

ASSESSMENT LEADERSHIP: TWO CASES OF EFFECTIVE PRACTICE

A Thesis Submitted to the
College of Graduate Studies and Research
in Partial Fulfillment of the Requirements
for the degree of Master of Education
in the Department of Educational Administration
University of Saskatchewan
Saskatoon, Canada

By

Michael Bradford

University of Saskatchewan

College of Graduate Studies and Research

PERMISSION TO USE POSTGRADUATE THESIS

TITLE OF THESIS: Assessment Leadership: Two Cases of Effective Practice

NAME OF AUTHOR: Michael Bradford

COLLEGE: College of Graduate Studies and Research

DEGREE: Master of Education

In presenting this thesis in partial fulfillment of the requirements for a postgraduate degree from the University of Saskatchewan, I agree that the Libraries of this University shall make it freely available for inspection. I further agree that permission for extensive copying of this thesis for scholarly purposes may be granted by the professor or professors who supervised my thesis work, or in their absence, by the head of the Department or the Dean of the College in which my thesis work was done. It is understood that with the exception of UMI dissertations Publishing (UMI) that copying, publication or use of this thesis or parts thereof for financial gain shall not be allowed without my written permission. It is also understood that due recognition shall be given to me and to the University of Saskatchewan in any scholarly use which may be made of any material in my thesis.

Requests for permission to copy or to make use of material in this thesis, in whole or in part, should be addressed to:

Head of the Department of Educational Administration
University of Saskatchewan
Saskatoon, Saskatchewan
S7H 0X1

ABSTRACT

The effective use of formative assessment practices has resulted in some of the largest gains in student learning ever documented (Meisels, 2006; Davies 2007; Black & Wiliam 2006, 1998; Marzano 2006). Given this support in the literature for the connection between improving classroom assessment and increasing student learning, the critical question among school leaders no longer seems to be, "what classroom practices best improve student learning?" Instead, leaders interested in student learning through classroom assessment are increasingly driven to inquire into the conditions that will best foster effective assessment practices in the classroom.

The purpose of this study was to take cases of schools where changes in classroom assessment practices had increased student learning, and to examine both the practices of leadership that supported the assessment initiatives, and the ways in which these leaders were connected. In recent studies of school improvement efforts focused on classroom assessment, Wiliam (2004, 2007) and Reeves (2007) concluded that teachers required support across the entire school system in order to embed effective formative assessment practices into their instructional repertoire. Hargreaves (1999) and Fullan (2005) defined this type of systemic support as lateral and overall capacity. While Goleman (2006) and Barabasi (2009) pointed to the influence of the social network of learners surrounding an initiative, Fullan (2005) warned that learning networks also require quality and implementation controls in order to sustain changes. Wiliam (2007) defined this tension between educators learning from one another and being openly responsible for sharing new practices as "supportive accountability" (p. 199).

This study sought to inquire into leadership networks and leadership practices that supported schools in which an assessment initiative had resulted in improved student learning. Two elementary schools were selected for study following a nomination process by central-office staff. A chain-sampling methodology was used to identify individuals who were seen to play an important leadership role in initiating and sustaining assessment efforts in each school. In all, qualitative data were generated from interviews with ten participants, eight from within the selected schools, and two central-office support staff.

This study revealed several major themes in the leadership practices of leaders inside the schools: engagement in a range of formal and informal professional learning experiences by teachers and school administrators; application of assessment for learning principles to the overall work of the initiative; engagement in a multi-level learning community; and the integration of school and system-level plans. Additionally, participants described a cross-role network of leadership supports that seemed to infuse teachers and staff with the positive energy required to maintain a high level of commitment to the initiative. While all participants described feelings of frustration and discomfort with the elements of accountability to their peers, they also described valuing the high levels of active support they received from other teachers, school administrators, and central-office staff. Leadership practices within the context of a network or pattern of leadership relationships aimed at fostering effective levels of supportive accountability seem to be most effective.

ACKNOWLEDGEMENTS

I would like to express my appreciation to my advisor, Dr. Patrick Renihan, for his support and guidance. I learned so much through his mentorship, and I realize how fortunate I was to receive such timely, helpful feedback from him at every stage of this project. Thank you for making my work a priority in your very busy life; I couldn't have gotten through it without you!

Thank you also to my committee members Dr. Brian Noonan, Dr. Edwin Ralph, Dr. David Wipf (external), and to Dr. David Burgess and Dr. Bonnie Stelmach (committee chairs). Thank you also to Department Head Dr. Sheila Carr-Stewart for supporting me and getting me to the end of my program without too many hitches along the way.

I am so grateful to the participants in my study for sharing their time, knowledge and thoughtful approach to learning and teaching with me. It is from their generosity of spirit that I learned the most. Thank you for allowing me to learn from your experience.

Last but not least, thank you to my family for putting up with the mess I made and the late nights I spent working on this project. I love you and I promise never to do it again (at least, not right away)!

DEDICATION

To Shauna, Duncan, and Emma, who always love me no matter what I get myself into.

To Mom and Dad, the original members of my fan club.

To Bob and Anita, supporters of all of us, and makers of many a much-needed
home-cooked meal.

TABLE OF CONTENTS

PERMISSION TO USE.....	i
ABSTRACT.....	ii
ACKNOWLEDGEMENTS.....	iv
DEDICATION.....	v
TABLE OF CONTENTS.....	vi
LIST OF TABLES AND FIGURES.....	ix
CHAPTER ONE - INTRODUCTION.....	1
The Problem.....	1
Problem Statement.....	3
Research Questions.....	3
Significance of the Study.....	4
Definition of Terms.....	5
Assumptions and Parameters.....	7
Assumptions.....	8
Parameters.....	8
The Researcher.....	9
Organization of the Thesis.....	10
CHAPTER TWO - LITERATURE REVIEW.....	12
Introduction.....	12
Organizing Questions.....	13
Assessment and Student Learning: How Do Formative Assessment Practices Affect Student Learning?.....	13
Classroom Experience.....	15
Lessons from the Research on Classroom Learning.....	20
Assessment Leadership: What Can Leaders Do to Improve Classroom Assessment Practices?.....	21
Teacher Leadership.....	24
Principal Leadership.....	27
System Leadership.....	33
Does Leadership Influence Student Learning?.....	34
Conclusion.....	40
CHAPTER THREE - METHODOLOGY.....	43
Reviewing the Research Topic.....	43
Research Design.....	44
Data Collection Procedures.....	45
Phase One - Identifying the School Sites for Study.....	46
Phase Two - Identifying the Sample, and Instrumentation Used in the Study.....	47
Phase Three – Initial Analysis and Reflection on Findings.....	49

Phase Four – Follow up with Participants and Final Data Analysis.....	50
Establishing Trustworthiness	51
Ethical Guidelines.....	52
 CHAPTER FOUR - RESEARCH FINDINGS.....	 54
Nomination and Selection of School Sites.....	55
Sites and Respondents.....	59
Description of School Sites and Establishing Trustworthiness of School Nominations.....	60
School A Site Description and Nomination Trustworthiness	60
School B Site Description and Nomination Trustworthiness	64
Presentation of Data.....	67
Roles and Practices of Leaders in the School	68
<i>Engagement in a multi-level learning community</i>	<i>68</i>
<i>Integrates school and system-level plans, and uses student data in the professional learning design.....</i>	<i>76</i>
<i>Formal professional learning opportunities in the school</i>	<i>77</i>
<i>Informal professional learning opportunities in the school</i>	<i>83</i>
<i>Application of assessment for learning principles to the work of the assessment initiative.....</i>	<i>86</i>
Roles and Practices of Leaders Outside the School.....	92
Leadership Networks	98
<i>Background.....</i>	<i>99</i>
<i>Findings: Leadership networks.....</i>	<i>102</i>
Summary of Findings.....	111
Summary of Roles and Practices of Leaders Inside the School.....	111
Summary of Roles and Practices of Leaders Outside the School.....	114
Summary of Leadership Networks Surrounding the Schools.....	115
 CHAPTER FIVE - SUMMARY, DISCUSSION, AND IMPLICATIONS.....	 117
Summary of the Study	117
Overview of Findings and Discussion	119
Nomination of schools	119
Roles and Practices of Leaders Inside the Schools.....	120
<i>Ongoing formal and informal learning opportunities</i>	<i>120</i>
<i>Application of assessment for learning principles to the work of the assessment initiative.....</i>	<i>122</i>
<i>Engagement in multi-level learning community</i>	<i>123</i>
<i>Integration of school and system-level plans in the professional learning design.....</i>	<i>125</i>
Roles and Practices of Leaders Outside the School.....	125
Leadership Networks	127
Discussion.....	128
Impacts of Formal and Informal Professional Learning	129

Application of Assessment for Learning Principles to the Work of the Assessment Initiative	131
Leadership Networks	135
Implications.....	141
Implications for Leadership Practices.....	141
Implications for Policy.....	144
Implications for Theory	145
Implications for Future Research.....	146
Concluding Remarks: Reflections on the Research Journey	147
REFERENCES	150
APPENDICES	159
Appendix A: Application for Approval of Research Protocol.....	159
Appendix B: Letters of Transmittal	165
Appendix C: Consent.....	171
Appendix D: Data Collection Instruments.....	175

LIST OF TABLES AND FIGURES

Tables

Table 1.	<i>Comparison of Leadership Behaviors that Influence Student Achievement, as Described in Three Synthesis Studies</i>	38
Table 2.	<i>Aggregate Description of School Nomination Data Received from School Division Coordinators</i>	57

Figures

Figure 1.	<i>Close-up view of simple network</i>	101
Figure 2.	<i>School A leadership network</i>	104
Figure 3.	<i>School B leadership network</i>	108

CHAPTER ONE

The Problem

Teaching and learning appear to be in trouble in North America. A lot of attention is being paid to the formal enterprise of education, supposedly focused on teaching and learning, but the results are disappointing. Looking at graduation rates as one measure of the effectiveness of overall current practice is sobering. In the United States, graduation rates hover below 70% (Barton, 2005). Canadian students fare only slightly better, with an overall graduation rate of 75% (Statistics Canada, 2009). In Canada, graduation rates for people of Aboriginal descent are even more problematic: less than 30% of on-reserve First Nations students complete high school (INAC, 2008). Similarly, in the U.S., the Schott Foundation (Holzman, 2006) reported a national graduation rate for African American boys of 41%, with some states and many large cities showing rates around 30%. The implications of such outcomes for the sustainability of a democratic society are far reaching.

Dylan Wiliam (2007), a principal researcher in the area of classroom assessment, argued that “learning does not take place in schools. It takes place in classrooms, as a result of the daily, minute-to-minute interactions that take place between teachers and students and the subjects they study” (p. 1). Therefore, to improve student learning outcomes interventions should be developed that work directly on daily classroom instruction practices (Black and Wiliam, 1998; Elmore, 2004; Fullan, 2002; Fullan, Hill and Crevola, 2006). While such work may begin in one or two classrooms, a current challenge in education is to scale up this kind of initial success to encompass entire schools, and eventually, school systems. No matter how good the intervention’s theory

of action, and no matter how well designed its components, the design and implementation effort will fail without improvements in teachers' instructional and assessment practices. The design challenge of improving student learning is to improve classroom practice across classrooms, schools, and school systems.

In assessment for learning initiatives that have lead to increased student learning, little has been written about the effect of systemic leadership practices that make a difference to student learning, particularly beyond the role of the school principal. In studies of high-poverty districts that successfully improve student learning to significant degrees (Togneri & Anderson, 2003; Snipes, Doolittle, & Herlihy, 2002), leadership at the school and district level was identified as crucial to their success.

There is now some literature related to the critical role school principals play in helping teachers adapt improved assessment for student learning practices that increase student learning (Noonan & Renihan, 2006; Stiggins, 2002, 2001; Eisner, 1999). Murphy (1995) and Harris (2002) identified general instructional leadership processes and practices that should form the base of any school reform. However, their studies do not identify specific strategies principals were to use to initiate and sustain changes in assessment practices that lead to improved learning for students.

Some research focused on the effective practices of teacher-leaders as catalysts for assessment-focused professional development within the school (Wylie, 2008; Lyon, Gannon, & Cleland, 2007), and the resulting changes to teacher practice and student learning. I found no studies that described how systemic leadership practices influenced assessment initiatives that lead to improved student learning. Fullan (2005) and Black (2008) argued that changes to teacher practice of this nature require leadership and

support not only from the school principal and from teacher leaders, but from across an entire school system if these changes were to be sustained at high levels of quality over long periods of time. They concluded that this kind of sustained quality of change in teacher assessment practice is what will make the most difference to student learning.

Problem Statement

The purpose of this study was to examine the networks and practices of school-based and system leadership in schools where changes to classroom assessment practices resulted in increased student learning. The study had seven research questions:

Research Questions

This study focused on seven key questions about the pattern of leadership behaviors that existed in schools where changes to assessment practices made a difference to student learning:

1. In what ways did the practices of school-based leaders engage teachers in implementing and sustaining assessment for learning practices in schools where these changes led to increased student learning?
2. In what ways did the practices of leaders from outside the school engage teachers in implementing and sustaining assessment for learning practices in schools where these changes led to increased student learning?
3. What roles were played by leaders from inside the school in changing assessment for learning practices?
4. What roles are played by leaders from outside the school in changing assessment for student learning practices?

5. What was the perceived connection between school-based leadership networks and outside-the-school leadership networks surrounding the school?
6. Which leadership practices were seen to best support changes to classroom assessment practices?
7. What was the overall pattern of leadership that surrounded schools where changes to assessment for learning practices resulted in increased student learning?

Significance of the Study

Assessment for learning has resulted in the greatest increase in student achievement that has been documented to date (Meisels, 2006; Davies 2007; Black & Wiliam 2006, 1998; Marzano 2006). Given the clarity of the research that points to improved assessment practices as the most powerful way of improving student learning, the question education leaders need to ask is not, “what should teachers do in the classroom?” Rather, leaders of assessment initiatives need to ask the question, “What can I do to create the conditions for lasting, effective, assessment practices in classrooms?”

While school principals are often the key to effective assessment initiatives in schools (Stiggins, 2004), Wiliam (2007) argued that in order to substantially increase student learning, school leaders must think about improving assessment practices not only on a school by school basis, but on a classroom by classroom basis. Wiliam contended that high performing schools are collections of consistently high performing classrooms. This argument has serious implications for the practices of leaders across a school system in defining, supporting, and instituting assessment initiatives that lead to increased student learning in each classroom.

When developing new teaching practices, each classroom teacher has the potential to influence and be influenced by the leadership of fellow teachers, school-based administrators, and other educators in leadership roles across a school system. Who these individuals are depends on the teacher's professional relationships within the system, and which parts of the system are focused on supporting the work of the school. Thus, in order to implement assessment initiatives that result in increased student learning, educators in every position must attend to the question, "What can I do to create the conditions for lasting, effective assessment practices in the classrooms to which I am connected?"

Schlechty (2002) argued that central to any change in teacher practice that improves student learning is both student and teacher engagement. Shields and Vibert (2003), in a study drawing on national data on student engagement, showed the critical nature of a pedagogical approach to engagement to student learning. By examining the networks and practices of leadership in schools where teachers and students have engaged in major changes to their approach to assessment, I am hopeful that lessons learned by educators in these contexts can be applied where others attempt like-minded improvements to teaching and learning.

Definition of Terms

I present a list of terms used in the study regarding the leadership activities in schools where changes to assessment practices are making a difference to student learning:

Formative Assessment

Formative assessments is a planned process in which assessment-elicited evidence of students' learning is used by teachers on a moment-by-moment and day-by-day basis to adjust instruction, or it is used by students to assess and adjust their own learning tactics. This definition is a combination of definitions offered by Popham (2008) and Wiliam (2006).

Assessment Change

Assessment change occurs when a teacher adopts and implements as part of her instructional practice a new formative assessment strategy, or when she uses a formative assessment strategy already existing in practice in a different way, in order to improve student learning.

Assessment Leadership

Assessment leadership is defined as any action taken any member of the school community that helps educators in the learning community to more fully adapt and implement formative assessment practices in the classroom.

Leadership Network

In this study, while the term "assessment leadership" helps to define the practices of members of the learning community that promote improved assessment practices, the term "leadership network" describes the ways in which educators who were seen to play a leadership role were connected to other educators in the learning community.

The idea that networks of people can influence the implementation of new practice had its historical roots in social network theory (Festinger, Schachter and Back 1948). Wiliam (2007) and Wiliam, Steinburg, Bell, and Wylie (2008) observed that

teachers require supportive connection both inside and from beyond the school in order to sustain significant changes to classroom assessment practices.

Reeves (2008) argued that while a school change initiative may run through people in formal leadership positions, teacher-leaders to whom other educators are connected wield huge amounts of influence in causing other members of the network to learn and implement new instructional practices. Thus, “leadership network” refers to the ways educators in both formal and informal leadership roles are connected to other members of the learning community.

Snowball Technique

The snowball technique is an approach in which a group of cases is selected by asking one person to recommend another person who exhibits the phenomenon in question. It is also a process used in the literature, where sources for new information are derived from the citations in previously viewed studies.

Assumptions and Parameters

In order to ensure trustworthiness and avoid misrepresentation of data and findings, it is important to acknowledge the limitations and constraints existing in any research. By defining the field of inquiry the researcher places limits on the investigation as a way of developing a specific focus for the study. Assumptions about the field of study and questions under investigation are inherent in the research process. Therefore, assumptions and parameters exist that place limits on the generalizability of the results. The assumptions and parameters of this study are described in this section.

Assumptions

1. I assumed that perceptions of educators who identified school sites are trustworthy. This limitation was offset by triangulating the school-site selection by interviewing several educators with different roles in the system.
2. I assumed that people interviewed in the school selection process were able to respond accurately about the assessment changes in the schools.
3. I assumed that individuals interviewed about leadership practices were knowledgeable enough about the school to respond accurately.

Parameters

This inquiry was limited to the study of the educators' behaviors involved in the schools where changes to assessment practices had already improved as a result of these changes, as determined reputationally in the first phase of data collection. More broadly, the study focused on an urban school division with 44 elementary and 10 secondary schools, and approximately 10500 students. Data collection began in January, 2009.

Given the focused nature of the study, factors related to each school's unique context may affect the generalizability of the study's results and findings. Rather, the study's findings should be considered as a case of how leadership may affect classroom assessment practices in a school. Second, the possibility existed that the educators interviewed may have lacked knowledge about support, or hindrances that resulted in the actions of people not directly connected to their classroom. Given the snowball technique methodology used in the study, this lack of knowledge may have resulted in some perspectives being missed. Teacher inexperience, or data from teachers who joined the

school-site partway through the assessment initiative may have also been a factor that limited their ability to respond.

The Researcher

In order to better describe the context of this study, I include this section as an introduction to me as the researcher and as a clarification of what role I played in relation to this study.

My professional background and experiences within the school division by which I am employed during its first experience with a division-wide school improvement initiative may be seen as influential in my decision to conduct research in this area. From 2005-2008, I facilitated a division-wide literacy initiative focused on improving student reading comprehension with all K-12 students. As part of this work, I and a cohort of literacy teachers were involved in supporting teachers and school administrators with extensive professional development initiatives. From my position as facilitator of this initiative, I had the opportunity to collaborate with members of senior administration, elementary and secondary school administrators, central office support staff, elementary and secondary teachers, and students.

Throughout my time in that position, I noticed how important a role the relationships between educators in different parts of the system could play in supporting a teacher's efforts to adapt and implement new teaching practices. As the literacy initiative evolved over a period of years, I also noticed how often students who showed improved learning in the area of literacy had networks of teachers around them who were focused on studying student data and aspects of their classroom assessment practices. I often

wondered about how these networks of teachers influenced changes in professional practices that seemed to accompany improvements to student learning.

My interest in classroom assessment also stemmed from my experiences as a published author and as a participant and leader of writers' workshops, where the incorporation of assessment strategies such as timely feedback, the use of models to guide learning, and self-assessment strategies were a critical part of teaching and learning. I believe that this combination of personal and professional experiences has allowed me to gain a unique insight into participants' perceptions of how leadership can help schools to make better use of classroom assessment practices as a way of improving student learning.

Organization of the Thesis

In chapter one I introduced the purpose and significance of the study, and also proposed the main research questions that defined the study's central inquiry. I also defined the relevant terms, parameters and limitations, and situated in the study my own background and experience. In chapter two I present a review of the literature connected to the problem statement and research questions outlined in chapter one. In the literature review I make connections between three related questions:

1. Assessment and student learning: How do formative classroom assessment practices affect student learning?
2. Assessment leadership: What can leaders do to improve classroom assessment practices?
3. Does leadership influence student learning?

