the current panel data.

#### **25. Part 3: Implications and Recommendations**

##### **26. Research Instruments/Interview Protocols and their Adequacy**

In order to ensure an appropriate representative sample size, along with the vast geographical context of the district, an online structured questionnaire will be developed. Attention will also be given to the inclusion of open-ended questions to allow the respondents to express opinions and attitudes as well as individual interviews with some respondents. As noted, the use of a standardized leadership assessment psychometric will also be considered for the research proposal.

## **27. Resource Issues**

The anticipated resource issues include the cost of the obtaining the standardized leadership profile, travel, and resources for interviews and administrative support for transcription and possible primary data gathering. Costs will be minimal due to the use of online resources and individual meetings will be arranged with current schedules in mind to maximize resource usage.

## **28. Identification of Sampling Frame, and Recruitment Approaches**

The survey sample for this pilot was small. I would suggest that further sampling be explored for future research and consideration be given to a standardized leadership assessment tool. It is considered that a sample size of between 100 and 200 leaders would be satisfactory.

The sampling frame will include the current 116 school identified in the dataset. Along with the principals of these schools, other sources were identified through this study.

These include participants in the district leadership training programs over the past years, graduate students enrolled in the Faculty of Education, assistant principals and high potentials currently seeking leadership roles in the district. Given the new school district structure, it may be possible to seek participation provincially as well.

## **29. Assessment of Limitations**

A review of the data and findings from both the survey and interviews suggests further data collection that focuses on school culture, leadership practices and behaviours, actions, and knowledge. Some strategies and practices were identified that are local in a context related to the identification of high potentials in a school (teachers, assistant principals) and how the principal builds on these talents to increase student achievement. Further exploration is justified on the impact of current succession planning involving high potentials since concerns were noted about the current selection process and program structure.

While the quantitative data is comprehensive, other available data sources will need to be explored and similar interview structures and surveys considered. Based on leader feedback, it will be helpful to use a broader conceptual framework for leadership for future research and discussions that encompasses traits, skills, and behaviours along with the quantitative evidence currently gathered. This points to the work of Dries and Pepermans (2012) and Leithwood et al. (2008) among others.



As discussed throughout this paper, further data collection is warranted to ensure a comprehensive picture of the traits, skills, and behaviours of school leaders is obtained. While this data is only representative of one region of the province, it is worthy to note that it is the largest, including both rural and urban settings. Currently, the researcher is also actively involved in the primary development of leadership learning opportunities for senior education leaders in the province. Given the work and national experience of the researcher, possible consultations with principals in other provinces may be explored in order to increase to the generalizability of the study. Of particular interest, would be to explore this work in relation to leadership development in Ontario due to the research links between their leader development and the work related to high performing district by Mourshed et al., (2010). Further interviews and surveys may be conducted with all three of these above-noted groups.

### **30. Recommendations: Developing the Research Question, Design and Plan**

The proposed research question was provided to the people consulted during the pilot phase. Resultant comments will lead to revisions. The final research design and plan will be reported in the subsequent Research Proposal.

### **31. Conclusion**

This feasibility study has been both productive and beneficial. An initial data panel was developed, statistical models were explored, the research was refined and relevant secondary data has been identified. The panel data and subsequent quantitative evidence recognized key findings that align with current research. While the regression models explored were slight in terms of prediction, the initial hypothesis was supported.

Suggestions and views from current thought leaders in the system were valuable and support the need for further research and work.