My aim in the literature review was to synthesize the major themes in each of the above areas, and to identify connections between each question that supported the investigation of this current study.

In chapter three I describe the methodology used in this study, including the interview questions used in the school selection process and the investigation. I also included an outline of the process used for analyzing the data collected. Ethical considerations can also be found in this chapter.

In chapter four I present the findings of the data analysis. I described major themes that emerged during the analysis process, and included figures that represent networks of leadership that were described by participants in the study. I also connected the findings back to the research questions posed in chapter one.

In chapter five I summarize the study, and I situated the findings in the context of the related literature through a discussion of the major themes. I also discussed implications of the study for leadership practices, policy, theory, and directions for future research.

CHAPTER TWO

LITERATURE REVIEW

Introduction

One of the major trends in studies of assessment in recent years has been a focus on the relationship between assessment and classroom learning, and away from the limited forms of testing, which have only a weak connection to the learning of students. Recent studies have demonstrated that changes to teachers' classroom assessment practices can make strong improvements to student learning (Wiliam, 2004; Reeves, 2007). However, the work involved in scaling up improvements to student learning at the school and district levels is complex.

Fullan (2007) argued that many changes in education fail at the implementation stage, because those in leadership positions do not adequately grapple with the complex social dimension involved in any change process. Joyce, Calhoun, and Hopkins (2002) demonstrated in several studies how focusing school improvement efforts on the school as a social system could contribute to gains in student literacy rates. One main purpose of this literature review was to survey the evidence across a number of different areas that might show some of the complex patterns involved in making wide-scale improvements to learning through better assessment practices. A second purpose was to see whether the practical issues of changing teacher practice at the school level can be illuminated by a synthesis of the findings from the diverse studies that have been reported.

I organized the review around three questions central to this study. For each question, a snowball approach was used to examine research relevant to the question.

Starting with major reviews of the literature, I highlight individual cases most relevant to the overall purposes of this study in order to connect to the primary research questions-

Organizing Questions

1. Assessment and student learning: How do formative classroom assessment practices affect student learning?
2. Assessment leadership: What can leaders do to improve classroom assessment practices?
3. How does leadership influence student learning?

Following a review based upon each of the three questions, I make connections between sections as a way of identifying what the research says about the intricacies of improving classroom assessment practices on a wider scale.

Assessment and Student Learning: How do Formative Assessment Practices Affect Student Learning?

Natrielo (1987) and Crooks (1988) conducted initial reviews of the literature on the effects of formative assessment on student learning. However, British researchers Black and Wiliam (1998b) were credited with igniting broader interest in the question of how formative assessment practices affect student learning with two 1998 publications. They argued that formative assessment, when implemented properly by teachers as part of their daily instructional practice, helped students learn what was being taught to a substantially better degree relative to any other instructional intervention in educational history.

They substantiated this argument with a comprehensive review of the literature related to classroom assessment (1998a). This review began as a meta-analysis in which they concluded that student gains as a result of formative assessment practices were “amongst the largest ever reported for educational interventions” (p. 61). Starting from

the earlier Natriello (1987) and Crooks (1988) reviews, the researchers identified 250 studies of sufficient quality to be relevant to the meta-analysis. The studies ranged widely in terms of research context and styles, and examined many areas relevant to formative assessment practices, including student reception and response to teacher assessments, student goal orientation, student self-perception as a learner, assessment by students (self-assessment), peer assessment, quality of discourse between student and teacher, use of tests, and quality of feedback.

The authors described these sub-sections as “treatments of the various components of a kit of parts that can be used to assemble a complete strategy [of formative classroom assessment]” (p. 32), and noted that the sub-section, quality of feedback, appeared most often in the literature as a critical component of school improvement initiatives. After reviewing the literature in each of the above areas, the authors concluded that formative assessment was not well understood by teachers, was not implemented strongly in their practice, and that its implementation demanded profound shifts in teachers’ perceptions of their own classroom practice and in their relationship to students. The authors identified four elements that made up a feedback system as it pertained to the behavioral sciences: (a) data on the actual level of some measurable attribute, (b) data on the reference level of that attribute, (c) a mechanism for comparing the two levels, and generating information about the gap between the two levels, and (d) a mechanism by which the information could be used to alter the gap (p. 42).

The authors concluded that while a meta-analysis of individual studies was impossible due to the complexity of the data, the studies as a whole revealed an overall

pattern of positive student gains in several learning processes connected to student motivation, engagement, and performance. These learning processes included meta-task processes (students were directed to think about their own learning process), student task motivation and persistence, and task learning processes. Studies of classroom practices focused on these learning processes showed significant increases in student achievement outcomes.

Classroom Experience

In this section, I present brief examples from research that illustrated some of the main issues and key learnings that confirm the evidence about the effects of assessment on student learning. The *first* example is a project (Wiliam, D. et al., 2004) in which 24 secondary Math and Science teachers selected from six English high schools (four teachers each) received regular professional development over the course of one year on formative assessment practices, methods which each teacher adapted to their own classrooms over the course of the school year. The purposes of the study were to measure the effects on student achievement results by implementing formative assessment practices, and to examine how teachers learned to implement such practices in the classroom. While the school districts and schools were selected because of prior support for and study of formative assessment practices, teacher selection was representative in terms of their experience and prior knowledge.

Teachers participated in professional development and experimented with classroom assessment practices for the final 6 months of the school year, then developed action plans to implement at the start of the following school year. During that second year, teachers participated in a number of in-service days, were observed in the classroom

by members of the study team, and engaged in school-based collaboration following each observation period. Each teacher was assigned a control group against which results on school-level and national year-end and end-of-unit test results were compared at the end of the school year. Effect sizes were then calculated for each teacher.

The researchers found positive increases in student achievement for each teacher when compared to achievement in the control classrooms. In examining the relationship between a teacher's practice and the effect size, researchers found that classrooms where teachers exhibited more frequent and more expert use of formative assessment practices showed greater student achievement gains. The researchers concluded that these results, replicated across a whole school, would be the equivalent of moving a school in the 25th percentile of national achievement into the upper half, and despite the cautions in comparing each teacher's results, concluded that this study demonstrated "teachers do not have to choose between teaching well and getting good results" (p. 64).

The *second* example was reported by Wiliam, Steinburg, and Wylie (2008). In this study, the authors asked the question, do changes in teacher practice improve student achievement? The authors conducted an analysis of three years of state-wide achievement test scores in the Cleveland Metropolitan School District, in schools involved in the *Keeping Learning On Track* (KLT) program, a school-based professional development program intended to support teachers in the daily use of formative assessment practices in the classroom. Through an introductory workshop followed by sustained engagement in school-based teacher learning communities, The KLT program exposed teachers to a wide range of classroom techniques, all unified by a central idea: using evidence of student learning to adapt real-time instruction to meet students' immediate learning

needs. The five research-based KLT strategies (Leahy et al., 2005) were: (a) engineering effective classroom discussions, questions, and learning tasks that elicited evidence of student learning, (b) clarifying and sharing learning intentions and criteria for success, (c) providing feedback that moved learners forward, (d) activating students as the owners of their own learning, and (e) activating students as instructional resources for one another.

The achievement measures reported were from the Ohio Achievement Test (OAT), a series of standardized tests administered to all students in grades 3 through 8 in Ohio Public Schools in May of each year. The analysis compared Reading and Mathematics scores for two cohorts of schools doing KLT for one and two years to control groups of non-KLT schools that were matched for such variables as SES, ethnic diversity, state accountability status, and number of Low English Proficiency students enrolled in the school.

The analysis detected no statistically significant gains in KLT versus non-KLT schools except in grade four and five reading scores. The authors reflected that, because of the complexity of detecting student achievement gains that resulted from changes in teacher practice, future studies should take a three-level approach. Future studies should first measure teacher fidelity of implementation, then investigate the impact of these changes on student engagement and instructional quality, and finally measure any impact of the intervention on student achievement results. To successfully study these three phases of an intervention, the researchers also recommended a more fine-grained approach to the data by looking at student-level and classroom-level data as well as grade-level and school-level data. Finally, the authors argued that future studies should

focus on how changes to teacher practice can best be implemented at the school-wide level.

The *third* example also studied the effects of teacher practice on student test scores, but controlled more tightly for teacher fidelity of implementation. Meisels et al (2003), studied the effects of the Work Sampling System, a curriculum embedded performance assessment system, on third and fourth grade achievement on the Iowa Test of Basic Skills (ITBS) in Pittsburgh Public Schools. ITBS reading and math scores of a cohort of 96 students who had been exposed to the Work Sampling System for three years were compared to a similar sized cohort who had not received any exposure to the Work Sampling System. The comparison group was controlled for socio-economic status, ethnic minority, mobility rates, and school size. The intervention group was also compared to the rest of Pittsburgh Public Schools students, a student body of over 20000 students. Prior to the study, teacher implementation of the Work Sampling System was verified by external examiners through a review of teacher portfolios of Work Sampling System materials.

The study detected robust effect size differences between the Work Sampling System group and the comparison group, especially in the area of reading. Math results were less significant, but not trivial. Gains by the Work Sampling System students were consistent when compared with students of similar starting levels of ability across groups. For example, initially weaker Work Sampling System students were compared to initially weaker comparison group students and all PPS students. The researchers concluded that this comparison confirmed the utility of the Work Sampling System for all students. The authors noted that while controlling for high levels of implementation of the Work

Sampling System may reduce overall generalizability of the results, the study was able to give a clear picture of the effects of full implementation of the Work Sampling System. This observation was significant to Meisels et al. second research question: is it possible to design an accountability system that relies on both classroom- and test-based information about student achievement? The authors of the study concluded that when student accountability systems incorporated both normative assessments as well as well-designed, curriculum embedded instructional assessments, students learned more and achieved better results on high stakes tests.

Example number *four* was an analysis of classroom assessment practices and their relationship to middle years' student achievement on the Third International Mathematics and Science Study (Rodriguez, 2004). The researcher developed and studied a hierarchical model that traced classroom assessment practices to levels of student effort and self-efficacy, and then to levels of student achievement on the TIMSS.

In addition to these constructs, the researcher also mediated student performance results by examining the nature of the assessment feedback each student received. At the student level, the author found that student's sense of self-efficacy had a positive relationship with performance on TIMSS, as did more frequent, but moderate levels of homework. At the teacher level, the study found that frequency of teacher-made objective tests had a negative relationship with performance. Of note was the author's conclusion that:

Teachers communicate learning objectives through their assessments as well as indicate to students the content and skills that they believe are important. If these things are poorly communicated, and expected result is poor performance

Students may learn as much from taking tests as from any other activity in which they engage... when evaluating classroom assessment instruments, how well they encompass instructional learning goals is an important consideration, particularly if assessment instruments are to contribute to instructional learning goals as well.

(p. 22)

Finally, the author lamented that while there was a clear relationship between teacher assessment practices and student effort and self-efficacy, the data were not fine-grained enough to make any significant causal inferences. Data about the nature and quality of homework and teacher generated assessments were not available, nor students' perceptions of the assessments themselves. Rodriguez concluded that uncovering more about the unique interactions between teacher assessment practices, student effort and self-efficacy, and student performance on achievement tests will lead to more effective policy making regarding assessment reforms and the design of teacher training and professional development activities in this area.

Lessons from the Research on Classroom Learning

It seems clear in the research that changes in teachers' classroom assessment practices can result in significant gains in student achievement and student learning. While some authors have argued that improved classroom assessment practices may not improve external test results (Popham, 2008), recent studies suggest that, in addition to significant learning gains in the classroom, some student gains may be seen on local and national summative assessments (Black, Harrison, Marshall, & Wiliam 2004). Marzano (2006) and Marzano, Pickering, and Pollock (2001) noted the primacy of accurate, timely, and specific feedback as a predominant influence on student engagement, student

motivation and task persistence, and student achievement. They concluded that effective feedback not only tells students how they performed relative to expectations, but how to get better the next time they engage in the task.

However, the research also cautioned against the role of feedback when given incorrectly. Ineffective feedback has been found to be inversely related to student achievement (Guskey, 2000, 2002; Guskey & Bailey, 2001; Marzano, 2006; Reeves, 2004a, 2006a). Given the power of effective feedback, and the dangers of ineffective feedback, researchers identified the need for further investigation into how changes to classroom assessment practices can best be achieved, so that the effects of full implementation of these practices across schools can be measured in future studies. These studies have acknowledged that changes to teachers' practice is a kind of second order change, where teachers' perceptions about the teaching-learning contract must be significantly altered if classroom formative assessment is to make a central difference to student learning.

Assessment Leadership: What Can Leaders Do to Improve Classroom Assessment Practices?

Changing even one teacher's instructional practice may not be easy work, let alone the teaching practices of all the teachers in a school. Leadership, at the school level and beyond, is generally accepted as one of the most important contributors to initiating and sustaining changes to instruction that lead to increased student learning (Dufour, 2001; Fullan, 2003, 2001; Reeves, 2007).

Recently, the role of instructional leadership, and the implications of the heightened importance of instructional leaders in the school, has changed significantly. The emergence of high-stakes testing environments across North America has focused

attention on quality leadership that leads to results on these assessments (Harris, 2002). While the focus of these accountability pressures falls mostly on the school principal, there is also a movement reported in the literature to acknowledge the need for a broader definition of leadership (Fullan, 2005; Reeves, 2008). This broader definition of leadership describes leaders within and beyond the school working to sustain changes that increase student achievement and affect real student learning at the classroom level.

In several studies of school sites that attempted to implement changes to classroom assessment practices, Wiliam et al. (2007, 2008) concluded that classroom teachers require leadership and support from both inside and beyond the school in order to sustain any kind of significant change. Fullan (2003) described this support system in terms of networks of systemic leadership, or people engaged in acts of leadership that consider the classroom, school, and wider school system. Reeves (2008) argued that the single greatest influence on the professional practice of teachers is the direct observation of teachers, and that with systemic support, a network of sustained observation and collaboration can cause dramatic changes in teacher practice and student learning.

The idea that networks of people have different, but important, effects on the acquisition and implementation of new practice has its roots in social network theory. According to Festinger, Schachter and Back (1948), social networks that have both density and cohesiveness are more likely to internalize new norms, build trust, and provide the accountability structures needed to ensure new ideas and skills are practiced by the collective. They argued that the more dense and cohesive a group, the less chance there is for free-rider behavior that deviates from the accepted norms of the group.

In staff development terms, a network of strong ties among professionals is an important social contributor to the long-term implementation of new instructional repertoire across the entire system. Teachers who work towards the same student achievement goals, who share their data on student performance, and who expect each other to share their teaching practice on a regular basis will be more likely to embed new practices in their repertoire.

In contrast, Granovetter (1973, 1983, as cited in Granovetter, 2004) argued that people acquire new information, ideas, or skills more efficiently when they move outside their normal social network to obtain them. He demonstrated that people who move in the same social circles with strong ties have considerable overlap in knowledge, skills, and beliefs. Seeking information from sources outside a person's network of strong ties connects them more readily to the outside world, and is thus a more reliable source of innovation. People within a particular clique are connected to people in other cliques through weak ties rather than strong ones, and it is through these weak connections that new information travels most effectively.

Goleman (2006) concluded that while people are wired to be connected to one another, we are more likely to learn effectively from people with whom we have a lateral connection, rather than from people separated from us by hierarchy and distance. He argued that leaders engaged in creating and sustaining change initiatives need to identify the connections between people within the system that will leverage the desired changes most effectively.

These parallels have direct implications for assessment leadership, because teachers who learn from the networks of people to which they are connected must engage

in an assessment process similar to what the research supports for students. Reeves (2006b) supported the power of observation and assessment practices at the professional level, and noted: “When making decisions, you should not be in isolation. To know how you are doing, for validation and improvement, you need your peers” (p. 90). In his review of effective leadership practices, Elmore (2000, 2007) also pointed to a need for more effective distributed leadership, both at the school and district level, if improvements to student learning are to be sustained across schools and school systems for any length of time. Thus, one of the appreciations that must be held by assessment leaders is for a collaborative environment where the expertise of all professionals in a community of learners can be harnessed to move towards more effective assessment practices in the school.

Teacher Leadership

Recent research has focused on the importance of leadership roles played by other teachers in the development of new practice, as shown by a 2006-2007 study, in which Reeves (2006b) found that teachers were more likely to be influenced by the professional practices and action research of their colleagues than they were by university classes or professional reading. He concluded that teachers made more changes to their own practice as a result of job-embedded professional development than of any other influence.

Reeves found that school-based professional development, colleagues, and leadership influence accounted for over 40% of influence on professional practice. These findings, when considered with those of Elmore (2007), and Hopkins, Joyce, and Calhoun (2002) that advocated for greater distributed leadership, all pointed to an

emergent trend towards the effectiveness of leadership networks instead of leadership hierarchies. This trend also seems to be supported in the literature on best practices in professional development, where there is a trend to advocate for a greater focus on job-embedded professional development and to evaluate results based on the observable effect on professional practice and evidence of student learning (Guskey, 2000; Sparks & Hirsch, 1997; Reeves, 2008).

In terms of the effect of teacher-leadership on initiatives focused on improving student learning, Elmore (2000) and Fullan (2007) made the point that teachers must learn things in the context in which they work. However, Reeves (2007) warned that this principle does not always match with the common professional development practice that relies on external expertise and “stern follow-up memos from administration” (p. 4).

Perkins (2003) summarized the idea that networks of collaborating teachers are essential to any change in practice that leads to better learning: “Vision and policy from the top as well as formal training can help foster progressive transformation. They may be essential to getting it started. But they do not do the actual work of transformation. *This is done by developmental leaders [on the job]*” (p. 224, emphasis in the original). In Reeve’s (2006b) analysis of student achievement and teacher practice in over 300 schools, he found that student achievement was three times higher in schools where teachers examined the evidence of the impact of teaching effectiveness on student achievement compared to schools where teachers attributed student achievement to causes beyond their control.

Mintzberg (2004) and Fullan (2005) highlighted the importance of the interplay between teacher leadership and educators working in formal leadership roles. They

argued that successful leadership is not just about one's own success in fostering success in others, and that professional development programs must be implemented in the context of everyday work. Improved practice has to be learned not just by doing it, but by having the opportunity to gain conceptual insight while doing it. They concluded that the goal is not just to develop better practice, but also to develop the organization and improve the system as a whole. Sabatini (2002) showed that when the goals of teacher leadership focus on professionalizing teaching to attract and retain high-quality teachers, reducing teacher isolation, increasing teacher participation in decision making, and bringing teachers together to solve problems, teachers' instructional practice is enhanced.

Katzenmeyer and Moller (2001) found that teacher-leadership that achieves these goals can have the effect of reducing resistance to change, improving teacher performance, and heightening attention to data and evidence of student learning. Blase and Blase (2004) described the effect of teacher-leadership on improving instructional practices as the "community of leaders" effect (p. 193). They concluded that when leadership is viewed as a group process between principals and teachers, the resulting flattening of the organization's hierarchical structure can result in greater shared common values and purposes. In the context of assessment leadership, they argued that a group process concept of leadership leads to more continuous improvement and that assessment is integral to the work of the community. In this light, teacher leadership seems to play a critical role in the enhancement of practices that lead to improved student learning.

Principal Leadership

Within the general theme in the research calling for more systemic and more distributed leadership, the research specific to assessment leadership has focused more closely on school principals and the knowledge, appreciations, and skills they require in order to act as effective agents of change in this area (Noonan & Renihan, 2006). Many researchers warned that changes to classroom assessment practices cannot happen without improvements in these three areas. Guskey and Bailey (2001) found that assessment practices were inconsistent across schools, and even across classrooms within single schools. They concluded that one of the major causes of this inconsistency was a range of biases held by school leadership, including biases towards culture, gender, handwriting, and the sequence in which student work was evaluated.

Reeves (2007) argued that these inconsistencies in appreciations came from misplaced priorities, and he noted a trend for school-based leaders to rely on the voices of “activist parents and classroom teachers whose children have been well-served by the current assessment and grading regimen” (p. 231), instead of relying on the evidence of impact on student achievement. In terms of knowledge, Popham (2006a, 2006b) suggested that leaders often misused terms such as assessment, reliability, and validity, and so derailed attempts to improve feedback systems in schools. He recommended that principals needed at least a working knowledge of how different measurements and principles of test design work. Popham (1995, 2008) also identified principals’ self-awareness of their own assessment literacy levels as an important factor.

Fullan (2001) noted that principal’s knowledge of best practices in curriculum, instruction, and assessment was necessary in order to provide guidance for teachers on

the day-to-day tasks of teaching and learning. Reeves (2004) argued that this broad knowledge base about best practices are what enabled principals to mentor teachers and play the role of instructional leaders in an effective way. Elmore (2000) added that “leadership is the guidance of instructional improvement” (p. 13). Noonan and Renihan(2006) asserted that principals must also appreciate “the integral relationship between teaching, learning, and assessment to be an important antecedent to effective assessment leadership” (p. 4). Overall, the literature seems to suggest that principals’ knowledge and appreciation of assessment practices in the classroom are important building blocks for improving student learning in schools.

In addition to knowledge and appreciations that are key to educators in leadership positions, several researchers have identified specific skills and involvements of effective leaders. Most of this research focused on skills demonstrated by effective school principals. In their meta-analysis on school leadership, Marzano, McNulty, and Waters (2005) concluded that effective principals should be “. . . directly involved in the design and implementation of curriculum, instruction, and assessment activities at the classroom level” (p. 53).

Stein and D’Amico (2000) concluded that content area knowledge and knowledge of pedagogy were equally, if not more important for principals than for teachers. Researchers at the National Institute on Educational Governance, Policy Making, and Management (1999) found that teachers valued an administrator’s willingness to provide input into classroom practice more than almost any other characteristic. Leithwood, Seashore Louis, Anderson, and Wahlstrom (2004) added that this focus on instructional guidance by the principal should also include the development of professional standards

that serve as the basis for ongoing professional development in the school. Reeves (2004) added that in terms of practical application to assessment leadership, principals who effectively lead assessment change should be engaged in such activities as personally assessing student work, monitoring and evaluating teacher-made classroom assessments, and participating in collaborative scoring sessions with teachers.

In addition to knowledge, appreciations, and skills critical to successful assessment leadership, the literature on assessment leadership has also identified five practices that should be used by assessment leaders in order to improve student learning. First, school leadership must guide the teaching staff through a process of identifying the most powerful, essential, and enduring academic standards that they will assess well and frequently (Reeves 2007). These “power standards” (Ainsworth, 2003; Reeves, 2004b) should be those standards that appear to be of lasting value across grades, and that provide leverage across multiple disciplines. When school leadership engages staff in this act of focusing and prioritizing academic standards, it supports Marzano and Kendall’s (1998) recommendation to spend more time focusing on fewer, but more powerful standards. In their study, they found a significant mismatch between the time available in schools and the time required for students to meet all academic standards successfully.

Second, school leaders need to shift teachers’ practice from lengthy, more time-consuming classroom assessments to shorter, more frequent classroom assessments that focus on the priority areas (Popham, 2008; Reeves, 2007). In these studies, Popham and Reeves argued that the use of classroom assessments with adequate domain sampling and enough items to ensure reliability do not improve student learning because they are too

time consuming to create, administer, and evaluate; they do not lead to the kind of timely, accurate and effective diagnostic information that actually helps students.

One example of the effective use of diagnostic assessment in a high-achieving school division was Norfolk Public Schools in Virginia, where all teachers used 10-item biweekly assessments to provide feedback to students about their learning, on the same day the assessments are administered (Reeves, 2004b). This study showed that there was a direct link between these frequent but brief assessments and large, sustained, more equitable gains in student achievement.

The third learning improvement action described in the literature for school-based assessment leaders was to focus on literacy as a primary academic pursuit across disciplines and subject areas (Reeves, 2004a, 2004b). Reeves (2004a) found a direct relationship between instructional time focused on literacy and student achievement on state tests. He found that 55% of students achieved a proficient level or higher on state tests of reading comprehension in schools that devoted an average of 90 minutes a day to literacy, 72% of students scored at the proficient level or higher in schools where 120 minutes a day was devoted to literacy, and 80% of students achieved a proficient level or higher in schools that spent an average of 180 minutes a day focused on literacy. Of note was that this last, highest achieving group of schools began the study with the lowest performing students, and leaders made dramatic changes to the focus of the school in order to improve student learning.

Longitudinal studies on student reading levels also supported the notion of focusing on literacy. An example of the importance of focusing on literacy was Capella and Weinstein's (2001) study, in which it was found that eighth grade students not

reading at grade level had an 85% chance of remaining below grade level throughout high school. This study also found that most grade six, seven, and eight classrooms spent only half to one-third as much time focused on literacy as their grade three, four, and five counterparts.

A fourth action recommended for assessment leaders in the task of improving learning was to create time for staff to collaborate on specific, assessment related tasks. Specifically, this collaboration was defined in the literature as creating time for teachers to create common assessments (Ainsworth & Viegut, 2006; Reeves, 2002), to examine the results of those assessments in order to improve teaching practices (White, 2005a; 2005b), and to examine student work (Reeves, 2004a).

This research seemed to suggest that while collaboration can be difficult and time-consuming, it could also lead to significant increases in student learning. Reeves (2006b) showed that over the course of six 4-hour meetings (24 hours of collaboration), 50 educators who examined anonymous student writing samples using the same scoring rubric were able to raise their level of agreement from 19% to 92%. Creating time for staff to collaborate on these types of assessment activities can also lead to closing the achievement gap between high and low-achieving students.

Oberman and Symonds (2005) found that while all schools in their study had participated in professional development sessions focused on classroom assessment, and that while all schools claimed to engage in regular reviews of student data, only schools where principals provided extensive time for collaboration were able to implement new assessment practices in a way that improved student achievement results.

In their study, 35% of “gap closing” schools examined student data “a few times a week,” while less than 5% of “non-gap closing” schools studied achievement data with the same degree of frequency. Almost 50% of non-gap closing schools indicated that they only examined student data “a few times a year,” while only 20% of gap-closing schools fell into that category. The researchers concluded that the difference was not in teacher training or motivation, but in the decision of leadership to provide time for professional collaboration focused on assessment.

The final action for school assessment leaders identified in the literature was to develop an evidence-based culture of teaching and learning that avoided making tradition based decisions about teaching practices. Wiggins and McTighe (2007) defined developing and evidence-based over tradition-based teaching culture as mature professionalism, where teachers looked at data and made decisions about how to improve teaching and learning disconnected from good intentions. Reeves (2007) argued that, just as Pfeffer and Sutton (2006) found doctors who used medical practices from their residencies 30 years in the past as if they were the most contemporary research, so also were there many teachers and administrators who based their professional decision making on their own formative experiences as students and beginning teachers.

The research pointed to the power of evidence-based decision making to affect teacher beliefs and student achievement. Reeves (2006b) showed that schools in which teachers regularly examined evidence of the impact of teaching on student achievement, and saw their professional practice as the main reason for gains in student achievement, showed student gains that were three times higher than in those schools where teachers and leaders attributed student achievement to factors beyond school control.

Similarly, Marzano, Waters, and McNulty (2005) found only three out of 21 leadership practices associated with student achievement that were connected to first and second order changes: belief systems about the effectiveness of teachers and leaders, consistent use of research-based teaching practices, and monitoring and evaluation. Commitment to evidence-based decision making seems to have a positive effect on belief systems in the school, and also on student achievement.

System Leadership

Elmore (2007) argued that effective school districts "...become the prime enablers of the school level actions...that add value to student learning" (p. 192). He argued that it is not enough for school districts to redesign the ways professionals relate to each other in order to foster professional learning; they must also provide a sustained focus on the new knowledge and practices that will lead to improvement of instruction. Elmore contended that without improvements to both professional learning relationships and a better focus classroom practices that improve learning, any wide-scale change initiative will not significantly affect student achievement outcomes.

In the context of assessment leadership, a small number of studies that focused on superintendents demonstrated how leadership at the district level can impact assessment change at the school level. In a study of an Illinois school district that successfully implemented a number of school improvement initiatives, Leithwood and Prestine (2002) noted that a common strategy employed by superintendents was to use summative and formative assessment data to help schools move towards new goals or standards within state or district school improvement projects. This use of summative and formative assessment data to support school-level goal setting at the superintendent level had the

effect of engaging schools with their own student data, and drew attention to the improvement initiative as a result.

In Togneri and Anderson's (2003) qualitative study of five superintendents' leadership practices, the one common feature amongst all five was a refined capacity for understanding and using data to help improve student learning at the school level. Each superintendent in this study balanced shortcomings in state data by collecting longitudinal data at the school level. These superintendents insisted that school leaders should use student learning measures to help determine school goals and to monitor progress, and they also worked with their school boards to increase the ease with which school board trustees used assessment data for their work in the areas of policy and governance.

While Leithwood et al. (2004) concluded that more comprehensive accounts of the leadership practices of successful superintendents and district leaders were needed, these studies do point to some of the necessary skills and dispositions of district level leaders that may contribute to positive changes to assessment practices in the school. Noonan and Renihan (2006) argued that, given the rapid change occurring in the assessment field, system level leadership should also keep up-to-date on assessment research and practice, as well as play a role in mandating and supporting ongoing professional development for teachers and school-level leadership that supports the development of the relevant skills and dispositions described above.

Does Leadership Influence Student Learning?

The school principal has long been perceived as the person with the most influence on the school. Over 30 years ago, a U.S. Senate Committee Report on Equal

Education Opportunity (U.S. Congress 1977, as cited in Marzano, McNulty, & Waters, 2005) identified the principal as the most influential person in the school:

In many ways the school principal is the most important and influential individual in the school. . . . It is the principal's leadership that sets the tone of the school, the climate for teaching, the level of professionalism and morale of teachers if it has a reputation for excellence in teaching, if students are performing to the best of their ability, one can almost always point to the principal's leadership as the key to success. (p. 56)

Following this early insight into the importance of school leadership to teaching and learning, Marzano, McNulty, and Waters (2005) claimed that "research over the last 35 years provides strong guidance on specific leadership behaviors for school administrators and that those behaviors have a well documented effect on student achievement" (p. 7).

In their meta-analysis examining 69 studies involving 2802 schools, over 1 million students, and 14 000 teachers, they computed the correlation between the leadership practices of the school principal and the academic achievement of students to be 0.25.

To illustrate the significance of this correlation, they predicted that if a principal's leadership ability were to increase from the 50th to the 84th percentile, student achievement should rise from the 50th to the 60th percentile. Thus, they concluded that a highly effective school leader can have a dramatic effect on student learning. The researchers in this study acknowledged that calculating a single correlation from all the studies is an oversimplification, but that it could be used to think about the effects school leadership can have in general terms.

Another limitation of that study, according to Leithwood et al. (2004), was that the calculated correlation was for school leaders engaging in all 21 leadership behaviors described by the researchers. Given that these behaviors ranged across beliefs, knowledge, and skills, Leithwood et al. (2004) argued that this correlation would be very difficult to obtain in practice.

In their own narrative study of the effects of school leadership on student achievement, Leithwood et al. (2004) estimated a correlation between school leadership and student achievement between 0.17 and 0.22. They concluded that school leadership is second only to classroom instruction among all school-related factors that affect what students are able to learn in school.

Cotton (2003) found a similar relationship between school leadership and student learning in her logical (as opposed to quantitative) study. While her study did not quantitatively estimate the effects of leadership on student achievement, she concluded that principal leadership does have a significant, but indirect effect on students:

In general, these researchers find that, while a small portion of the effect may be direct – that is, principals' direct interactions with students in or out of the classroom may be motivating, inspiring, instructive, or otherwise influential – most of it is indirect, that is, mediated through teachers and others. (p. 58)

Cotton listed 25 categories of leadership behaviors that have a positive effect on student achievement, attitudes, behavior, and dropout rates, as well as on teacher attitudes and behavior.

The synthesis study most similar to that of Marzano, McNulty, and Waters (2005) in terms of methodology was that of Witziers, Bosker, and Kruger (2003). However, in

contrast, the latter found only a 0.02 correlation between school leadership and student achievement. Marzano made the comparison that a correlation of only 0.02 would mean that an increase in leadership ability from the 50th to the 84th percentile would result in only a 1% increase in student achievement. While the researchers of this study concluded that the tie between leadership and student achievement was weak, they qualified this generalization by acknowledging their study focused only on the direct effects of leadership behaviors on students, and assumed that indirect effects of leadership would be more promising.

Table 1 compares the leadership behaviors that were correlated to student achievement in the three studies I described above. Of interest are the similarities of the findings in the Marzano and Cotton studies. Also, all three studies pointed to the importance of the principal's direct knowledge and involvement in developing instruction and assessment practices that focused on evidence of student learning (13 and 14 in Marzano, 17 in Cotton, and 3 Leithwood). Finally, in the context of assessment leadership, all three lists included reference to principals applying the best practices of classroom assessment in their work with teachers (14 in Marzano, 17 in Cotton, 2 and 3 in Leithwood). All three reviews of the literature on the effects of school leadership on student learning identified such assessment practices as providing timely feedback, monitoring the effects of practice on learning, and improving teaching by studying student data.

Table 1

Comparison of Leadership Behaviors that Affect Student Achievement, as Identified in Three Synthesis Studies

From Marzano, McNulty, and Waters (2005)	From Cotton (2003)	From Leithwood et. al (2004)
1. Recognizes and celebrates accomplishments	1. Safe and orderly environment	1. Setting Direction: largest impact on student achievement – helps staff members establish and understand goals of school and creates foundation for school vision and mission
2. Change Agent - actively challenges status quo	2. Vision and goals focused on high levels of student learning	
3. Recognizes and rewards individual accomplishment	3. High expectations for student learning	
4. Strong communication with teachers and students	4. Self-confidence, responsibility, perseverance	
5. Fosters shared beliefs and a sense of community and cooperation	5. Visibility and accessibility	2. Developing People: building capacity of people in the school to access and employ their strengths towards improving teaching and learning. Includes intellectual stimulation, individual support where needed, and providing appropriate models of best practices and beliefs that align with the organizational mission.
6. Protects teachers from issues and influences that detract from teaching time	6. Positive and supportive climate	
7. Adapts his or her leadership behavior to needs of situation; is comfortable with dissent	7. Communication and interaction	
8. Establishes clear goals and keeps them at the forefront of school's attention	8. Emotional and interpersonal support	
9. Ideals/Beliefs (communicates strong ideals and beliefs about schooling)	9. Parent and community outreach and involvement	

10. Involves teachers in the design and implementation of important decisions and policies	10. Rituals, ceremonies, and other symbolic actions	3. Redesigning the organization: change attributes of organization that may impede teachers' ability to use effective practices. Includes strengthening school culture and building collaborative processes
11. Ensures faculty investigate most recent education research and discussion a part of school culture	11. Shared leadership, decision making, and staff empowerment	
12. Directly involved in curriculum, instruction, and assessment practices	12. Collaboration	
13. Knowledgeable about current curriculum, instruction, and assessment practices	13. Instructional leadership	
14. Monitors effectiveness of school practices and their impact on student learning	14. Ongoing pursuit of high levels of student learning	
15. Inspires and leads new and challenging innovations	15. Norm of continuous improvement	
16. Establishes standard set of operating procedures and routines	16. Discussion of instructional issues	
17. Is an advocate and spokesperson for the school to all stakeholders	17. Classroom observation and feedback to teachers	
18. Demonstrates awareness of personal aspects of teachers and staff	18. Support of teachers' autonomy	
19. Provides materials and professional development resources necessary for success of teachers	19. Support of risk taking	

20. Aware of details and undercurrents in schools and uses this info. to address problems	20. Professional development opportunities and resources
<hr/>	
21. Has quality contact and interactions with teachers and students.	21. Protecting instructional time
<hr/>	
	22. Monitoring student progress and sharing findings
	<hr/>
	23. Use of student progress for program improvement
	<hr/>
	24. Recognition of staff and student achievement
	<hr/>
	25. Role modeling.

Note. I selected the three synthesis studies to provide a foundation for examining the effects of school leadership on student learning. While the studies supported the finding that leadership can have a potentially powerful effect on student achievement, most of these influences are indirect effects, mediated primarily through changes to the attitudes and behaviors of teachers in the school. Studies that focused on direct effects of school leadership found little direct correlation between administrators' leadership behaviors and student achievement.

Conclusion

In this literature review, I examined the relationship between three central questions of this study. The research synthesized here indicated that implementing improved classroom assessment practices can have a larger impact on student achievement than any other instructional intervention, at a financial cost less than most other improvement initiatives such as reduced class size or increased teacher knowledge.

The research on assessment and student learning showed that classroom assessment practices that included giving accurate, timely, and effective feedback can have a positive effect on student motivation, task persistence, and self-efficacy, and that it can be effective at closing the achievement gap between high performing and low performing students.

The research on assessment leadership showed that while these powerful student results were attainable by schools and students of varying socio-economic standing and achievement records, leadership played a vital role in the creation and implementation of changes to assessment practices that made a difference for students. The literature on assessment leadership identified four criteria for success: knowledge, appreciations, skills, and behaviors that assessment leaders needed in order to create this sort of change. While these four criteria were grounded in the more general literature on school improvement and instructional leadership, there were a small number of studies that spoke directly to leading assessment change. In addition to these studies, many more general studies of leadership practices identified the use of current assessment practices as key leadership behaviors that can lead to improved student achievement.

The most recent studies pointed to the need for broad assessment leadership that includes not only school principals, but teacher-leaders, system-leaders, and senior administrators as well. This call for a wider network of leadership had its roots in social network theory, which described the influence of peoples' weak and strong connections to one another to both consolidate and norm new behaviors, and to learn new practices. While Senge (1990) applied these theories to the educational context twenty years ago, and while many authors argued that teachers need this wide network of support to sustain

lasting changes to assessment practices, researchers still identified the need for further study in this area to define its practical applications to assessment change more definitively.

Finally, the literature on the effects of leadership behaviors on student learning showed that leadership can have a powerful effect on student achievement. Indeed, one synthesis study (Leithwood et. al, 2004) concluded that leadership behaviors were the second most powerful school-based influence on student learning after teachers' instructional practices. Nonetheless, it must be pointed out that most leadership behaviors shown to have an effect on student achievement were indirect; that is, they were mediated through other people (mostly teachers) who had a more direct influence on student learning. This finding supported the notion that networks of leaders across different roles, and working in systemic fashion towards common changes to classroom assessment practices, may have the greatest positive influence on student learning.

CHAPTER THREE

METHODOLOGY

In this chapter I present the methods employed in this study of leadership networks in elementary schools where changes to classroom assessment practices have led in to increased student learning. Discussion in this chapter includes the selection of the research topic, the research design employed, the selection of sites and participants, the data collection methods, and the data analysis. I also include support from the literature regarding the methodology in order to describe the rationale for the selected research process.

Reviewing the Research Topic

Since Black and Wiliam's (1998a, 1998b) review of the literature examining the impact of formative assessment practices on student achievement, several studies have been conducted on the implementation of assessment for learning strategies as a school improvement intervention (Reeves 2004, 2007; Wiliam, 2007; Wiliam, Lee, Harrison, & Black, 2004; Wiliam, Steinburg, Bell, & Wylie, 2008; Wiliam, & Thompson, 2007). One theme that emerged from these studies was the need for further research into how assessment-focused school improvement initiatives play out in a wider variety of school contexts. In addition, as part of their conclusions, the authors of these studies identified the need for strong school-based leadership, teacher leadership, and system leadership in order for authentic classroom assessment reforms to be successful in a long-term, sustainable fashion.

Over the last several years, a focus on assessment for learning practices has gradually increased in my own school division, with many schools identifying changes to

classroom assessment practices as a priority in school plans and professional development efforts. As a result of this assessment focus, the informal professional discourse around what practices were having a positive effect on student learning began to come back to formative assessment practices with more and more frequency. In my last position as a professional development leader within the school division who worked with teachers, school administrators, and system-level leadership, I wanted to examine the leadership pattern and the leadership practices in school contexts where a focus on assessment for learning was having a positive effect on student learning. Thus, one purpose of this study was to provide a rich description of the relationships between, and the roles played by leaders in different positions that supported the assessment initiative in each school.

Research Design

This study was a qualitative, multi-site examination of the leadership networks and the leadership practices that supported schools where changes to assessment practices resulted in increased student learning. Cronbach (as cited in Hoepfl, 2001) argued that purely quantitative research is not able to fully account for all the effects of interactions within in a social network of people, and that, “qualitative inquiry accepts the complex and dynamic quality of the social world” (p.1). Considering the complex, and often indirect nature of school leadership (Marzano, Waters & McNulty, 2005; Leithwood, Seashore Louis, Anderson, & Wahlstrom, 2004), this study’s central research questions warranted an in-depth examination of the leadership practices at work in the sites selected for study. Hoepfl (2001) also claimed that qualitative research reports are rich with a

thick description of people's experiences, insights, and perspectives on particular phenomenon, thus creating a meaningful picture of the phenomenon in question.