## Appendix A: Regression Analysis Data

Dependent Variables (y)	Independent Variables (x)			
Honours Graduation	0.027	1.99	0.002	3.42
Academic Graduation	-0.026	-1.77	n	1.42
General Graduation	-0.003	-0.17	-0.004	-3.89
Graduation Rate	n	n	n	n
Grade 3 Reading MC	n	n	n	-0.22
Grade 3 Demand Writing	n	n	0.002	-2.18
Grade 3 Listening MC	n	n	-0.001	-1.97
Grade 3 Poetic Reading	n	n	n	-0.49
Grade 3 Info Reading	n	n	n	-1.53
Grade 3 Visual Reading	n	n	n	-0.32
Grade 3 Listening	n	n	n	-1.29
Grade 6 Reading MC	-0.013	-2.48	n	0.35
Grade 6 Demand Writing	-0.22		n	-0.78
Grade 6 Listening MC	n	n		0.48
Grade 6 Poetic Reading	n	n	n	-1.12
Grade 6 Info Reading	-0.049	-3.35	n	-1.01
Grade 6 Visual Reading	n	n	n	
Grade 6 Listening	-0.0401	-2.19	na	
Gr 9 LA Total	n	n	0.001	2.2
Grade 3 Math MC	n	n	n	
Gr 3 Reasoning	n	n	n	
Gr3 Communicating	n	n	n	
Gr3 Connections/Rep	n	n	n	
Gr3 Problem Solving	n	n	n	
Grade 6 Math MC	n	n	n	
Gr6 Reasoning	n	n	n	
Gr6 Communications	n	n	n	
Gr6 Connections/Rep	n	n	n	
Gr6 Problem Solving	n	n	n	
Gr 9 Math Total	n	n	na	
Attendance Rate	-0.016	-7.43	0.0003	2.21
Retention Rate	0.611	2.54	-0.085	-5

<b>Honours Graduation</b>	0.026	2.21	0.027	1.88	n	n
<b>Academic Graduation</b>	-0.011	-0.9	n		n	
<b>General Graduation</b>	-0.011	-0.75	n		0.091	2.18
<b>Graduation Rate</b>	0.014	2.38	0.02	2.61	0.044	2.62
<b>Grade 3 Reading MC</b>	n	n	-0.045	-3.56	-0.089	-3.1
<b>Grade 3 Demand Writing</b>	n	n	n		n	
<b>Grade 3 Listening MC</b>		n	n	n	n	
<b>Grade 3 Poetic Reading</b>	0.05	2.99	n		n	
<b>Grade 3 Info Reading</b>	0.035	2.13	n		n	
<b>Grade 3 Visual Reading</b>	0.078	2.91	n		n	
<b>Grade 3 Listening</b>	0.04	2.25			n	
<b>Grade 6 Reading MC</b>			-0.02	-2.49	-0.038	-2.22
<b>Grade 6 Demand Writing</b>	-0.044	-3.84	-0.44	-2.63	n	
<b>Grade 6 Listening MC</b>	-10	1.02	-0.045	-2.57	n	
<b>Grade 6 Poetic Reading</b>	-0.056	-3.81	n		n	
<b>Grade 6 Info Reading</b>	-0.018	-1.21	n		n	
<b>Grade 6 Visual Reading</b>	-0.87	-3.54	n		n	
<b>Grade 6 Listening</b>	-0.064	-3.4	-0.065	-1.93	n	
<b>Gr 9 LA Total</b>	-0.029	-3.44	-0.048	-4.49	-0.091	-3.86
<b>Grade 3 Math MC</b>	0.029	4.25	n	n	n	
<b>Gr 3 Reasoning</b>	0.14	7.05	0.15	4.5	n	
<b>Gr3 Communicating</b>	0.155	7.72	0.168	4.98	0.261	2.89
<b>Gr3 Connections/Rep</b>	0.16	7.73	0.162	4.65	n	
<b>Gr3 Problem Solving</b>	0.138	7.15	0.159	4.95	0.244	2.83
<b>Grade 6 Math MC</b>	-0.006	-0.76	n		n	
<b>Gr6 Reasoning</b>	0.089	4.37	0.118	3.79	0.253	3.05
<b>Gr6 Communications</b>	0.796	3.94	0.112	3.62	0.214	2.58
<b>Gr6 Connections/Rep</b>	0.046	2.34	0.087	2.92	0.227	2.86
<b>Gr6 Problem Solving</b>	0.059	2.99	0.089	2.97	0.175	2.19
<b>Gr 9 Math Total</b>	0.016	1.53	0.041	2.71	n	
<b>Attendance Rate</b>	-0.012	-5.49	-0.022	-7.25	n	
<b>Retention Rate</b>	0.68	2.81	n		n	

Honours Graduation	-0.104	-9.22	0.113	0.113
Academic Graduation				
General Graduation				
Graduation Rate	0.0547	8.95	-0.0536	-0.0536
Grade 3 Reading MC				
Grade 3 Demand Writing				
Grade 3 Listening MC				
Grade 3 Poetic Reading				
Grade 3 Info Reading				
Grade 3 Visual Reading				
Grade 3 Listening				
Grade 6 Reading MC				
Grade 6 Demand Writing				
Grade 6 Listening MC				
Grade 6 Poetic Reading				
Grade 6 Info Reading				
Grade 6 Visual Reading				
Grade 6 Listening				
Grade 9 LA Total				
Grade 3 Math MC				
Grade 3 Reasoning				
Grade 3 Communicating				
Grade 3 Connections/Rep				
Grade 3 Problem Solving				
Grade 6 Math MC				
Grade 6 Reasoning				
Grade 6 Communications				
Grade 6 Connections/Rep				
Grade 6 Problem Solving				
Grade 9 Math Total				
Attendance Rate				
Retention Rate				

	Income per Capita (p)	Income per Capita (t)	Student Population (p)	Student Population (t)
Honours Graduation	0	5.21	0	8.74
Academic Graduation	n		0	3.03
General Graduation	0	-5.41	-0.0002	-9.29
Graduation Rate	n	n	-0.00012	-10.64
Grade 3 Reading MC	n		n	
Grade 3 Demand Writing	n		n	
Grade 3 Listening MC	n		n	
Grade 3 Poetic Reading	n		n	
Grade 3 Info Reading	n		n	
Grade 3 Visual Reading	n		n	
Grade 3 Listening	n			
Grade 6 Reading MC	4.03e	3.22	0.0004	2.55
Grade 6 Demand Writing	n		n	
Grade 6 Listening MC	n		n	
Grade 6 Poetic Reading	n		n	
Grade 6 Info Reading	8.58e	2.76	n	
Grade 6 Visual Reading	n		n	
Grade 6 Listening	n		n	
Grade 9 LA Total	n			
Grade 3 Math MC	n		n	
Grade 3 Reasoning	n		-0.0001	-2.37
Grade 3 Communicating	n		-0.0001	-2.3
Grade 3 Connections/Rep	n		n	
Grade 3 Problem Solving	n		n	
Grade 6 Math MC	n		n	
Grade 6 Reasoning	n		n	
Grade 6 Communications	n		n	
Grade 6 Connections/Rep	n		-0.0001	-2.01
Grade 6 Problem Solving	n		n	
Grade 9 Math Total	n		n	
Attendance Rate	n		-0.00004	-7.28
Retention Rate	n		-0.0012	-1.96

	Attendance Rate (p)	Attendance Rate (p)	Retention Rate (t)	Retention Rate (t)
Honours Graduation	-0.402	-2.56	-0.005	-1.32
Academic Graduation				
General Graduation				
Graduation Rate	0.569	7.11	0.0044	2.41
Grade 3 Reading MC				
Grade 3 Demand Writing				
Grade 3 Listening MC				
Grade 3 Poetic Reading				
Grade 3 Info Reading				
Grade 3 Visual Reading				
Grade 3 Listening				
Grade 6 Reading MC				
Grade 6 Demand Writing				
Grade 6 Listening MC				
Grade 6 Poetic Reading				
Grade 6 Info Reading				
Grade 6 Visual Reading				
Grade 6 Listening				
Grade 9 LA Total				
Grade 3 Math MC				
Grade 3 Reasoning				
Grade 3 Communicating				
Grade 3 Connections/Rep				
Grade 3 Problem Solving				
Grade 6 Math MC				
Grade 6 Reasoning				
Grade 6 Communications				
Grade 6 Connections/Rep				
Grade 6 Problem Solving				
Grade 9 Math Total				
Attendance Rate				
Retention Rate				