The qualitative mode of inquiry was required in this study in order to explore and describe the practices of people in various leadership roles for each school site, thereby capturing a representation of the influence of leadership at each school site. Van Manen (2000) advocated that, "various aspects of phenomenological method clearly make the practice of this form of inquiry challenging and worthy of academic recognition." Further, Yin (1998) found that case studies often investigate phenomena for which the boundaries between the phenomenon and its context are not easily distinguished. Given the sometimes elusive nature of the leadership practices at work in a school improvement initiative, the methodology employed in this study served to inquire into the complex leadership interactions at work in each school site.

Data Collection Procedures

Data collection consisted of four phases. The first phase consisted of the selection of the sites that met the criteria of schools where a focus on classroom assessment resulted in an increase of student learning. The second phase consisted of the administering of a semi-structured interview process that used a snowball technique to identify the leadership networks in each school site. The third phase was the initial analysis of the data collected from the interview process. The fourth phase was a subsequent collection of interview data from initial participants regarding major themes that emerged as a result of the initial analysis.

Phase One – Identifying the School Sites for Study

The first phase of this study was to identify two school sites as a focus for examination. The school sites were identified reputationally, by asking educators in three key leadership positions to identify schools they believe meet the following criteria:

1. Elementary school.
2. School identified focus on “assessment for learning” or “classroom assessment reform” in its school plan for two or more consecutive years.
3. Teachers and school-based leaders in those schools have engaged in professional development related to classroom assessment as part of their assessment initiative.
4. School staff has implemented changes to classroom assessment practices as part of their assessment initiative.
5. Professionals in the school attributed improvements in student learning to changes in classroom assessment practices.

Data were collected on schools considered for the study using information from the Coordinator of Curriculum and Instruction, the Coordinator of Staff Development, and the Coordinator of Assessment and Evaluation for the school division in question. These individuals were asked to separately identify, in their professional judgment, all schools that met the above criteria. The leaders in these three positions each possessed a significant, but unique knowledge and perspective on the school improvement and assessment efforts within the school division in question. Their differing perspectives on evidence of student learning, anecdotal evidence of school improvement efforts, and interactions with schools provided triangulation in the selection of school sites that met the criteria for the study.

Schools identified by more than one member of the selection group were referenced against the following list of school demographics:

1. Small student population (150 – 250) vs. large student population (300 +)
2. Community school context vs. non-community school context

Following this nomination process, I selected two schools for possible study, and approached the respective school principals with a request for their involvement in the study.

Phase Two: Identifying the Sample, and Instrumentation Used in the Study

A snowball or chain-sampling technique was used to select suitable people to include in the study. According to Gall, Gall, and Borg (2007), snowball sampling can result in a highly credible sample when the names of a few, well-suited participants come up repeatedly when talking to different well-situated people. Yin (1998) suggested that using a multiple case design harnesses the logic of replication, in which the inquirer replicates the methodology for each case. According to Creswell (2007), qualitative researchers tend to avoid generalizing from one case to another because the context surrounding each case can differ so greatly. To best generalize, the inquirer needs to select representative cases for inclusion in the study.

Data collection using semi-structured interviews began with the principal and vice-principal in each school site. As part of these first interviews, I asked these initial participants to confirm that their schools did indeed meet the nomination criteria in order to establish trustworthiness for the school nomination process. I also asked them to use their extensive knowledge of the school's assessment initiatives to identify other educators inside and outside the school who they believe played an important leadership

role in making changes to classroom assessment practices in the school. Additional people were added to the sample from these data, and each additional member of the sample was also asked to identify suitable candidates until the information saturation point was reached.

A semi-structured interview protocol (Appendix D) was used during the course of each interview, with questions organized around a combination of the study's major questions, and themes identified in the literature review. The development of the protocol followed Creswell's (2007) guidelines for using interviews as a data collection tool in case study research. The questions I used were, following his assertions, a "narrowing of the central question and sub-questions in the research study" (p.133). The structure of some of the questions was adapted from an interview protocol used in Rossi (1993), a study of teacher leadership during an elementary Mathematics initiative.

The interview protocol was further refined through the use of a pilot study with a graduate-level researcher studying a different area of teacher-leadership, but within the same school division. Sampson (2004, cited in Creswell 2007) recommended the use of a pilot study to "refine and develop research instruments, assess the degrees of observer bias, frame questions, collect background information, and adapt research procedures" (p. 133). In specific regard to case study research, Yin (1998) outlined the usefulness of pilot studies for refining data collection plans and developing relevant lines of questions prior to conducting the full study.

Using this instrument as the primary tool for data collection allowed the inquiry to focus specifically on the roles of, and connections between, people engaged in supporting the assessment initiatives, and to describe their specific use of knowledge and skills. Yin

(1998) described this sort of qualitative inquiry focused on a specific aspect of a case as an embedded analysis, where meaning is derived from a more in-depth examination of one element of a larger case. In order to facilitate this close examination of leadership practices, I gave the interview questions to participants a few days prior to the interview in order to help them organize their thinking related to this subject.

Phase Three – Initial Analysis and Reflection on Findings

Following the initial data collection, interview recordings were transcribed, organized, and analyzed following Creswell's (2007) data analysis spiral model. In this model, Creswell recommended that the researcher cycle through a recursive process that involves first managing and organizing the data, then reading and describing the data, followed by a series of classifications into themes and patterns, and finally representing and interpreting the data in a variety of possible modes. According to Huberman and Miles (1994), the analysis portion of this cycle should also focus on noting patterns and themes that emerge from coding of the data, specifically noting relationships between factors and key ideas. The central research questions for the study were defined in chapter one, and were used as an initial framework to guide the data analysis process.

Wolcott (1994b) also identified referencing a contextual framework from the literature as an important phase in drawing comparisons and contrasts as a mode of depicting and describing the data. Creswell (2007) cautioned against creating an overabundance of codes or themes during the analysis. He recommended a process of returning continuously to not only the raw data, but also the initial coding and identification of patterns or themes in order to find commonalities between these patterns that can be grouped into broader categories. According to Creswell, these codes can (a)

represent information that researchers expect to find before the study, (b) represent surprising information that researchers did not expect to find, and (c) represent information that is conceptually interesting or unusual to the researcher (and potentially participants and audiences) (p. 153).

In addition to this inductive, constructivist approach to identifying themes and patterns in qualitative data, Czarniawska (2004) also described a deconstructive approach to data analysis, where the researcher examines the data for disruptions, contradictions, silences, and contradictions. He argued that sometimes an examination of what is left unsaid or spoken by participants can point to sources of bias or can uncover hidden, but important themes in the data. I used the processes described above to note emergent connections between educators who were identified as playing important leadership roles. Referring to trends identified in the literature review, I looked initially for patterns related to participants' knowledge, skills, appreciations, and practices perceived to contribute to leadership of the assessment intervention; further headings for coding and classifying emerged during this phase of the investigation. These pre-established and emergent patterns were first identified and reported separately for each school. Each participants' and school's patterns were then compared and contrasted in order to identify common themes that emerged from each case.

Phase Four – Follow-up with Participants and Final Data Analysis

Following the initial data analysis, I followed up as needed with appropriate participants by telephone or email with new questions that emerged from any issues initially identified in the analysis. The purpose of this follow up was for participants to clarify relationships between various participants, to identify changes to teacher practice

and to student learning, and to provide a richer context for critical themes that emerged from the data. According to Gall, Gall and Borg (2007), and Denzin and Lincoln (2005), this sort of follow-up constitutes a form of member-checking. They defined member-checking as the evaluation of analytic categories, and the assessments or conclusions made based on participant data. These evaluations are critical in building trustworthiness and confirmability into qualitative inquiry research. New data collected via follow-up interviews was used to confirm and clarify patterns that emerged in earlier phases of collection and analysis, and these additional findings were added to the initial analysis during the writing of the thesis.

Establishing Trustworthiness

In writing the findings of any qualitative research, the researcher must always consider the research's audience. Stake (2000) argued that each qualitative research study must ask, did I get it right? He contended that researchers must constantly grapple with issues of clarity and validity in any communication of findings:

Even if meanings do not transfer intact but squeeze into the conceptual space of the reader, there is no less urgency for the researcher to assure that their senses of situation, observation, reporting, and reading stay within some limits of correspondence. However accuracy is construed, researchers don't want to be inaccurate, caught without confirmation. (p. 443)

Thus, researchers need to establish a rigorous level of trustworthiness within the research design. Trustworthiness refers to the overall quality of the research. Lincoln and Guba (1985) argued that the basic test of trustworthiness is the extent to which the inquirer can convince the audience that the findings of the research are worth attending to, and that the

arguments made, criteria involved, and questions asked can persuade the audience that the findings are worthy of accounting for.

I made several attempts through the course of this study to establish a rigorous level of trustworthiness. First, during the selection of worthy school sites, reputational data was triangulated between three different, but equally credible leaders within the school division in question. Creswell (2007) redefined this sort of triangulation as crystallization, where patterns can grow and emerge from different interactions with the data, and different information can be derived by examining the data from different perspectives.

Second, the snowball technique used during the selection of participants from each school site established trustworthiness because it relied on the insider or expert knowledge of participants to build the sample, instead of relying simply on my perspective as the researcher. Member-checking during the follow-up interviews in phase four of the study sought to confirm the initial findings by participants, thereby helping to establish confirmability of the findings. Leininger (1985) referred to this phase of data analysis as, “obtaining direct and often repeated affirmations of what the researcher has heard, seen, or experienced with respect to the phenomena under study” (p. 105). Finally, I established an audit trail by keeping field notes of what I noticed during the interviews, transcription of the interviews themselves, and notes on the coding and classification of the data throughout the data analysis process.

Ethical Guidelines

I followed the ethical considerations established by the University of Saskatchewan Behavioral Research Ethics Board throughout the study. Before

proceeding with data collection and analysis, approval was sought and obtained from this board. All attempts were made to offer anonymity and confidentiality to all participants in this study. Permission was also sought and obtained from the school division in question for access to teachers before conducting the study, and a cover letter and consent forms that provided the relevant information required by the University of Saskatchewan Behavioral Research Ethics Board were provided to members of the initial school selection group, principals of selected schools, and other participating teachers and educators throughout the study process. A full review of the ethical considerations in this study can be found in Appendix A.

CHAPTER FOUR

RESEARCH FINDINGS

In this chapter I present the findings from phases one to four of the data collection process, as outlined in Chapter Three. The purpose of this study was to examine the role of school-based and system leadership in schools where changes to classroom assessment practices resulted in increased student learning. This study provided a description of school-based administrators, teacher-leaders, and central-office leaders' perceptions of the leadership at work during school improvement efforts focused on classroom assessment at two elementary school sites.

In the first section, I report the data collected during the nomination of school sites. In the second section, I report findings from the interview process related to the seven research questions focused on the pattern of leadership practices used in the selected schools. The questions were divided into three groups for the purposes of data analysis. The first group of questions focused on the roles and practices of leaders in the school, and included:

1. In what ways have the practices of school-based leaders engaged teachers in implementing and sustaining assessment for learning practices in schools where these changes have led to increased student learning?
2. What roles are played by leaders from inside the school in changing assessment for learning practices?
3. Which leadership practices are seen to best support changes to classroom assessment practices?

The second group of questions focused on the roles and practices of leaders outside the school:

1. What roles are played by leaders from outside the school in changing assessment for student learning practices?
2. In what ways have the practices of leaders from outside the school engaged teachers in implementing and sustaining assessment for learning practices in schools where these changes have led to increased student learning?

The final group of questions focused on the leadership networks in each school:

1. What is the perceived connection between school-based leadership network and outside-the-school leadership network?
2. What is the overall leadership network in schools where assessment for learning practices have resulted in increased student learning?

I identified comparisons and contrasts in the data from each school site through a treatment of the themes that emerged during the data collection process. Following this treatment of emergent and research question related themes, I then analyzed the findings from the perspective of each different role: teacher-leader, vice-principal, principal, and central office support staff. Last, I described the perceived leadership network in the two school sites, based on the interview data and subsequent follow up conversations with participants.

Nomination and Selection of School Sites

During phase one of the data collection, school sites were nominated for the study using reputational criteria by the Coordinator of Curriculum & Instruction, Coordinator of Assessment & Student Evaluation, and the Coordinator of Staff Development in the

system under study. Each coordinator provided a separate list of schools they believed met the criteria for eligibility based on their professional knowledge and experience with all schools in the school division, including a brief description of each school's qualities relevant to the criteria. Following the receipt of each list of schools, I conducted a follow-up telephone conversation with each coordinator. The purpose of these follow-up phone calls was to confirm the extent to which each nominated school met the criteria for eligibility. Notes from these conversations were added to each Coordinator's nomination form, and were used as part of the data I considered in selecting the two school sites for study.

In total, the coordinator group nominated ten different elementary schools, and one secondary school for consideration in this study. Of the ten elementary schools, two schools were nominated by all three Coordinators (School A and School B), and one other school was nominated by two out of three Coordinators. All three Coordinators separately agreed that of the nominated schools, School A and School B seemed to best meet the criteria for nomination.

The Coordinators described both School A and School B as demonstrating a multi-year focus on improving classroom assessment in their school plans, professional development activities, and professionally shared evidence of changes to teacher practice. In the follow-up phone conversations, all three Coordinators were able to describe evidence of growth in student learning. They cited examples of growth in provincial student assessment results, as well as examples of student work teachers and administrators had shown them at both schools. For both School A and School B, Coordinators attributed these changes in student learning to the schools' focus on

assessment in these schools. While both School A and School B shared similar demographic features, I selected these schools for study based on the considerable strength of their nominations by the Coordinator group relative to the other schools in question.

The following table is an aggregate description of school qualities described by the three Coordinators who participated in this study. It includes data collected from both the notes provided by participants, as well as from the follow-up phone calls I conducted following the initial data collection.

Table 2

Aggregate Description of School Nomination Data Received from School Division

Coordinators

School	Cited Qualities
School A (3 nominations)	<p>Same principal has been at school throughout focus on assessment</p> <p>Principal part of K-8 and K-12 system assessment committees</p> <p>More changes in teaching staff than School B. Involved in intensive school-based professional development process focused on assessment for learning</p> <p>Teachers have publicly shared evidence of improvements to student learning that resulted from changes to assessment practices</p> <p>Part of a multi-school learning community that focused on assessment for learning</p> <p>Assessment for learning has been identified as a priority in school plan for 3 years</p> <p>Principal and some staff have presented at provincial assessment conference</p>

School B (3 nominations)	<p>Involvement in intensive school-based professional development process focused on assessment for learning</p> <p>3-year focus on assessment for learning</p> <p>Teachers have publicly shared evidence of improvements to student learning that resulted from changes to assessment practices</p> <p>Part of a multi-school learning community that focused on assessment for learning together</p> <p>Assessment for learning was identified as a priority in school plan for 3 years</p> <p>Current school plan no longer identifies assessment for learning as priority, but assessment for learning is applied to new Math focus</p>
<hr/> Same principal at school throughout focus on assessment <hr/>	
School C (2 nominations)	<p>Some conversations about assessment reform started there several years ago</p> <p>Vice-principal plays a leadership role in assessment for learning</p> <p>Some teachers worked on assessment for learning a few years ago</p> <p>Uncertain about extent to which work is continuing today</p> <p>'good' focus on assessment</p>
<hr/> Unsure of connection to student growth <hr/>	
School D (1 nomination)	<p>Strong example of teacher leadership in the use of assessment for learning practices</p> <p>Teachers of the 'gifted education' program developed and are using student e-portfolios as part of assessment process</p> <p>This group of teachers has had an assessment focus over a number of years</p>
<hr/> Assessment focus not across whole school <hr/>	
School E (1 nomination)	<p>Secondary school</p> <p>Working on unpacking learning outcomes to develop clearer learning destinations</p>
<hr/> Assessment is a whole school focus <hr/>	

	New principal leadership (2 years)
	In-school teacher “learning leader” support for focus on assessment
School F (1 nomination)	Focus on assessment over 4-5 years in fits and starts Some staff participated in a Saskatchewan Professional Development Unit intensive week-long course focused on assessment Assessment for learning is identified as a priority in this year’s school plan (1 st year) Staff involved in some assessment for learning focused P.D. Some teacher leadership in system-wide literacy initiative focused on the use of data to improve student learning
School G (1 nomination)	Assessment-focused professional development over a number of years School-based professional learning community focused on studying evidence of student learning in grades 4-8 Principal leadership
School H (1 nomination)	Teachers on staff have shared strong examples of classroom assessment reform that has resulted in changes to student learning Professional collaboration with multi-school learning community with common focus on assessment Principal turnover Focusing on something else this school year
Schools I, J, K (1 nomination each)	Highly reflective principal Just starting

Sites and Respondents

Following selection of the two schools sites, I sought and obtained agreement to participate from the school principals. I first interviewed the school principals at each site, and used the chain-sampling technique described in chapter three to identify further candidates for data collection. Ten people were interviewed in total, including 8 school-

based participants, and 2 participants who had worked with both school sites from central-office positions.

Description of School Sites and Establishing Trustworthiness of School Nominations

In order to establish the trustworthiness of the nomination of each school site, I asked each school's principal and vice-principal during their interviews to confirm whether or not, in their view, the school in which they worked did indeed meet the reputational criteria used by the coordinators to nominate their school as a candidate for study. Each school-based administrator agreed that their school met the criteria used in the nomination process. In addition, I asked all participants to describe the extent to which they believed the focus on classroom assessment resulted in improvements to student learning. In this section I describe both school sites, summarize the participants' perceptions of student learning related to the assessment reform, and include a selection of quotations that provide a sense of context and participant perspective from each school.

School A Site Description and Nomination Trustworthiness

School A was a K-8 elementary school with a student population of approximately 250 students, and a teaching staff of 16 full-time equivalent teachers. This particular school community had a large number of single-parent families, and was described by the principal as a lower-middle class neighborhood. The principal also noted a trend in recent years of increased numbers of students with little or no English language background.

School A participants described steady changes in student learning during the four years the school focused on changes to classroom assessment practice. The School A

principal stated that at the start of the assessment initiative, teachers paid attention to informal evidence available to them in the classroom to determine the extent to which experimentation with assessment practice was affecting student learning. “[At first], the experience was different, teacher satisfaction was different, but could I say, well, instead of being a “C” student this kid is now an “A” student, I don’t know that. So those are the kinds of things that were kind of ongoing, you know, as people were trying to do things differently. . .” (School A Principal, 3:17, 11).

The School A principal also noted that in the first two years of the assessment initiative, teachers began to analyze samples of student writing more closely. The principal recalled many conversations with teachers during this time in which they described the quality of student writing as being stronger and more confident, and that they attributed this improvement in writing quality to their experimentation with assessment for learning strategies in the classroom.

During my interviews at School A, many participants produced samples of student work that they believed showed evidence of improved student learning related to the assessment initiative. These artifacts of learning included start-of-year and end-of-year student writing samples that showed how student writing had improved over the course of a school year. Often, these writing samples included evidence of students’ use of formative assessment practices, including written self-assessments and goal-setting, and criteria related to writing assessments. Participants at School A described these assessment-related components of the student work samples as their attempts to help clarify the learning destination for students.

The former vice-principal of School A also attributed improvements to the quality of student work to the school's focus on classroom assessment, and noted that students had become more self-aware of their own learning. She stated that at the end of the first year, students and parents could articulate criteria for success, and could describe what they needed to learn next in order to improve. In her judgment, many students had greatly improved their ability to self-assess in relation to criteria, and that this skill was a contributing factor to the improved quality of their work.

School A participants said they observed more formal improvements to student learning during their third and fourth years of the assessment initiative, and described how changes to assessment practices began to affect other areas of their teaching practice as well. The School A principal and vice-principal described their school's most recent provincial writing assessment results as very strong relative to the provincial average, and they believed their school's work in the area of classroom assessment had contributed to this improvement.

The former School A vice-principal described that, as the school's focus on assessment progressed, some middle-years teachers changed their parent-teacher interview format from a teacher-led to a student-led conference, where students discussed their own learning through the use of portfolios and referenced criteria and goals set during the reporting period. The School A teacher said she observed an increase in student engagement in the development of student portfolios, and a clearer articulation of learning by students with each subsequent reporting period where student-led conferences were used.

In the view of the central office Coordinator of Student Assessment and Evaluation, this phenomena of changes to assessment practices in the classroom leading to changes in other areas of teaching practice was an indicator that School A's assessment initiative had improved both teacher assessment practices and student learning:

There was almost a domino affect, dealing with assessment or reporting is that tiny bit of the iceberg that shows above the water. Nine-tenths of it is below the water. As soon as you start tweaking with that little bit at the top, it raises questions and makes changes down the road. Here's an example from out at [School A]; they're in the process of reinterpreting and refreshing the three-way conferences there. I've always called them three-way conferences, people interpreted those differently. They've gone back to the drawing board and said, I think we understand three-way conferences to be student-led conferences. If they're going to be student-led conferences what do our students need to know about setting criteria in the classroom? How do they gather feedback, how do they do so-and-so, so what can they bring to the table that isn't just the teacher leading the student to say something. And they have done some really neat things out there around repurposing that three-way conference. And I think ultimately, at the far end of things that's a real litmus test of how well the ongoing assessment in classrooms led up to a student being able to be effectively involved in that conversation. (Coordinator of Student Assessment & Evaluation, 3:18, 3)

Taken together, the perspectives of school administrators, teacher-leaders, and central office staff pointed to School A meeting the nomination criteria set out for schools in this study.