Honours Graduation	-0.085	-7.74	0.098	8.4	-0.032	-2.09
Academic Graduation						
General Graduation						
Graduation Rate	0.05	8.62	-0.0537	-8.53	n	n
Grade 3 Reading MC						
Grade 3 Demand Writing						
Grade 3 Listening MC						
Grade 3 Poetic Reading						
Grade 3 Info Reading						
Grade 3 Visual Reading						
Grade 3 Listening						
Grade 6 Reading MC						
Grade 6 Demand Writing						
Grade 6 Listening MC						
Grade 6 Poetic Reading						
Grade 6 Info Reading						
Grade 6 Visual Reading						
Grade 6 Listening						
Grade 9 LA Total						
Grade 3 Math MC						
Grade 3 Reasoning						
Grade 3 Communicating						
Grade 3 Connections/Rep						
Grade 3 Problem Solving						
Grade 6 Math MC						
Grade 6 Reasoning						
Grade 6 Communications						
Grade 6 Connections/Rep						
Grade 6 Problem Solving						
Grade 9 Math Total						
Attendance Rate						
Retention Rate						

### 32. Appendix B: Variables and Data Sources

Principal Variables/Codes	Source
Principal Gender / (0=Female, 1=Male)	Eastern School District- Directory
Principal Seniority	Eastern School District- Seniority Listing
First Principal Change/ (1PC)	Eastern School District- Directory
Second Principal Change/ (2PC)	Eastern School District- Directory
Third Principal Change/ (3PC)	Eastern School District- Directory
School Location	
Rural	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Urban	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
School Configuration	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
K-6	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
K-Level 4	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 7-Level 4	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 7-9	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Level 1-4 (High School)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Population	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Parent Education/Income Level	
< Grade 9	Statistics Canada/Eastern School District
Grade 9-12	Statistics Canada/Eastern School District
High School Graduation	Statistics Canada/Eastern School District
Trade or Some Postsecondary	Statistics Canada/Eastern School District
Some University	Statistics Canada/Eastern School District
Bachelor's Degree	Statistics Canada/Eastern School District
Above Bachelor's Degree	Statistics Canada/Eastern School District
Income per capita	Statistics Canada/Eastern School District
Student Achievement Variables	
Honours Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Academic Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
General Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Graduation Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Reading Multiple Choice (MC)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Listening MC	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Demand Writing	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Poetic Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Informational Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Visual Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Listening	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Reading Multiple Choice (MC)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Listening MC	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Demand Writing	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Poetic Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )



Grade 6 Informational Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Visual Reading	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Listening	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 9 Language Arts (Composite)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade3 Math MC	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Reasoning	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Communication	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Connections and Representations	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 3 Problem Solving	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Math MC	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Reasoning	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Communication	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Connections and Representations	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 6 Problem Solving	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Grade 9 Math (Composite)	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Other Variables	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Attendance Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )
Student Retention Rate	Education Statistics ( <a href="http://www.gov.nl.ca/edu">www.gov.nl.ca/edu</a> )

	I S	IS 1	IS 2	IS 3	IM	IM 1	IM 2	IM 3	IC	IC 1	IC 2	IC 3	IB	IB 1	IB 2	IB 3	IA	IA 1	IA 2	IA 3	
Correlation	IS 00	1.00	.419	.474	.382	.356	.362	.415	.422	.325	.329	.221	.483	.260	.510	.427	.414	.382	.524	.467	.190
	IS 19	.419	1.000	.318	.287	.476	.322	.289	.241	.334	.410	.029	.426	.437	.384	.427	.372	.502	.414	.457	.282
	IS 24	.478	.318	1.000	.594	.264	.355	.423	.439	.400	.428	.345	.632	.204	.450	.407	.513	.339	.511	.452	.180
	IS 32	.387	.288	.594	1.000	.316	.322	.394	.351	.403	.400	.139	.528	.224	.457	.379	.437	.288	.543	.416	.178
	I M6	.356	.476	.264	.316	1.000	.489	.543	.448	.247	.363	-.010	.377	.392	.525	.408	.403	.549	.399	.453	.315
	I M21	.362	.322	.355	.322	.489	1.000	.691	.493	.211	.245	.089	.409	.258	.644	.422	.553	.419	.434	.470	.305
	I M25	.419	.288	.423	.394	.543	.691	1.000	.676	.295	.381	.084	.476	.206	.751	.543	.649	.519	.590	.580	.397
	I M32	.422	.241	.439	.351	.448	.493	.676	1.000	.205	.391	.162	.488	.186	.604	.504	.602	.467	.522	.549	.218
	I C5	.325	.334	.407	.403	.247	.215	.295	.205	1.000	.297	.166	.360	.310	.300	.215	.216	.253	.365	.348	.066
	I C19	.329	.410	.428	.403	.365	.245	.381	.391	.297	1.000	.178	.579	.180	.419	.518	.409	.520	.532	.570	.092

IC 2 1	.22 9	.02 5	.34 9	.13 9	-.01 0	.08 9	.08 4	.16 2	.16 6	.17 8	1.0 00	.21 7	.03 8	.05 1	.09 9	.15 2	.03 7	.14 4	.15 3	.06 5
IC 3 3	.48 6	.42 2	.63 8	.52 8	.37 7	.40 9	.47 6	.48 8	.36 0	.57 9	.21 7	1.0 00	.20 7	.56 2	.50 3	.48 5	.54 1	.60 4	.64 2	.17 3
IB 0	.26 7	.43 4	.20 4	.22 4	.39 2	.25 8	.20 6	.18 6	.31 0	.18 0	.03 8	.20 7	1.0 00	.33 0	.27 1	.28 8	.31 8	.18 2	.24 8	.23 8
IB 1 0	.51 4	.38 0	.45 0	.45 7	.52 5	.64 4	.75 1	.60 4	.30 0	.41 9	.05 1	.56 2	.33 0	1.0 00	.59 4	.73 3	.51 9	.57 2	.57 3	.32 4
IB 2 7	.42 7	.42 7	.40 7	.37 9	.40 8	.42 2	.54 3	.50 4	.21 5	.51 8	.09 9	.50 3	.27 1	.59 4	1.0 00	.48 3	.45 6	.56 5	.60 8	.27 3
IB 3 4	.41 2	.37 3	.51 3	.43 7	.40 3	.55 3	.64 9	.60 2	.21 6	.40 9	.15 2	.48 5	.28 8	.73 3	.48 3	1.0 00	.41 4	.57 2	.51 4	.28 6
IA 2	.38 2	.50 9	.33 8	.28 8	.54 9	.41 9	.51 9	.46 7	.25 3	.52 0	.03 7	.54 1	.31 8	.51 9	.45 6	.41 4	1.0 00	.44 1	.60 2	.28 3
IA 1 4	.52 4	.41 4	.51 1	.54 3	.39 9	.43 4	.59 0	.52 2	.36 5	.53 2	.14 4	.60 4	.18 2	.57 2	.56 5	.57 2	.44 1	1.0 00	.61 3	.17 4
IA 2 7	.46 7	.45 7	.45 2	.41 6	.45 3	.47 0	.58 0	.54 9	.34 8	.57 0	.15 3	.64 2	.24 8	.57 3	.60 8	.51 4	.60 2	.61 3	1.0 00	.15 5
IA 3 0	.19 2	.28 0	.18 0	.17 8	.31 5	.30 5	.39 7	.21 8	.06 6	.09 2	.06 5	.17 3	.23 8	.32 4	.27 3	.28 6	.28 3	.17 4	.15 5	1.0 00

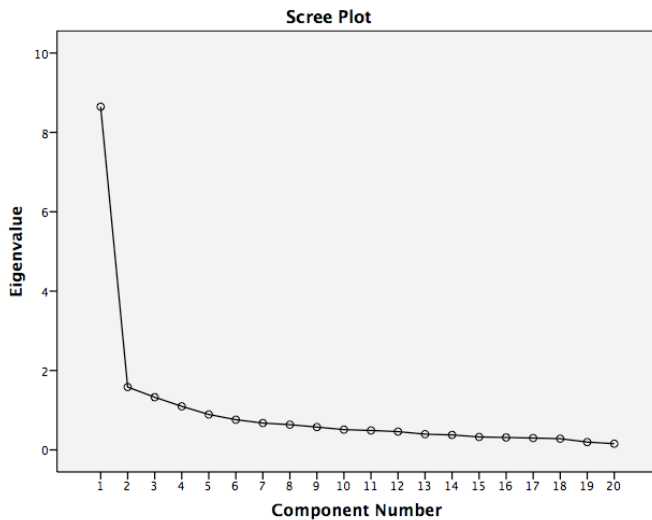
## Appendix G - Data Analysis

### Correlation Matrix

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.	.923	
Bartlett's Test of Sphericity	Approx. Chi-Square	1792.412
	df	190
	Sig.	.000