School B Site Description and Nomination Trustworthiness

School B was also a K-8 elementary school, with a student population of approximately 250 students and a teaching staff of 15 full-time equivalent teachers. The principal of School B described the neighborhood as a lower-middle class area, but with many stable, long-term families. She noted that the school population was on the rise in recent years, in part due to a recent influx of immigrant families whose children required English language support in the school.

Participants from School B made connections between changes to teacher assessment practices and increases in student levels of metacognition. During his visits to other teachers' classrooms, and in conversations with teachers about their assessment practice, the School B vice-principal observed teachers using common language to describe their implementation of assessment for learning strategies, and employing common assessment for learning strategies such as setting and using criteria with students.

In her classroom observations, the School B principal said she saw evidence of students becoming deeply involved in the assessment process by engaging in such assessment processes as self and peer assessment, setting and using criteria, and putting more emphasis on giving and receiving descriptive, rather than evaluative feedback.

The School B vice-principal believed they were seeing evidence of increased student metacognition as a result of these changes to teachers' classroom assessment practices:

...we're seeing more kids who can describe what they know, and describe how they learn it, and I'll give you a beautiful example of that . . . this is about an

hour-and-a-half ago - I was doing a lesson in my classroom about math, and it was about multiplication. This is a grade six class and we were doing a lesson on two-digit multiplication, and more specifically on representing math with base ten math, so that's a thinking strategy, right? And I had one student who said, well, do I need to do all this? He said, let me show you the way I do it. He didn't say, let me show you how; he said let me show you the way I do it. And he showed me the standard algorithm. I said okay, that's an algorithm. And I said, but what we've been doing of course and you've been learning how to make a multiplication. And what does it mean? He said, oh ya, I get that. So he knows that it's not just the way to multiply, he knows that we're confident about thinking. So that to me means that a number of students in this school can act in a metacognitive way, be mindful about their own thinking.

Interviewer: And that's direct evidence for you that they have control over that part of their learning, they own it; you didn't just teach it, what they learned-they can articulate.

Participant: Yes. He doesn't get stuck on one operation or on one thing, yes, he's looking at a bigger picture . . . he's thinking about his own understanding.

(School B Vice-Principal, 3:21, 10)

Participants at School B also described how their initial changes to classroom assessment practices led to reformatting the school's reporting and interview formats to better align with their new understanding of classroom assessment. Student-led conferences at School B were undertaken by teachers in the middle-years classrooms

during the fourth year of the school's focus on classroom assessment. Many classroom artifacts related to formative assessment were visible in classrooms, including examples of co-constructed criteria, writing continuums, and portfolios that students were preparing for student-led conferences. Participants in this school also showed me other artifacts of student learning, including a comparison of start-of-term and end-of-term student writing that they believed showed improved quality of student work. They attributed these improvements in the quality of student work to the self-assessment and goal-setting strategies used by students in the school.

In the judgment of the School B Teacher, the use of self-assessment and goal-setting strategies, in conjunction with student portfolios and student-led conferences, had enabled students to better articulate what they had learned. She observed increased student proficiency in the student led conferences from term 1 to term 2 by a significant margin, in terms of the student's ease of preparation and quality of self reflection. In her view, this increase of student accountability made students feel more empowered, and contributed to their higher levels of engagement in the reporting process:

. . . what we had them do was really talk through with their parents, their self-evaluation of their behaviors, and talk about some goals that they are thinking of setting for themselves and then they have a reading log that they talked about with their parents, where they set goals for themselves in their reading. And so that's where the student-led conference focused. . . .

Interviewer: Do you think the students learned something? Having gone through that experience in November?

School B Teacher: I hope so, I think it's just important that they have the opportunity to talk about their learning with their class, in general, because . . . it's their self-reflection on how they're doing in class really, so I hope that . . . they are setting themselves up for success for the next term, by doing that, so they're becoming accountable for themselves in class. . . .

Interviewer: Well, did you notice a difference between the October-November and now, with them? And if so, what was that?

School B Teacher: I think . . . definitely some of them . . . were quite proud about their accomplishments . . . definitely the ones that bought into it really talked about how they did, and what they did really well, and what they could focus on to continue to develop in that goal that they had set for themselves and even looked at setting some further goals for themselves for the next term, also. (School B Teacher, 3:23, 11-12)

While participants from School B described the work of the assessment initiative and its effects on teacher practice and student learning in slightly different terms, it appeared that School B also met the criteria for school nomination in this study.

Presentation of Data

In this section, I present findings obtained from the data analysis in relation to the research questions grouped as described earlier in this chapter. Given the similarities in the data from both schools, I compare and contrast findings from each school site through a treatment of the themes that emerged during the data collection process. Within each sub-section, I then analyze this treatment of emergent and research question-related themes from the perspective of each different role: teacher-leader, vice-principal,

principal, and central office support staff. Last, I describe the perceived leadership network in the two school sites, including diagrams and written descriptions based on the interview data and subsequent follow-up. Presentation of the data includes participants' comments from the interviews and follow-up phone-calls. In each of the sections, I support a discussion of the main themes and trends that emerged during the data analysis with relevant quotations from the participants' comments.

While I interpreted and analyzed the transcripts for categories, I chose only to present the quotations that best convey the essence and intent of participants' responses. The quotations presented throughout the document are intended to add depth, thick description, and credibility to the findings.

Roles and Practices of Leaders in the School

In this section, I present data related to the roles and practices of leaders inside the school that were seen to best support changes to classroom assessment practices. Four recurrent trends emerged during the analysis process related to the practices, roles, and leadership practices of leaders working inside the schools: (a) engagement in a multi-level learning community, (b) commitment to integration of school and system-level plans with assessment data in the professional learning design, (c) a combination of formal and informal professional learning opportunities in the school, and (d) application of the practices and principles of formative assessment to the work of the assessment initiative.

Engagement in a multi-level learning community. One of the most prevalent trends that emerged during the data analysis was that teachers and staff at both schools developed learning relationships with teachers and educators from a variety of roles, who

worked in a variety of places, inside and outside their own schools. One of the most productive learning relationships described by every participant in this study was the professional learning that occurred as a result of their membership in a professional learning community of teachers from four nearby schools, all focused on improving formative assessment strategies. Both school principals identified establishing this learning community with a common professional learning focus between four geographically close schools as one of the key practices that led to early teacher experimentation with new assessment practices.

Participants from both schools, as well as central office staff who were involved in this multi-school learning community, described its benefits in terms of accountability, support for new learning, and feeding positive energy into the teacher's professional learning cycle. According to the School B vice-principal, engaging teachers in an inter-school learning community elevated the focus on learning in teachers' professional learning conversations:

I think what really helps about it, is that you're meeting with, planning with, and learning with professionals from other schools. You don't see them anywhere, you don't spend a lot of time with them, in some cases you don't yet know them, before you meet with them. And so a natural human tendency is to put your best foot forward, to present yourself as well as you can, to be positive, to really listen to other people. . . . And so typically those meetings or get-togethers with people from other schools were very pleasant affairs; nobody would trot out a grievance, nobody would trot out a huge issue and try to be a blocker or anything because they didn't want to look bad. So working with the other schools predisposed the whole arrangement to a

more positive turnpike. People would try to do their best. And would find the best in each other, because they were looking for it, and then as a group of people, teachers generally enjoy each other's company, and do try to help each other out. (School B Vice-Principal, 3:21, 3)

Both school principals identified this sort of accountability to peers for new learning as crucial to helping teachers continue to attend to new classroom assessment practices, especially since the time between the multi-school group meetings was sometimes lengthy:

I just made this note for teachers and we talked about a lot of these things and said, 'you know, it's going to be a long time before we talk about this. This is new learning, if we drop it, we're not going to do it.' So I asked them to pick something small. I didn't care what it was, but using the idea that we had learned from this, just do some little thing and then we'll come and share.

(School A Principal, 3:17, 4).

The former vice-principal of School A also supported the notion that increased peer accountability was a factor in promoting implementation of new formative assessment practices. In her view, the expectation that evidence of teacher experimentation was to be shared with other teachers at the next meeting motivated teachers in School A to make concrete plans for preparing to learn together. She also pointed out that even these initial sharings of teachers' attempts to implement assessment for learning practices, and the accompanying student work samples, resulted in new teacher learning, even though teachers acknowledged they believed some of their first attempts at using new assessment practices were not of the highest quality:

We had assignments, and that kept you, okay, now I have to do this because I'm presenting this at the next meeting. So you knew you were accountable, basically, for what you had to do, and you did it. And a lot of it was even collecting samples . . . of student work. . . that you could show as. . . an example of work that you had done with students. . . .so we found that just collecting those over the year, and trading some with other people, you know, from [one of the other schools working on assessment in our area] worked good.

Interviewer: And you did that even from the beginning when people were just learning...

Participant: Yes.

Interviewer: ...knowing that you might not be at the spot you wanted to be at in the year...

Participant: ...but after, like I say, with the[the schools in our area] working as a group, you have support in the group. And if you had questions or you weren't sure about something, we met together and then kind of worked at that point forward. (Former School A Vice-Principal, 3:18, 10)

While participants from School B saw the work of this multi-school learning community as a primary vehicle for new teacher learning, a teacher-leader from School A saw new learning as created primarily from the balance between learning with teachers from other schools in a formal professional development setting, and the day-to-day learning that happened with teachers in the school. The following quotation from the School B principal, followed by an explanation by School A teacher illustrates these different perspectives:

I think it was key to work as a learning community, because we're a small enough school that we don't always have, say, two grade ones or two grade sixes, and I think it really benefits teachers' learning when they can share not only with colleagues from various grade levels, but with their own grade." (School B Principal, 3:26, 4)

Teacher, School A: I think it's nice when you see teachers from other schools, what they're doing around the same area of work, because they maybe are looking at it in a way that you haven't thought about. . . .But I also know that sometimes it felt like there was so much work to be done, that we just wanted an end to the [larger group] work. And I think it would be very simple to start to feel like that. So I think we all know that there's a lot of value in sharing, but maybe we don't need to share as much as we did. . . .sometimes it feels like.. you're so involved and you want this to be the best that it can be, and there's so much work to do, you just want that time to do work, and I know that even when we have our meetings now, like if there is sometimes when you're working, just willing to get to work. That's the way - how I want to use my time. (School A Teacher, 3:20, 17)

The school division's Coordinator of Student Assessment and Evaluation viewed the main benefit of a multi-school professional learning community with a common focus on assessment as being the infusion of positive energy into the professional learning cycle. In this coordinator's view, over time this infusion of energy contributed to the development of an active culture of professional learning in the schools that endured despite staff and administrative changes:

They felt they had the time to stand on one concept or two concepts, learn them well, practice them, share them, tweak that and then move ahead. Those schools found resources over three and four years to give. . . . the time that needs to be committed for teachers to learn and in particular practice, so the same is true here. It doesn't get learned overnight, there are tweaks and parts of this, and small parts teachers can do on their own but they also need the time to spend it together and they were very good about bringing grade-alike folks together. . . .so they could gather, fours to sixes and so on, so that they could build and learn in one of the advantages of some of our larger schools is, often more than one person could be teaching. . . . a grade so you could share your wonders and successes and some of your questions and I think it's also a dynamic of the school So in this case the dynamic of having a number of geographically close schools who were able to do some of their learning work together was a real dynamic context or an energy boost for them, as they went along.

There was definitely a sense of wonder there, a sense that there was something here that they had, and over the years it also developed into a pride, in the [four schools in that area]. [Those schools] were about a sense of, here I am, if you're going to [one of those schools], you're going to be all about assessment, so principals have changed out there, but the message continues, the work continues, and it becomes a place to go to do that kind of stuff. And as they move on into other initiatives and other things that are important, they're still looking back and bringing forward what they've learned about the moves around assessment for learning and student involvement, and applied that. . . . And there's enough of them, there's the

economy of scale, there's enough teachers there that even when you move four or five that are in the building there's still enough there to maintain the momentum.

(Coordinator of Student Assessment & Evaluation, 3:18, 6-7)

Of note in the central office perspective on the influence of the learning community is the shift in attention from time to energy. In the Coordinator's view, creating the time for teachers to learn from one another created positive energy. In his view, teachers used this energy to build the momentum that sustained the work of the assessment initiative over a long period of time.

At the beginning of their assessment initiatives, the two principals involved in this study, as well as the principals of the other two schools involved in the four-school learning community began meeting regularly as a group to plan professional development and review implementation data. Both School A and B principals listed engaging central office support staff in this planning conversation early in the process, and continued to use them for resource and professional development support throughout the initiative. Both principals stated that they continued to meet regularly as a principal group with a key instructional consultant throughout the initiative in order to review progress, and to begin planning the next steps for teachers and students.

Participants in different roles perceived different purposes for these principal and central-office support staff meetings. Both principals agreed that the purpose of connecting with each other, as well as with their central office support personnel was not only to reflect on their teacher's work and develop next steps in the learning process, it was also a way to fuel their own learning about classroom assessment.

From the perspective of the former School A vice-principal, the purpose of the principal planning meetings was to organize professional development and ensure adequate resource support for teachers in the schools. Last, a former School B teacher believed it was important for principals and central office staff to plan together in order to begin the assessment initiative in a way that transitioned in a positive way from the schools' previous professional learning focus and professional development design.

The perspectives of all participants, when viewed holistically, point towards the positive effect of group planning at the principal level in terms of supporting individual teachers, schools, and school groupings in learning and implementing new classroom assessment practices.

Finally, both principals said they saw one of their roles as that of a facilitator whose job it was to connect teachers to other teachers in the service of professional learning. Resulting actions included ensuring every teacher was involved in the assessment initiative, including teacher-librarians and itinerant Music and French teachers. According to the former School A vice-principal, these connections within the school played a crucial role in supporting teachers during instruction. "Glue" staff members, such as the teacher-librarian and French teacher were able to support teachers in the classroom while they tried new classroom assessment practices. In his view, they performed small, but important tasks that provided teachers with immediate feedback on their experimentation with classroom assessment practices, such as collecting evidence of student learning during the lesson, and engaging in informal reflective conversations about the lesson immediately following.

Integrates school and system-level plans, and uses student data in the professional learning design. Participant teachers and administrators from School A and School B described several instances where they made connections between school and system level plans, along with student learning data in the long term and day-to-day design of professional learning in the schools. The School A principal believed it was important to plan with division staff in order to manage the complex integration of professional and student learning strands at work in the assessment reform. Given the complexity of this planning, she saw her role as both conceptual and practical. She asked questions such as, “What questions are teachers asking?” and “What do these questions tell me they are ready for?” as well as practical questions such as, “How do we set up the facility to minimize work for teachers?” She concluded that connecting these planning pieces on a larger scale, and using student data to guide their progress was a key best practice of the planning process for professional learning:

But I’ve probably learned you pull together the learning strand that you’ve chosen, the professional and the personal planning, the annual growth plan. . . . and that all ties in to what you’re doing in your school. . . . and then looking at the assessment for learning large data. All of those things together, are what make this successful, make your school, make your learning happen” (School A Principal, 3:17, 23)

The School B vice-principal described his administrative partner focusing on connecting diverse elements within the school in support of their assessment focus:

She also is very much able to keep it in the focus of the moment, that the assessment for learning is a part of what we do so she will return back and check,

you know, what's going on with our provincial assessment for learning data, and how do we connect to that, to the classroom; do we have the materials in place to support this, what else do I need? So she's always got a little bit of a technical approach, and just so that she keeps the focus on a question keeps you thinking about that. (School B Vice-Principal, 3:21, 6)

The former School A vice-principal confirmed that this sort of collaborative planning was ongoing throughout the assessment initiative, and that its purpose was to adjust professional learning tactics in relation to evidence of student learning, both in and between schools, as well as in relation to school and school division strategic plans.

According to teachers from both schools, this sort of commitment to integrating plans and data from different levels actually allowed teachers to simplify their approach to implementing new assessment practices in the classroom. As a result of this planning, teachers in School A said they were able to focus their initial work on helping students develop better research strategies. Similarly, teachers at School B found ways to combine professional learning from the school assessment focus and the division focus on literacy.

Formal professional learning opportunities in the school. When asked, "What made this assessment reform initiative effective?" all participants reported engaging in a range of formal and informal learning experiences as an ongoing action that resulted in successful changes to classroom assessment practices and student learning. The School A principal said one of her most important roles was to set the context for successful professional learning. Similarly, the School B principal said one of her roles was to be responsible for finding enough time for professional learning. As a result, both school principals used several practices that facilitated professional learning for teachers in their

respective schools. Both principals made conscious choices to remain actively involved in planning professional development in their schools. They met with each other and central office support staff, and had reflective conversations with teachers about the state of student learning and where they thought professional development needed to go next. They set and maintained a focus on classroom assessment, and committed significant resources to supporting teacher learning.

On the formal side of professional development, teachers in each school were involved in up to 5 ½ days of formal in-service related to classroom assessment in the first year, and still participated in three ½-day formal in-service days related to classroom assessment in the fourth year of this focus.

One action mentioned by all participants was that the school principals asked all teachers to try at least one new assessment practice and bring evidence back to share with other teachers at each following formal professional development session. Participants in different roles described the importance of concrete follow-up to maintaining the quality of formal learning. From the School A principal's perspective, this sharing of evidence of teacher experimentation stemmed naturally from the school's ongoing commitment to professional learning:

. . . . we also had this built-in concept of homework, right from the beginning of every session...like way back when we were doing math . . . it wasn't onerous but you would come and have discussions and learn about something, and then you would always finish with, okay . . . what will we try in our classrooms and what will we bring back to our next session? So that thread continued through, so what is it that we're going to be trying in our classrooms [related to assessment], and then

we're going to come back and talk about it. So the stage was set, we were way past that whole bit about . . . having this homework and be onerous and what not, because it was just the way we already did things, right? But we were also careful to manage that in such a way that . . . it fit with the school year and it was a reasonable size, and it focused on what it was we were going to be doing. (School A Principal, 03:17, 6-7)

While teachers described the expectation to bring back evidence of experimentation with new practice as uncomfortable, they also stated that completing these tasks and returning to show them to other teachers also opened the door to many important informal professional learning opportunities in the school:

Participant: I think at the beginning it felt forced, because it was something new and it was, okay we're going to be meeting again, you know, whenever the next time was, and you need to bring a work sample. Like we want everybody to bring something back . . . I can remember initially most of us feeling like this was just one more thing on my plate. And it didn't feel natural because I think, you know, it's something new, you don't know that much about it, and you're in the middle of the unit and now you're just going to try to find a lesson to plug this in . . . And it didn't feel natural or like there was a nice flow to it. . . . And like most of us, I think it'd be fair to say we resented the effort. . . . and having to take things back.

Interviewer: . . . So the work was being laid on you, what happened? It wouldn't have lasted for five years if it had stayed that way. Or did it stay that way?

Participant: No!

Interviewer: Tell me how it progressed as you saw it.

Participant: . . . [the administration] wanted to see samples of what we had done. So there was no way around not doing it this way. When that is the expectation that you will show a product, you have to do it. And I think the more we did it, the easier it got. And I think it would have been in our second year then that we picked the research project, and thought that would be our big idea and that we would really look successful for that topic. (School A Teacher, 3:20, 10-11)

The School B principal reflected that this shift from teachers feeling uncomfortable with sharing evidence of new practice to valuing this component of professional learning despite its difficulties was a common pattern for nearly all teachers she had worked with. She described this phenomenon with a former, very experienced teacher, who moved from actively disapproving of this sharing of new practice to supporting this work in a formal way by taking on the role of acting vice-principal for a year during the assessment initiative:

One of the other things that we always made sure that we did is something, when we were doing the planning, is that we would always make sure at the end of the session that teachers actually had - they called it homework. . . . They had something that they had to go into a classrooms and try, and then bring that to the next session and share with the rest of the group. So there was a bit of accountability there. . . . and I think that pressure is important or was key in making them go along with their learning. And I've had teachers since tell me how much they hated that homework. . . . and one teacher in particular who was one of the ones that didn't want to be involved in assessment, was a very experienced teacher, who had taught for many years, and that was one of these, 'I've always done it that

way, it's always worked,' and was resistant to change, and freely admitted that, and in subsequent years she's said to me that, she was really glad that that homework was given, although she needed to do it that time, and she said [she] wouldn't have tried it, [she] wouldn't have done anything, had we not had to share at the next session. . . . And she really appreciated it, afterwards. . . . I kept reminding them, it's what we ask the kids to do every day, and, it's good for us to do some learning and remember how we did it, because [teachers] sometimes get frustrated and, if something didn't work, I'd say to them, well think of your students. The first time you teach a lesson, do they get it right away? Or does it take some practicing. And, so it was a bit reassuring for the teachers to hear that message that they didn't have to be perfect or that they could try a lesson and just fail completely. But the key there is to figure out why it failed and why did I do that, you know, I need to do something different. And, I think some of that collegial support was good too, because they did get to the point where they could say to each other, I tried and it just didn't work. And somebody else would say, well I did it this way and then it worked. (School B Principal, 3:26, 7)

From the perspective of central office support staff, the formal in-services teachers participated in at School A and School B were effective at helping teachers learn new assessment practices because they employed a model where teachers not only studied new practices, but had time to reflect upon and share their ongoing experimentation and implementation work related to the assessment reform. Because this balanced design was sustained over a long period of time, it allowed teachers to successfully adapt new classroom assessment practices:

The other thing that I really liked about the in-service out there, a lot of it has protected time for teachers to get together after they've learned something new, and work together to refine and reflect on their practices. We can't just be continuing learning to do new things, we have to be able to talk to one another, and refine and practice. So, those are some of the things that have gone on out there that could really give you quality. (Coordinator of Student Assessment & Evaluation, 3:18, 3)

Finally, teachers perceived one of the roles of the principal in engineering an effective professional learning calendar was to provide an appropriate balance of support for professional learning, along with pressure and accountability mechanisms that moved teachers forward through the initial discomfort of experimenting with new formative assessment practices:

I think that even though I really didn't like the homework, and I didn't like that feeling of 'you have to do this,' I didn't like that. . . . If that had not been there, I don't think that our school would be where we are at the present time. . . . Because it's always easier to just skip to the 'give me what you're doing,' than it is to try something new. I mean, you could do this in a small way, but we chose to really get involved with it, and so it's been a big deal here. And I think without that initial somebody pushing to say, 'this is where we're going, and you need to do this,' I don't think that we would have had the success we have had. . . . I [also] think we've had lots of support; I cannot think of a time where we've asked for anything, where it hasn't been provided, whether that's books, or time, or...I can't think of a time where [the principal] hasn't made that happen. (School A Teacher, 3:20, 15)

Participants identified engaging in formal professional learning related to formative assessment practices over a number of years as a key to learning and implementing new assessment practices to a level of quality where they positively impacted student learning. They identified the setting of high expectations for concrete follow up between teachers as one of the main pressures created by administrators that helped teachers move through the initial discomfort of learning and adapting new assessment practices in the classroom. While principals saw their role as setting direction and context for professional learning, teachers saw the principals of School A and B as being the primary supporters of teacher learning.

Informal professional learning opportunities in the school. In addition to identifying formal professional learning opportunities in the school, all participants described a range of informal professional learning opportunities that sustained the professional learning focus. Teacher participants from both schools described their overall professional learning experience as including not only formal in-service meetings and planned staff meeting time focused on classroom assessment, but also including planned visits to one another's classroom, planned time for reflective conversations or comparing student work samples, as well as many informal and unplanned conversations with teachers and administrators about work related to classroom assessment.

Teachers from both schools talked about the collective power of small groups of teachers within the school to support one another's learning. From the perspective of the School A teacher, the teacher group was able to share professional learning tasks in a way that benefitted everyone in the group, and provided a place where teachers in the group were able to reflect on both their success and failures during the experimentation phase:

. . . . we broke all the tasks that needed to be done, down by person, and what area was their strength, and so it made it so much easier. And then if you had something you were struggling with, you had four other people you could talk to about it. . . . Or something went really wrong, you could say, hey, have you tried this? This was great! You might want to try doing this. Or, my kids really struggled with the format that we set up for this, I changed it to this. So if your kids were having trouble, you might want to use it. So it was a sharing of ideas and resources. (School A Teacher, 3:20, 12)

From the perspective of the School B teacher, the teacher group in School B supported one another's learning through their willingness to engage in repeated, extended conversations about what worked and what didn't work. The School B teacher stated that everyone within the teacher group displayed a willingness to share samples of student and teacher work, including successful and unsuccessful attempts at using new classroom assessment practices:

We just did a lot of talking about the strategies that we were looking at, and ways that we were having the students try out different strategies; a lot of different resources that we had found, we'd share those; specific books to teach a strategy, to model a strategy, we really had conversations about a lot of these, because they combine with. . . that type of information. I think that's all I did (laughs). I don't know! I mean just to basically come with things that you had done that had worked, that didn't work, and possibly you know, lessons. . . reading logs, we did a lot of reading logs, and the kids do a lot of assessing, how they're doing in their reading and self-assessment, so just sharing all that stuff. (School B Teacher, 3:23, 6-7)

From the principal's perspective, teachers engaged in three specific practices that contributed to the success of the ongoing, informal professional learning in the school. Teachers taught in each other's classrooms as way of supporting each other's early attempts to use assessment for learning practices; teachers committed to ongoing small-group collaboration focused on assessment for learning practices and analyzing evidence of student learning; the principal also observed ongoing informal conversations related to assessment. Often, these conversations were focused on follow-up activities agreed upon at formal professional in-service sessions:

I remember just listening to teachers talk about as [the next professional development session] was coming, that we were going to have an awesome time, and it was one of the those moments...so we hit the ground and everybody had done something that they were excited about and surprised about and had learned and. . . it was so positive, that everything that has followed has kind of been on that track. . . .So that was the one thing that I think made such a difference because we started very small and very simply. And we continue to learn. (School A Principal, 3:17, 5)

In this principal's view, there was a clear connection between teacher's formal and informal professional learning that helped teachers learn and sustain new classroom assessment practices. Both school principals made a conscious effort to be involved in these sorts of conversations. Teachers in School B described their principal as being actively involved in these informal conversations, and felt that this involvement was one way the principal supported their classroom work. The School A principal cited her record of these sorts of conversations as evidence of teacher growth:

“I know grade four and five focused on the formative development of writing, and worked together on that, and so they would talk about what were the strengths and what things worked and what they were doing to change, and how kids responded so sometimes people would be in the coffee room, they’d be talking about well, look, this kid wrote this, and then, you know, so I would have those conversations. “ (School A Principal, 3:17, 11)

Viewed together, participants in all roles saw formal and informal professional learning opportunities as critical to the successful implementation of classroom assessment practices, and described the active involvement of people in different roles or from different schools as providing a positive balance of pressure and support for new teacher learning.

Application of assessment for learning principles to the work of the assessment initiative. According to Wiliam (2007), key strategies for effective formative assessment include providing feedback that moves learners forward, engineering effective discussions that elicit evidence of learning, and activating learners as instructional resources for one another. An action commonly described by all participants in this study was that people involved in their school’s focus on assessment applied these formative assessment strategies to the overall work of the assessment initiative, at the student and the professional learning levels. While the application of assessment for learning practices to professional learning and planning the assessment initiative was a deliberate action by some participants in formal leadership positions, other participants described using assessment principles to facilitate their own learning without realizing this was the case.

Viewed from the central office perspective, it was clear to the Coordinator of Student Assessment and Evaluation that teachers at School B used a variety of self-assessment and feedback mechanisms in the context of in-school professional learning as a way of including all staff members in the assessment initiative. He noticed that teachers in School B connected their experimentation with formative assessment practices across subjects and grades through the use of feedback-based learning conversations. In his view, this act of connecting new practices across grades and subjects was a key reason for successful implementation of assessment for learning practices across the school:

I was very pleased to see that the leaders teaching in [School B] picked that up really quickly, and had conversations around, okay, if I'm practicing setting music criteria in my classroom, what could you be doing in your classroom that my students are learning; or how could you utilize and make use of some of the skills that have been in my class. So conversations there went quickly to what was best in teaching practice, what was best instruction, and how you built up the practice in the school. . . . So it's not only the power of creating the moments for those kinds of learning conversations, but also the openness, so they get to share. First try stuff, and state some stuff, and then the successes as those role out in some of that first work.

Absolutely, [with kids] and assessment for learning we talk about practice, practice, practice with the kids and you get there through a series of approximations. The same is true with the teachers. All too often if busy teachers try something that doesn't hold, that's it. Yet if you and I have a conversation with one another we'll try it together, we'll talk about it, we will learn from one

another, we will self-assess, we will provide feedback; we're doing all the things that are an integral part of assessment for learning but we're doing it at the professional level. I'm not sure that many teachers would articulate that, that they are in fact utilizing the aspects of assessment for learning within their own professional learning, but I've certainly seen many examples of it out there.

(Coordinator of Student Assessment & Evaluation, 3:18, 5)

School B teachers noticed that the central-office instructional consultant responsible for leading many of the formal in-service sessions used assessment for learning principles in the design of formal professional learning experiences for teachers. A former School B teacher said that at the start of the assessment initiative, teachers found this alignment between student and teacher learning to be a highly engaging strategy that helped teachers adapt assessment for learning strategies to their own teaching styles very early in the initiative:

We would go and fill things in and then how could we sort this and. . . it's as if you were doing an assessment with the class. But how am I going to mark this? Like, what's important! [We] just had a whole list of things, and he actually taught us not to be reactive to what the kids said, and he wasn't reactive to what we said.

Anything goes. And you just wrote it down. You wrote it down. . . and then later you would compile and see which things fit where and which overlapped. . . . And from doing the chart work - we might have had eleven charts, along the wall where we had filled things out - he said, let's categorize it, what's the big idea. His term was, 'what's the big idea?' So we basically were walked through this, very slowly, with lots of. . . handouts that were good, let's try this, go back! And try this

with your class. Go back and try some things that we've talked about with your class. (Former School B Teacher, 3:21, 4-5)

Participants described using feedback loops at many different levels in order to adapt new learning to the classroom. At the administrative level, school principals and central office staff reported meeting together regularly, especially at the start of the assessment initiative, to reflect on evidence of student and teacher learning, and begin to plan the next steps in the learning process. Principals and vice-principals also described engaging their staff in evidence based conversations about the future direction of the school's professional development cycle.

Interviewer: So in a way [the instructional consultant's] work was used like a spark almost.

Participant: [The instructional consultant] was our spark(laughs).

Interviewer: So if he was the spark, what was the fuel, what was it that kept it going?

Participant: I and the principal, the administration were the fuel that kept it going, and we would find out, what are you doing, where we need to go next? (Former School A Vice-Principal, 3:18, 9)

School administrators made use of a feedback loop between teachers and themselves in order to elicit information they could use to guide the assessment initiative, they also believed that the use of this sort of feedback mechanism provided positive energy for sustaining the school's assessment focus over time. In the view of the School B principal, applying the principles of assessment for learning to the assessment initiative itself also

had the effect of elevating the professional discourse to a more metacognitive level for staff:

Well let's take the theme of metacognition. Really assessment for learning is about metacognition; it's about the learner being able to think about their learning. To put themselves in places like - what have I learned and how did I learn it? And how well did I learn it? And if they can ask those questions, and begin to answer them, those are the actions we want. And as a school we're trying to be metacognitive. What are we doing right, what are we learning as a school about this, how do we know we're learning it? How do we share what we're learning that's about assessment for learning? I'll go back to what I talked about - there are our connections to other schools, and to other staffs in other schools, that's a pretty good metaphor for what we're doing. It is metacognitive, because there's an active thinking and there's also sharing of experiences, but it's one step removed from the practice; when we're out of the building we're talking to other professionals, our language is elevated to a more professional level. (School B Vice-Principal, 3:21, 8)

The School B vice-principal confirmed this perspective on using assessment for learning practices to elevate teacher levels of metacognition, and added that this focus on metacognition had the added effect of helping staff to become more engaged in the learning process themselves:

We're always metacognitive about our focus. It's not just that we have a particular text or a particular approach to get across and let's put it into order and then deliver it, that's never been our approach. It's always very much based on

what's the cause and effect, on what's the behavioral effect that we think needs to be most brought out in for our staff, what are their needs. What do they think about, how they got around to it, and how do we present it, and involve them, and does it do what the research says it should do. (School B Vice-Principal, 3:21, 7)

While teachers in School A and B seemed less aware of their own use of assessment for learning principles to aid their own learning, they described using a range of data sources to guide their work on classroom assessment, and using a variety of different feedback mechanisms to adjust their use of classroom assessment strategies. According to the School A principal, middle-years teachers used ongoing small-group collaboration focused on student work to guide their use of new assessment strategies: “But [the senior team] just always talked together about what worked, what didn't work, um, what they were changing. . .” (School A Principal, p.8). The former School A vice-principal confirmed this practice by the senior teachers in the school:

Well when we started one project and we saw, well this worked, this didn't work, we need to change this, and we were very flexible, so we altered them as we went. Some things worked well for the grade eights but didn't work for grade six. . . . So we had to go clue in and alter our formats, basically, that they used. And that was one of the main things. (School A former Vice-Principal, 3:18, 4)

In her view, this sort of ongoing collaborative planning and adjustment of experimentation with practice as guided by student work was one of the ways middle-years teachers in this school continued to focus on how their use of classroom assessment was affecting students. School A teachers reported engaging in similar planning conversations focused on student work samples to help guide their assessment work.

They reported that while these conversations were meant to focus primarily on the student learning, they evolved very naturally to connect the effects teachers thought new classroom assessment practices were having on student learning, and to adjust implementation of these practices based on the evidence attended to in these conversations.

Participants in this study identified a variety of ways that teachers, administrators, and central office support staff used feedback to facilitate learning, and engaged in conversations that focused on evidence of student and teacher learning. School administrators engineered reflective conversations with teachers that focused on feedback and evidence of learning as a way of activating teachers as owners of their own learning related to the assessment reform. Finally, Teachers identified relying on one another as instructional resources as one of the key strengths of their in-school and inter-school professional learning groups.

Roles and Practices of Leaders Outside the School

In this section I present data related to people working outside the schools who played an important leadership role, as identified by school-based participants. During the interviews with school-based participants, two people from the school division's central office were identified in interviews at School A and School B as having played an important leadership role during the assessment initiative. I interviewed two central office support staff who had worked closely with both schools: the Coordinator of Student Assessment and Evaluation, and an Instructional Consultant who was assigned to work with School A and School B during the first two years of their assessment initiative. I examine the roles and practices of central office support staff from the perspectives of

both school-based personnel who experienced the support, as well as from the view of the central office support staff themselves. Here, I address two of the research questions outlined in chapter three:

1. What roles are played by leaders from outside the school in changing assessment for learning practices?
2. In what ways have the practices of leaders from outside the school engaged teachers in implementing and sustaining assessment for learning practices in schools where these changes have led to increased student learning?

Administrators and teachers identified the involvement of central office support and leadership as an important support of the assessment initiatives in each school before, during, and after the initiatives. While school-based participants identified many ways in which central office staff provided guidance and facilitated changes to classroom assessment practices, central office participants also stated that schools provided new learning and support for their own work as well.

School A and School B principals both identified seeking out central support for their school's assessment initiative before its beginning, and maintaining central support and involvement in the assessment initiative as leadership practices they planned from the outset. Principals listed four reasons for engaging central office support staff early on in the initiative: to build credibility for the reform, to increase their own knowledge base related to assessment, to seek out additional resources with which to support the initiative, and to collaborate on planning the complex integration of professional and student learning strands.

The principals met with the Coordinator of Student Assessment and Evaluation and the Coordinator of Curriculum and Instruction during the planning phase to coordinate the design of the professional development aspects of the initiative, and kept in touch with them throughout the length of the initiative to update them on progress, to elicit information or feedback on their work so far, and to continue to secure financial and human resource support for their work.

Additionally, both principals continued to meet with the central-office instructional consultants assigned to their school to reflect on evidence of teacher and student learning, and to plan the next steps in the formal professional development cycle for teachers. The School B vice-principal saw the building of this sort of long-term partnership as an intentional act that served to support the work of the school by the administrative team that benefited both the school and central office staff:

. . . it's very helpful for the administrator to build up a long-term relationship with people who can provide support, like consultants, very strongly so. And I think it's helpful for the consultant too, that they have a good relationship and they're a part of our long-term planning and if they are, there is a two-way connection for them. I think for the people who are coming in I believe that's the difference. We have a couple of consultants, [consultant name] is one, who is a pretty much a regular in the building, and so [that consultant's] suggestions are taken to heart and you try to involve them with the planning aspect of it, and there's a lot of back and forth, and she's become quite trusted as much as by us administratively but by the others on staff, well known and trusted. And that kind of relationship, that you build into that's really amazing. (School B Vice-Principal, 3:21, 7)

Teachers also valued central support staff's own focus on classroom assessment, and their ability to connect people across the school division. According to a teacher-leader in School B, the central focus on assessment helped support work in school by connecting the school-based assessment focus with division-wide learning priorities. These connections provided learning opportunities with teachers in other schools because of their common focus. This central focus also served as a reminder of what should be attended to in terms of teacher practice:

I find it helpful that the [division literacy initiative] continues to focus on assessment as well. I mean, I still talk to colleagues from previous schools that I've worked at and...just even comparing things that they're doing and, oh! that's neat, what you're doing. . . . it seems to be always together. . . .it's given us other colleagues to talk to from other places, and that literacy team works on that central literacy initiative, are doing and some talking about it and showing some of those things as well. . . . It's like it comes full circle, like everything seems to have an assessment focus which helps to keep that priority there. . . . and assessment for me has never been like obvious, so it's really nice to sort of have that reminder about.. oh ya, how are we going to assess that? What kinds of things can we do to. (School B Teacher, 3:23, 13-14)

Teacher and administrator participants described the infusion of positive energy in the work as a key contribution of central office. During follow-up conversations about where this positive energy came from, participants described both the Coordinator and the Instructional Consultant as demonstrating passion for the work of the assessment initiative that was bred from their knowledge of the research base. In the view of the

School A principal, central office support staff strengthened commitment to classroom assessment by sharing their knowledge of the related research and by providing clear examples that enabled teachers to see what formative assessment practices might look like in their classrooms. She identified this commitment to a strong innovation as identified in the research literature as one of the best practices that enabled staff with differing levels of experience and teaching styles to successfully implement new classroom assessment practices:

“I think [the teachers] learned that the literature tells us something and then you can benefit from that, and then when you put some of this into place actually it does help. It doesn’t all work, and it doesn’t all work for everyone; it worked with last year’s kids and not these kids so it needs something different but, I believe that everybody and all of our teachers are refining their practice with respect to their day-to-day work.” (School A Principal, 3:17, 25)

The School B principal saw that this sharing of knowledge in turn facilitated the instructional consultant’s own learning:

“Well I think that [our instructional consultant] was very new in his role. . . and so in some ways I think he was learning along with us, but I think he had the time to do some of the background researching about assessment for learning that classroom teachers didn’t. So I think he really grew in his knowledge and understanding of what assessment is all about, and he worked with Ann Davies and Stiggins and many others. And he became very knowledgeable and very passionate about assessment. And just his energy and enthusiasm was very infectious, and people really grew to trust him, and the knowledge; he had the

expertise to the point that they were going to go into classrooms and try to interest kids in assessment for learning, and they might realize what they've done. (School B Principal, 3:26, 6)

The Instructional Consultant confirmed that his approach to leading professional development evolved to more closely align with assessment for learning practices as the learning about assessment at School A and School B progressed. He described designing the professional learning cycle for teachers through a feedback loop structured around the following statements: “What I tried - what worked - what didn't – questions – artifacts (evidence of teacher practice and student learning) – what I will try next.” He noticed that as the assessment initiative gained momentum, teachers' abilities and willingness to reflect openly about their practice increased. He also felt that his own approach to leading formal professional development improved as he tried more assessment for learning based approaches to these sessions. He described moving from direct teaching approach, to a feedback based approach:

Interviewer: And over those three years did your approach change as teachers learned?

Participant: Oh yes, absolutely.

Interviewer: Talk about that evolution.

Participant: My approach at the beginning was, here is the workshop, sit down and get it. . . . [But] towards the end it was like, 'okay, where are you at? What's working, what's not, and how do you see this evolving?' To the point where teachers who I thought weren't doing this, and again just guessing based on how they'd talk in the workshops and my own feedback, were starting to say 'I can see

how this is connecting to report cards,’ or ‘how can I connect this to my report cards?’ And then we’d explore, we’d talk about that, and so a lot more stuff was coming from the teachers, so it was more like present an opportunity, present a question to the teachers, talk about it, solve it together, from a direct teaching opportunity.