Communalities	Initial	Extraction
	IS	1.000
IS1	1.000	.681
IS2	1.000	.708
IS3	1.000	.522
IM	1.000	.610
IM1	1.000	.643
IM2	1.000	.810
IM3	1.000	.647
IC	1.000	.515
IC1	1.000	.668
IC2	1.000	.522
IC3	1.000	.693
IB	1.000	.660
IB1	1.000	.760
IB2	1.000	.563
IB3	1.000	.662
IA	1.000	.639
IA1	1.000	.658
IA2	1.000	.707
IA3	1.000	.522
Extraction Method:		Principal Component Analysis

Total Variance Explained						
Component	Initial Eigenvalues	Extraction Sums of Squared Loadings				
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	8.647	43.233	43.233	8.647	43.233	43.233
2	1.583	7.917	51.151	1.583	7.917	51.151
3	1.327	6.637	57.788	1.327	6.637	57.788
4	1.097	5.486	63.275	1.097	5.486	63.275
5	.893	4.465	67.740			
6	.761	3.804	71.543			
7	.676	3.379	74.922			
8	.636	3.178	78.100			
9	.575	2.873	80.974			
10	.510	2.551	83.525			
11	.489	2.447	85.972			
12	.460	2.301	88.274			
13	.396	1.980	90.254			
14	.377	1.884	92.139			
15	.326	1.629	93.768			
16	.313	1.563	95.331			
17	.299	1.493	96.824			
18	.282	1.411	98.235			
19	.197	.986	99.221			
20	.156	.779	100.000			
Extraction Method:		Principal Component Analysis.				



Component Matrix <sup>a</sup>	Component			
	1	2	3	4
IB1	.822			
IM2	.789		-.327	
IA2	.784			
IA1	.771			
IC3	.763			
IB3	.753			
IB2	.721			
IM3	.715		-.353	
IA	.697			
IM1	.671	-.325		
IS2	.670	.447		
IM	.648	-.377		
IC1	.647			-.405
IS	.646			
IS3	.623	.335		
IS1	.596		.559	
IC	.466	.335	.370	
IC2		.518		.437
IB	.416		.579	.319
IA3	.375	-.424		.447
Extraction Method:	Principal Component Analysis			
a. 4 components extracted				

Monte Carlo PCA for Parallel Analysis

Version 2.3

4/12/17 10:49:30 AM

Number of variables: 20

Number of subjects: 191

Number of replications: 100

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Eigenvalue #    Random Eigenvalue    Standard Dev

+++++

1	1.6228	.0808
2	1.5131	.0425
3	1.4203	.0446
4	1.3385	.0354
5	1.2739	.0362
6	1.2118	.0315
7	1.1502	.0313
8	1.0977	.0280
9	1.0406	.0246
10	0.9945	.0262
11	0.9440	.0251
12	0.8956	.0251
13	0.8473	.0260
14	0.8068	.0272
15	0.7588	.0253
16	0.7130	.0235
17	0.6670	.0251
18	0.6217	.0281
19	0.5705	.0288
20	0.5120	.0304

+++++

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Monte Carlo PCA for Parallel Analysis

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Component	Initial Eigenvalues From PCA	Criterion V	Decision
1	8.647	1.62	accept
2	1.583	1.51	accept
3	1.327	1.42	reject
4	1.097	1.34	reject
5	.893	1.27	reject
6	.761	1.21	reject
7	.676	1.15	reject
8	.636	1.10	reject
9	.575	1.04	reject
10	.510	0.99	reject
11	.489	0.94	reject
12	.460	0.90	reject
13	.396	0.85	reject
14	.377	0.81	reject
15	.326	0.76	reject
16	.313	0.71	reject
17	.299	0.67	reject
18	.282	0.62	reject
19	.197	0.57	reject
20	.156	0.51	reject
Extraction Method:	Principal Component Analysis.		