Interviewer: So you noticed over that time, your discussions were able to stem more and more from their reflections on trying out and implementing some of the assessment strategies that you had looked at together.

Participant: Yes, and even teachers who were reluctant, and they would say they were reluctant. . . started to say, ‘I’m seeing how this fits in my classroom, I’m starting to do things differently.’ (Central Office Instructional Consultant, 3:22, 7)

Central office support staff was invited by the schools to be involved in all stages of the assessment initiatives in School A and School B. The schools engaged support from different levels of the central office, and worked with them to support planning at the principal and teacher levels. Central office staff also played a key role in professional development by helping schools to access the knowledge base related to classroom assessment, by providing clear models of what formative assessment practices look like in the classroom, and used the principles of formative assessment during professional learning to help activate teachers as resources for one another.

Leadership Networks

In addition to collecting interview data about the roles and practices that supported the assessment initiatives in the schools, I examined the overall network of leadership

relationships surrounding each school. In this section I describe data collected on the following two research questions initially posed in chapter one:

1. Which leadership practices are seen to best support changes to classroom assessment practices?
2. What is the leadership network in schools where assessment for learning practices resulted in increased student learning?

Background. Wiliam (2007) and Wiliam, Steinburg, Bell, and Wylie (2008) observed that teachers require supportive connection both inside and from beyond the school in order to sustain significant changes to classroom assessment practices. Fullan (2003) described this kind of support system as a leadership network of people that consider the classroom, school, and wider school system as part of their day to day work, regardless of their position within the system.

The idea that networks of people can effect the acquisition and implementation of new practice has its historical roots in social network theory. According to Festinger, Schachter and Back (1948), members of social networks that had both density and cohesiveness were more likely to build trust and to provide the accountability structures needed to ensure that members of the network carried out new practices. They argued that the more dense and cohesive a group, the less chance there was for free-rider behavior that deviated from the accepted norms of the group. In staff development terms, a network of strong ties among professionals is an important social contributor to the long-term implementation of new instructional repertoire across the entire system. According to Wiliam (2007), teachers who worked towards the same student achievement goals, who shared their data on student performance, and who expected each

other to share their teaching practice on a regular basis were more likely to embed new practices in their repertoire.

Granovetter (1973, 1983, as cited in Granovetter, 2004) argued that people acquire new information, ideas, or skills more efficiently when they move outside their normal social network to obtain them. He demonstrated that people who move in the same social circles have strong ties: considerable overlap in knowledge, skills, and beliefs. People who are connected to sources outside their network of strong ties can be a more reliable source of innovation because they are influenced by different ways of thinking about the world and solving problems. People within a particular clique are connected to people in other cliques through weak ties rather than strong ones, and it is through these weak connections that new information travels most effectively.

The relevance of social network theory to the network of leadership in the schools in my study became clear in light of Goleman's (2006) findings that people were more often influenced by someone with whom they had a positive emotional connection than from someone they were connected to in a hierarchically organized system. He showed that during inspired moments of learning, "students experience a potent mix of attention, interest, and good feelings" (p. 76). Damasio (2003) argued that when people experience these positive states of mind, they are in a neurological state of "maximal cognitive efficiency—a brain ready to learn at its best" (p. 77).

Reeves (2008) argued that this emerging science of networks can offer a different framework for school improvement. He suggested that change throughout a system, such as a network of teachers in a school, depends more on nonlinear communication through *nodes*, *hubs*, and *super-hubs*, than on traditional hierarchical models of communication.

He stated that, “A *node* is any single point of contact in a network; a *hub* is a node with multiple connections. A *superhub* is that rare node in a network that connects to an exceptionally large number of other nodes and hubs” (p. 63). He illustrated this principle with the following figure:

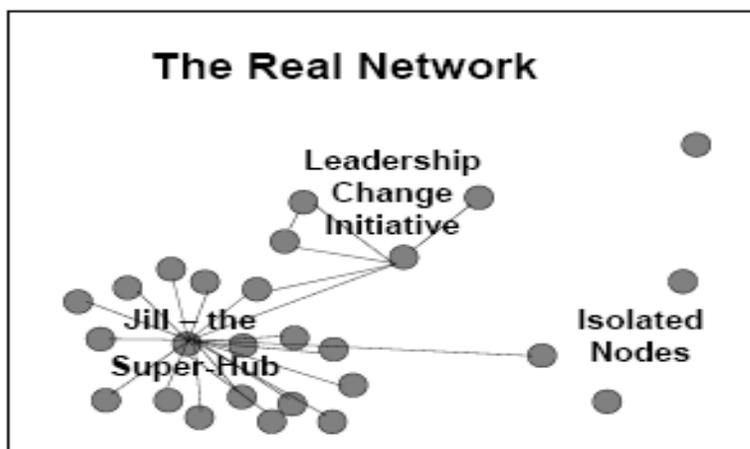


Figure 1. Close-up view of simple network (Reeves, 2008, p. 64).

Reeves argued that while a school change initiative may run through people in formal leadership positions, people like “Jill” wield huge amounts of influence in causing other members of the network to learn and implement new instructional practices. Gladwell (2002) described people in “Jill’s” position as mavens, people with a great amount of expertise or knowledge, and who are connected to a larger than usual number of other people in the network. These superhubs, or mavens, are also important because, according to Barabasi (2009), new nodes attached to existing nodes and hubs following the principle of “preferential attachment” (p.412). He found that new nodes were most likely to connect to those hubs that were already most heavily connected to other nodes and hubs in the network. He showed in his research that these principles of attachment govern the formation of networks in the transmission of viruses, how the internet is

connected, and in human organizations. However, he concluded that little research has yet been done regarding the processes at work within these networks.

Findings: Leadership networks. During the interview process, I wanted to determine how participants perceived the connections between different people involved in the assessment reform. I asked each participant to identify other people they believed played an important role in influencing the success of the assessment reform by asking each person to identify people inside and outside the school who played an important leadership role in supporting the initiative. I also asked participants to identify who they, and who other staff members, sought out when they had questions, or needed help with something related to classroom assessment.

As a follow up to these questions, I also probed for examples of the ways people playing a leadership role connected with other people involved in the assessment initiatives. Following each interview, I made diagrams following Reeves' model above as a way of describing how participants saw their connections to others in the school. What follows are the composite diagrams of the leadership networks as described by participants in each school, along with a written explanation for each. I used the following visual organizers in each figure to delineate different relationships:

1. Circles denote people who were participants in this study, while people identified in ovals were not participants in the study.
2. People in grey shapes were members of the school in question, while people in white shapes were not members of the school in question.

3. Solid lines describe “strong” ties between people as noted in the description of each figure, while dotted lines describe “weak” ties between people as noted in the description of each figure.

Primary teachers were not represented in the figures because their school improvement work focused primarily on literacy instruction rather than classroom assessment during the time period studied, as described during the section above on nomination trustworthiness. While these teachers may have been connected to other teachers, administrators, and central office staff in ways that affected their learning, no primary teachers were identified as playing a key role in the school’s assessment initiative. As such, the primary teachers’ connections are not represented here because they fall outside the scope of this study.

I connected the School A principal to many different people in School A’s network because of her active involvement in the planning, professional learning, follow-up, and analysis of student data phases of the assessment initiative, as described in the findings above. She worked actively with central office staff, other principals in the multi-school learning community, and the School A vice-principals. She is also connected to many of the School A teachers in the network as a result of her ongoing formal and informal interactions with teachers related to the assessment reform work. As a result of her ongoing connection to people at many different levels of the school division, she acted as one of the hubs in the School A leadership network.

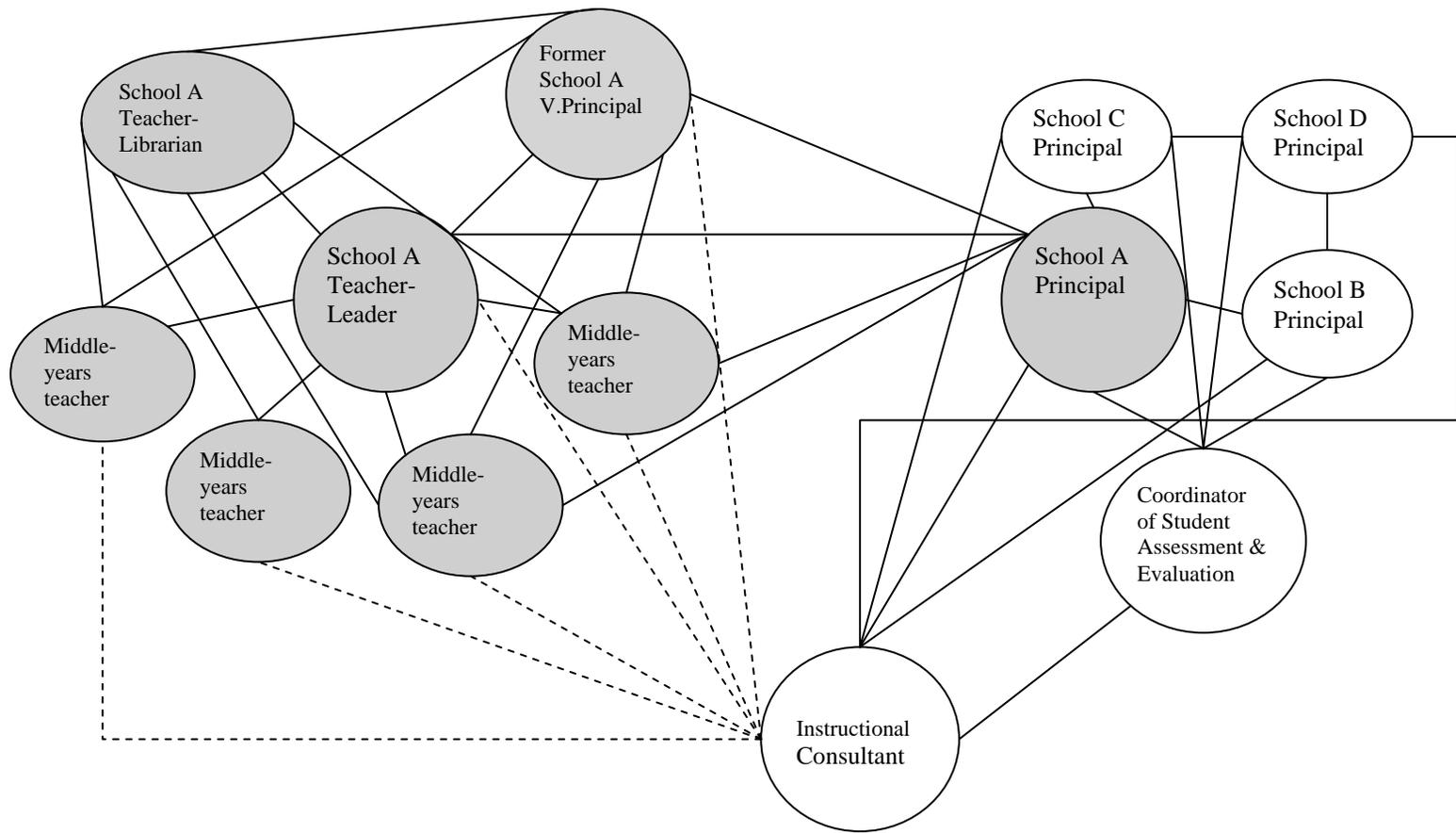


Figure 2. School A leadership network.

The other major hub in the School A leadership network was the School A middle-years teacher-leader. Every participant from School A identified the School A teacher-leader as someone they went to for classroom assessment advice, and all three School A administrators I interviewed said they noticed other staff members approach this teacher for help with classroom assessment related questions. According to the School A principal, this teacher connected effectively with other teachers because she was always willing to share her thinking about ways to integrate and connect major professional learning themes:

“I just quote what one of our teachers said to her, something about, *you are just always on the cutting edge*, and she is. She’s able to really see the big picture, and then say to people, we could do this, and this, you know, just pick out the strand of what would be a good thing to do. . . They did a bulletin board together that brought together the assessment for learning and [the division literacy initiative], and worked together. And [this teacher leader] is really good at saying, so I’m going to do this and I’m thinking, here are the things that we’re doing and, I mean, she just really hones in. . . . [teacher leaders] are willing to share some of their ideas.” (School A Principal, 3:17, 21)

Reeves (2008) argued that hubs are effective at connecting many people with important ideas because they volunteer this service; they are not conscripted into it. In this case, both the School A principal and the School A teacher-leader very clearly stated that this sharing of knowledge was done voluntarily in the spirit of learning from colleagues and helping colleagues to learn in return.

Also of note was the School A teacher-librarian. While not a participant in this study, she also appeared to serve as a connector between many teachers in School A. When asked about her role, the former School A vice-principal described her as a “glue” teacher. She helped teachers focus on classroom assessment by going into teachers’ classrooms and working with them when trying new formative assessment practices:

. . .it was a bit of a group project but the teacher-librarian of course was able to work with all the groups combined. . . . so she knew all the kids also, so we were kind of the floating group that could work. Anyway it’s nice to have two teachers in a group, one could teach and one couldn’t, and make sure that they were on task. We could see the odd task behavior so we did the triangle, you know, method of there was just observations, conversations and products, and you could actually catch a lot of things that if one person teaching you wouldn’t be able to do. . . (School A Former Vice-Principal, 3:18, 5)

By working in the classroom with each teacher, the teacher-librarian was able to support the critical steps of student data collection, and then discuss it with the teacher immediately following the class. This collaboration provided an informal, but immediate feedback loop for teachers about the evidence of student engagement and student learning related to the teacher’s practice. This collaboration provided an ongoing connection between the group of middle-years teachers working on classroom assessment. The former School A vice-principal also played this “glue” role by teaching with other middle-years teachers, or releasing a teacher to allow them to work with another teacher on classroom assessment.

As described earlier, the instructional consultant played an important role in providing planning support for the principal group, as well as extensive formal professional development support for teachers. Given these roles, the consultant is connected to the people in formal leadership positions with solid lines. However, even though the consultant provided valuable professional development for teachers, he was connected to them with dotted lines to portray his perception of a weaker connection with teachers. Because he was unable to work more directly with teachers and stay updated on their progress on a more ongoing basis, he described feeling disconnected from their day-to-day work.

In the school B network, the principal and the middle-years teacher-leader served as hubs connecting to many other people associated with the school. The school B principal acted as a hub in this network because of her ongoing, active involvement with teachers in the school, other principals, and central office support staff. As described previously in this chapter, her connections with other staff members were identified as one of the critical supports for School B's assessment initiative by all other School B participants. The School B teacher-leader was identified by other participants as the teacher most sought out by other teachers for help with classroom assessment. The School B vice-principal identified the collegial relationship between this teacher-leader and other colleagues as one of the key connections during the assessment initiative:

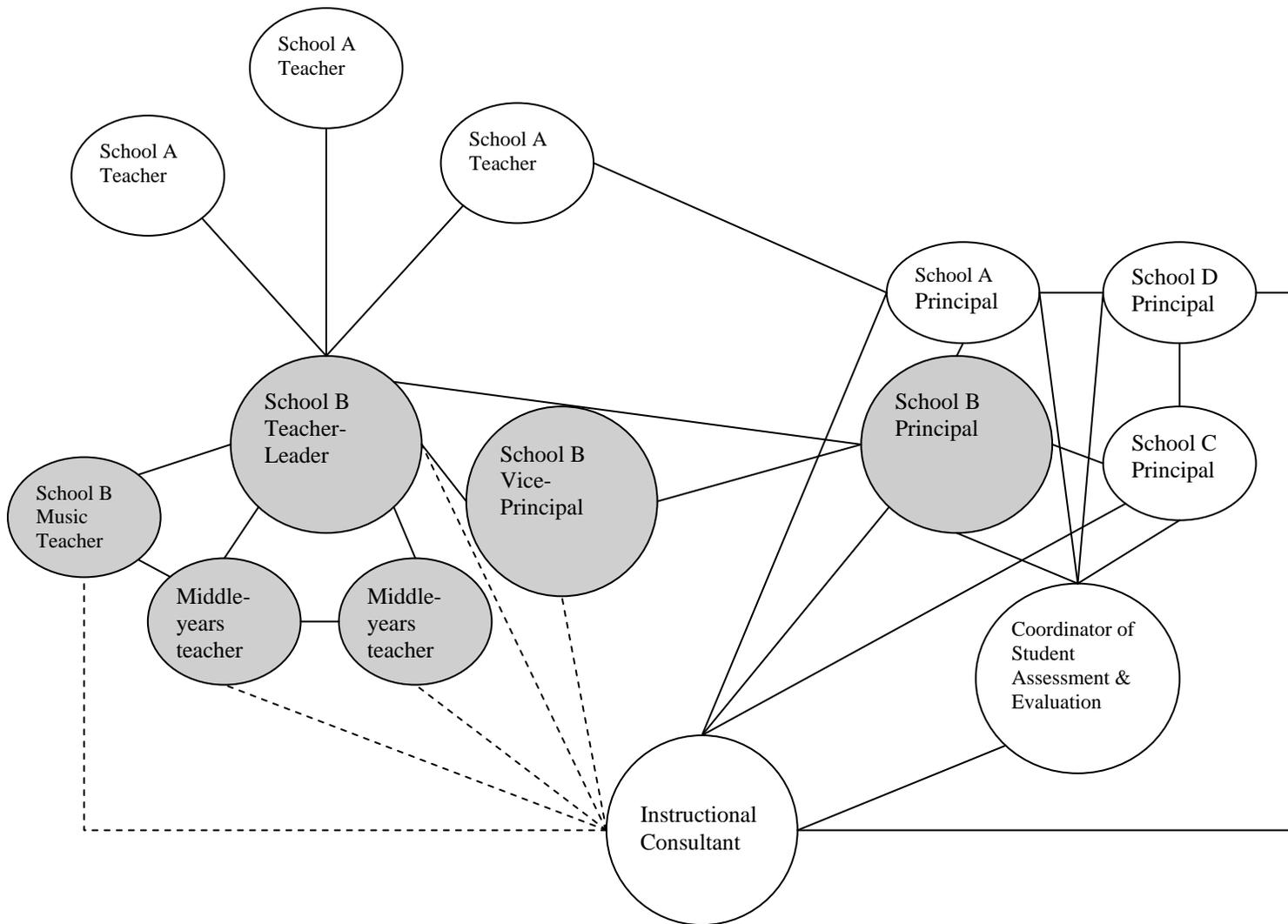


Figure 3. School B leadership network.

Three teachers there, who are very professional, very skilled, and who are making a very steady, consistent, effort at incorporating the principles of assessment; at, using, for example the provincial materials that are around to prepare and to involve students; they're looking at curriculum and they're teaching all the time, and they're finding ways to make assessment for learning practical and powerful, in their classroom. They don't push it on anybody, but they're always working to help them. And so there's a kind of a quiet leadership from those three staff members that is just very positive and very solid. (School B Vice-Principal, 3:21, 3)

This sort of working connection between teachers in School B was also observed by the Coordinator of Student Assessment and Evaluation. In the view of this Coordinator, part of School B's success was due to the openness of the teachers to share their assessment practices with one another on an ongoing basis:

I was very pleased to see that the leaders teaching in [School B] picked that up really quickly, and had conversations around, okay, if I'm practicing setting music criteria in my classroom, what could you be doing in your classroom that my students are learning; or how could you utilize and make use of some of the skills that have been in my class. So conversations there went quickly to what was best in teaching practice, what was best instruction, and how you built up the practice in the school so when kids and teachers quickly got to that point. And again I was really pleased because it's all too easy to go to the classroom, shut the door, I do what I do, you do what you do, and you know kids just sit on the school lawn, and actually talked about how they assessed. So it's not only the power of creating the

moments for those kinds of learning conversations, but also the openness, so they get to share.. first tries at stuff, and state some stuff, and then the successes as those role out in some of that first work. (Coordinator of Student Assessment & Evaluation, 3:18, 5).

School B participants also identified their connections with teachers from other schools as playing an equally important role as teachers in their own school in developing new classroom assessment practices. Thus, they are connected to School B teachers in Figure 3 using solid lines, denoting strong ties between members of the network.

According to the School B principal, the connections between teachers in a multi-school learning community was effective because it enabled teachers to connect with grade-alike teachers in a way that was not always possible in a smaller school such as School B, where there was often only one teacher for each grade:

I think it was key to work as a learning community, because we're a small enough school that we don't always have, say, two grade ones or two grade sixes, and I think it really benefits teachers' learning when they can share not only with colleagues from various grade levels, but with their own grade. (School B Principal, 3:26, 4)

More generally, the School B teacher-leader identified ongoing connections with colleagues from other schools as helpful to developing classroom assessment practices. In this teacher's view, because the school division's learning priorities also focused on assessment, the School B teacher-leader was able to gain more feedback on her assessment work through connections with teachers in other schools:

School B Teacher: I find it helpful that the [division literacy initiative] continues to focus on assessment as well. I still talk to colleagues from previous schools that I've worked at and.. just even comparing things that they're doing and, oh! that's neat, what you're doing. . . . I think its just that it seems to be. . . the focus, everywhere at the school. It helps to carry it on. . . . it's given you other colleagues to talk to from other places, and that literacy team works on that central literacy initiative, are doing and some talking about it and showing some of those things as well. . . . It's like it comes full circle, like everything seems to have an assessment focus which helps to keep that priority there. . . . and assessment for me has never been like obvious, so it's really nice to sort of have that reminder about, oh ya, how are we going to assess that? What kinds of things can we do to. . . move the kids along.

(School B Teacher, 3:23, 13-14)

Overall, participants from School B identified fewer in-school connections, but more interschool connections that supported learning related to classroom assessment.

Summary of Findings

In this chapter I presented the findings of the study, with data collected in two elementary schools. I presented findings that described the roles and practices of leaders in both schools, described the roles and practices of leaders from outside the schools, and illustrated the network of leadership that supported the work of the assessment initiative in each school. The following is a summary of the findings presented in this chapter.

Summary of Roles and Practices of Leaders in the School

In this section I presented data related to the roles and practices of school-based leaders that were seen to support changes to classroom assessment practices. Four major

themes emerged during the analysis process. First, both teacher-leaders and leaders in school administrative positions reported engaging in a multi-level learning community. They reported working with teachers and administrators in other schools, central office support staff, and teachers in different roles within their own schools to study student data and engage in activities and conversations that promoted further professional learning.

Second, participants also described a common commitment to integration of school and system-level plans with assessment data in the professional learning design. Participants described a variety of practices that focused on connecting school plans with division plans, curriculum with assessment, and assessment with reporting. Central office support staff said they observed how the focus on classroom assessment at School A and School B led to other changes in the school that positively affected students, such as the development of student-led conferences.

Third, when asked about what made the assessment initiative in their schools effective, participants identified that the balance between formal and informal professional learning opportunities was effective in helping teachers experiment with and implement new formative assessment practices. Teachers stated that one of the key roles played by principals was to provide a balance of pressure and support for teachers to engage in new learning. Principals identified setting direction, reminding about commitment to follow-up. They also identified doing the supporting work that allowed teachers to successfully reflect on and adapt assessment practices, prepare for contributing to the learning community. In the principals' view, this set series of practices helped to provide an effective balance of pressure and support for teachers:

I expect to work as hard as the teachers, you know. And whatever needs to be done, has to be done. And that whole pressure and support piece, but getting things ready, like what we would try and if there was some kind of running around that needed to be done, and that could be getting the resources... it was our job as leaders to get as much of that done, so that [the teachers] just focused on coming in, bringing their piece of paper, their homework... and that sometimes we usually have to remind, remember you're doing this? (School A Principal, 3:17, 27)

Both principals shared the perception of their dual role as helping teachers stay focused on the goals of the assessment initiative, and providing as many different kinds of support for their work as possible. Principals and teacher leaders consistently pointed to the value of ongoing, informal conversations that focused on evidence of student learning and teachers' experimentation with new classroom assessment practices.

Last, all participants described in some way how the principles of formative assessment had been applied to the assessment initiative itself. While all participants described the use of such formative assessment strategies as providing and receiving feedback that moved learning forward, activating teachers as instructional resources for one another, and engaging conversations that elicit evidence of learning, no teacher-leaders consciously identified these practices as formative assessment practices on their own. Participants in formal positions of leadership reported making conscious decisions to apply assessment for learning practices in planning the assessment initiative, and in the design of formal and informal professional learning experiences for teachers.

Summary of Roles and Practices of Leaders Outside the School

In this section I presented data related to the roles and practices of leaders working outside the school that were seen to support changes to classroom assessment practices. Two support staff from the school division's central office were identified in interviews at School A and School B as having played an important leadership role during the assessment reform. I interviewed the Coordinator of Student Assessment and Evaluation, and an Instructional Consultant who was assigned to work with School A and School B during the first two years of their assessment initiatives.

Principals listed four reasons for engaging central office support staff early on in the initiative: to build credibility for the project, to increase their own knowledge base related to assessment, to seek out additional resources with which to support the focus on assessment, and to collaborate on planning the complex integration of professional and student learning strands. To this end, School A and School B principals met with the Coordinator of Student Assessment and Evaluation throughout the initiative to help plan the work, and continued to elicit feedback, advice, and resources from the Coordinator throughout the initiative. The School B vice-principal saw the building of this sort of long-term partnership as an intentional act by the principals that served to support the work of the school by the administrative team that benefited both the school and central office staff.

Teachers from both schools identified the positive contribution of the member of the Instructional Consultant team, especially during the first two years of the assessment initiatives. Working closely with the principals to plan formal professional development experiences, school teachers and administrators cited the Instructional Consultant's early

work in helping to build an initial understanding of the research base behind classroom assessment, providing initial models of effective formative assessment practices, and helping teachers understand how to adapt these assessment strategies to their own practice. Teachers stated that the effect of the Instructional Consultant's work was to infuse the professional learning environment with positive energy, which was crucial during the initial phase of the assessment initiative when teachers were still experiencing the discomfort that came with experimenting with new classroom practices.

In the view of the School A principal, central office support staff strengthened commitment to classroom assessment by sharing their knowledge of the related research and by providing clear examples that enabled teachers to see what formative assessment practices might look like in their classrooms. The School B principal also identified this commitment to a strong innovation that was identified in the research literature as one of the best practices that enabled staff with differing levels of experience and teaching styles to successfully implement new classroom assessment practices.

Summary of Leadership Networks Surrounding the Schools

Participants connected with both schools identified connections between people that supported the assessment initiative. Principals in both schools were identified as key hubs in the network. Because of their ongoing, active involvement, other participants saw them as being connected to teachers, other administrators, and central office support staff in ways that supported the assessment work in their respective schools.

Participants in both schools identified a middle-years teacher who was seen as a teacher-leader and whom other teachers sought out for support related to classroom assessment. Participants in both schools identified strong connections between classroom

teachers, and their willingness to share ideas and experimentation with classroom assessment practices. Additionally, teachers in both schools identified an ongoing, but weaker, connection to the Instructional Consultant who supported teacher learning in the first two years of the assessment initiative.

While participants in School A identified connections with staff members such as the French teacher and the teacher-librarian as providing continuity between classrooms, participants in School B identified the importance of their connections to grade-alike teachers in other schools as supports for their professional learning. In both cases, participants described differing, but complex networks of support that provided energy and stability to their work within their respective initiatives. These networks of support in School A and B seemed to illustrate Reeves (2008) argument that this emerging science of networks can offer a different framework for school improvement.

The illustrations of the leadership networks seen to be supporting the assessment initiatives in School A and School B showed that people were more laterally connected through people who Reeves (2008) described as hubs, and who Gladwell (2002) described as mavens, rather than through traditional hierarchical models of communication.

CHAPTER FIVE

SUMMARY, DISCUSSION, AND IMPLICATIONS

In this chapter I review the problems and purpose central to the study. Following this review I discuss the findings, as well as implications for theory, practice, and future research. I conclude chapter five with a personal reflection about my experience conducting this research.

Summary of the Study

How to improve student learning school-wide by using better classroom assessment practices has been an interest of mine for some time. This interest emerged from my work coordinating a division-wide school improvement initiative focused on literacy. I was encouraged by my experiences in schools where students seemed more engaged in their learning when teachers used formative assessment practices to involve students more fully in the learning process. I began to wonder what influenced groups of teachers to focus on this area of their practice. Who was playing an important role in making and sustaining these changes? School administrators? Teacher leaders? Other colleagues outside the school to whom teachers felt connected? Having witnessed many schools at work on improving student learning, I wanted to examine the leadership network in schools that had chosen to focus on classroom assessment.

The purpose of the study was to examine the role of leaders – in schools and outside of schools – where changes in classroom assessment practices led to improvements to student learning. In recent studies of school improvement initiatives focused on classroom assessment, William (2004, 2007) and Reeves (2007) concluded that in order to sustain changes to assessment practices across a school, teachers required

support not only from school leadership, but from people across the entire school system. They also pointed to the need for research into how these changes came about in a wider range of school contexts in order to more fully develop a theory of action that could be applied by others who chose to undertake the work of assessment reform (Reeves 2004, 2007; William 2004, 2006, 2007, 2008). The research questions that gave focus to this study were divided into three groups:

1. Leaders inside the school: In what ways have the practices of school-based leaders engaged teachers in implementing and sustaining classroom assessment practices in schools where these changes have led to increased student learning? What roles are played by leaders inside the school in changing classroom assessment practices?
2. Leaders outside the school: In what ways have the practices of leaders outside the school engaged teachers in implementing and sustaining classroom assessment practices in schools where these changes have led to increased student learning? What roles are played by leaders outside the school in changing classroom assessment practices?
3. Leadership Networks: What was the leadership network in schools where classroom assessment practices led to increased student learning? What was the perceived connection between school-based leadership and outside the school leadership in supporting the school's assessment initiative?

In this study I focused on two schools who had engaged in an assessment initiative that was seen to have successfully improved student learning, and focused specifically on the people in and around the schools who helped move the initiative forward.

Overview of Findings and Discussion

In this section I summarize the findings related to the questions central to this study. Overview and discussion of the findings are divided into four sections: nomination of schools; roles and practices of leaders inside the schools; roles and practices of leaders from outside the schools; and, leadership network in the schools.

Nomination of schools. School division coordinators responsible for the areas of Staff Development, Curriculum and Instruction, and Student Assessment and Evaluation were asked to individually nominate schools they believed best met the following criteria: elementary school in Saskatoon Public Schools; school has identified focus on “assessment for learning” or “classroom assessment reform” in school plan for two or more consecutive years; teachers and school-based leaders have engaged in professional development related to classroom assessment as part of their focus on classroom assessment; school staff has implemented changes to classroom assessment practices as part of their focus on assessment; and, professionals in the school attributed improvements to student learning to changes in classroom assessment practices.

Following analysis of the nominations and follow-up conversations, two elementary schools were selected for study, and 11 participants were interviewed in total. School principals of each school confirmed the view that their schools met the criteria for study. Additionally, each participant described the effectiveness of the assessment initiative in order to further establish trustworthiness of the school nominations.

During the interview process, teachers in both schools showed me student work samples from different times in the assessment initiative that they used to describe how the quality of student learning had improved. Many of these samples included evidence

of students using such formative assessment strategies as goal setting and self-assessment, using criteria to define the learning destination, and student portfolios designed to show students' thinking about their own progress.

Additionally, both school principals described improvement in student achievement on provincial assessments. Teachers and principals both attributed these improvements to student learning in the classroom, and improvements to student achievement on provincial assessments to their school's sustained focus on implementing formative assessment strategies in the classroom.

Roles and Practices of Leaders Inside the Schools

The data analysis revealed four major themes related to roles and practices of leaders in the school: engagement in a multi-level learning community; integration of school and system-level plans and use of student data in the professional learning design; ongoing formal and informal professional learning opportunities; and, application of the principles of formative assessment to the work of the assessment reform itself.

Ongoing formal and informal professional learning opportunities. All participants identified having a wide variety of formal and informal professional learning opportunities as a major contributing factor that facilitated professional learning related to classroom assessment practices. All participants also believed that their schools' sustained focus on professional learning had had a positive effect on student learning as a result.

Both school principals saw themselves as being responsible for setting the context for successful professional learning. They remained actively involved in planning professional development in their schools, and used a range of practices to foster high

quality learning experiences for their staffs, including meeting with each other, conferring with central office support staff, and engaging in reflective conversations with staff about student learning. They were able to maintain the school focus on assessment and provide significant resources to support teacher learning over a four year period.

During the formal professional development cycle, principals created the expectation that, in between each formal professional development meeting, teachers try at least one new assessment practice and bring evidence of this experimentation to the next session to share with colleagues. All participants identified this expectation as an important factor that contributed to the adoption of new classroom assessment practices.

While teachers described this experience as uncomfortable and at times unpleasant, they also stated that completing these tasks and sharing them with other teachers led to many important informal learning opportunities in the day-to-day life of the school. Teacher participants reflected that, without this “homework,” they did not think their assessment practices would have improved as much as they felt they did. The School B principal reflected that even though teachers continued to experience a degree of discomfort when sharing experimentations with new practice, they began to increasingly value this component of their professional learning.

Viewed together, participants’ descriptions of this tension between the discomfort and value of being accountable for sharing new practice on an ongoing basis seemed to be a tension that contributed to the implementation of new classroom assessment practices in a positive way. While principals saw their role as setting direction and context for professional learning, teacher participants viewed their principals as the primary supports for their learning.

In addition to identifying many *formal* professional learning opportunities, all participants identified ongoing *informal* learning opportunities that sustained energy and focus on the goals of the assessment initiative between formal learning experiences. These informal learning opportunities included planned and impromptu visits to one another's classrooms, planned time for analysis of student work, and many ongoing, unplanned conversations related to the assessment initiative. Teacher participants in both schools described the power of ongoing collaboration within the school to help teachers move through their struggles during the experimentation phase.

Principals ranked teachers teaching in one another's classrooms, ongoing teacher collaboration focused on evidence of student learning, and ongoing unplanned conversations where teachers reflected on their own assessment practices as the three practices that contributed to ongoing teacher learning in the school. In their view, there was a clear connection between how much teachers learned during formal professional development sessions and the ongoing informal learning that occurred in between sessions. Viewed together, participants in all roles saw the combination of formal and informal professional learning as key to the successful development of classroom assessment practices, and described the positive, active involvement of educators across different roles or from different schools as helping to provide an effective balance of pressure and support for teacher learning.

Application of assessment for learning principles to the work of the assessment initiative. While participants in a range of different positions identified using assessment for learning practices during planning and professional learning, some identified the use of assessment principles to further the assessment initiative as a deliberate action, while

others were not conscious of this connection. All participants identified providing and receiving feedback on learning, engaging in learning-focused discussions that elicited evidence of learning, and using one another as instructional resources as ongoing practices that moved schools' assessment work forward. Central office participants noticed teachers trying to learn from one another through self-assessment and a variety of peer feedback mechanisms. Central office participants also saw themselves as helping schools link goal setting to sources of evidence that could be used to measure progress during the assessment initiative.

Teacher participants also recognized central office staff's use of assessment strategies as part of the professional learning process during formal professional development sessions. Though they did not identify it as an assessment for learning strategy, teacher participants described using feedback loops with different colleagues as a way of reflecting on new practices and adapting them to the classroom.

Both school principals described the deliberate creation of feedback loops between themselves and teachers in order to elicit information they could use to guide teacher learning. They believed this exchange of information also served to infuse positive energy into the school, and helped keep teachers focused on the assessment initiative by elevating the professional discourse to a more metacognitive level. In the view of the School B principal, this elevated self-reflection by teachers led to greater teacher engagement in their own learning process.

Engagement in a multi-level learning community. Teacher-leaders and school administrators reported making meaningful connections with colleagues across the school division, including teachers and administrators from other schools, teachers and

administrators from within their own schools, and a range of central office support personnel. The most consistently identified source of professional learning by participants was membership in a learning community of teachers from four nearby schools, all focused on improving classroom assessment through professional learning . Participants described the benefits of the learning community in terms of accountability to peers for ongoing experimentation with new practice, strong support for professional learning, and the creation of a culture of openness in which teachers shared evidence of student and teacher learning with one another on an ongoing basis.

Teacher participants remarked that even though teachers realized their initial experimentations with new classroom assessment practices were not of the quality they wanted, they still found that these sharing experiences moved their learning forward because of their orientation towards reflection and group problem-solving. Participants identified both learning conversations within their own schools, and learning conversations involving the wider learning community as important for moving teacher learning forward. From the central office perspective, both the inter-school and intra-school learning communities seemed to add positive energy that helped teachers persist with the work even when it was uncomfortable or difficult.

In discussion about their roles as overseers of the assessment initiative, both school principals identified belonging to both the wider school learning community, as well as a smaller community comprised of principals of the four schools and central office support staff who provided guidance and support throughout the school's focus on assessment. Teacher participants remarked that this attention to planning on the part of the formal school administration served to effectively link the work of the assessment

initiative to previous initiatives in the school. This linking made the shift in focus to classroom assessment a smooth transition for teachers.

Both principals viewed their role as facilitators whose job it was to connect teachers to other teachers in the service of professional learning. According to a former staff member, these connecting practices played a crucial role in activating teachers as instructional resources for one another across grades and subject specialization.

Integration of school and system-level plans and use of student data in the professional learning design. School principals identified a strong praxis orientation towards using student learning data to guide both student and professional learning strands in the school. Given the complex nature of this work, both principals sought out ongoing collaborative support from central office support staff, before, during, and after the assessment reform. Principals also stated they found this collaboration with central office staff helpful in weaving together system-level priorities with their own school-level focus. Teacher participants viewed this integration as a factor that contributed to the success of the assessment reform because it helped teachers see how to focus on multiple priorities at the same time, thus lessening the overwhelming feeling of having too many different priorities at once.

Roles and Practices of Leaders Outside the School

During the initial interviews with school-based participants, two educators working at the school division's central office were identified as playing important supporting roles during the schools' focus on assessment: the Coordinator of Student Assessment and Evaluation, and an Instructional Consultant whose job was to support a group of schools in their professional learning endeavors. The Instructional Consultant

worked with School A and School B during the first two years of their assessment initiative. Administrators and teachers identified the involvement of central office support as an ongoing positive factor before, during, and after the assessment reform. While school-based participants identified several ways in which central office support staff facilitated their school's assessment initiative, central office participants reflected that their work with these schools also affected their own learning and work related to assessment as well.

School A and School B principals identified four reasons for seeking out central support: to build credibility with staff, to increase their own knowledge related to assessment, to acquire additional resources with which to support changes to classroom assessment practices, and to collaboratively plan the integration of professional and student learning outcomes, as well as the integration of school and system learning priorities. Principals met with both the Coordinator of Student Assessment and Evaluation and their Instructional Consultant throughout the initiative to further these ends.

The School B vice-principal saw this intentional fostering of an ongoing relationship with central office as an action that strengthened professional learning in the school. Teacher participants said they valued the role of central office staff in connecting people within and between schools as a way of supporting ongoing professional learning. The School B teacher noted that even though the school and the school division held different learning priorities at the time of their school-based focus on assessment for learning strategies, central office staff played a role in ensuring the goals of the school division complemented the goals of the school.

Central office participants reflected that their involvement in School A and School B's assessment initiatives also changed their own professional practices. The instructional consultant who worked with both schools observed that the approach to leading in-services evolved to use assessment for learning practices to facilitate teacher learning in this area. This observation was confirmed by teacher participants in both schools, who found the use of self-assessment and peer feedback to be an engaging learning strategy during in-services.

Leadership Networks

In order to determine how participants perceived the connections between the people involved at each school, during each interview I asked them to identify others whom they believed played an important role in achieving the goals related to the assessment initiative. I probed for examples of the ways in which these people connected with teachers in ways that helped teachers move forward in their own learning. Participants identified the principals in both schools as key hubs in the school networks because of their active connections with teachers, other administrators, and central office staff that supported others' work related to the assessment initiative.

Participants in both schools also identified a middle-years teacher-leader who was often sought out by others for guidance, advice, and collaboration. Participants also described other ongoing, but weaker connections between teacher-librarians, classroom teachers, and the instructional consultant who supported professional learning in the schools. While participants in School A focused on the importance of learning that came from in-school connections between teachers, participants from School B emphasized the benefits they received from collaborating with teachers from other schools. In both cases

however, participants believed they gained positive energy from forming and maintaining these learning connections with other teachers.

Discussion

Any attempt to transform research into practice will be a learning experience with inherent risks. Indeed, all learners must take risks in order for practical learning to take place. One risk of the assessment initiatives in the subject schools of this study was that teachers may have considered the assessment practices evident in the research impossible to implement in their own classrooms, or that an insufficient number of members of the school community may not have undertaken the pervasive tasks of leadership to sustain the focus on assessment for long enough to get results. Yet, these potential failures did not emerge in the study – so why were the outcomes seen as so rewarding by participants?

In this section I examine this question by connecting major themes that emerged from the data analysis with the research literature related to the study. These themes are: (a) the effect of formal and informal professional learning on the success of the assessment initiative; (b) the application of assessment for learning principles to the work of the assessment initiative; and (c) the leadership network in the schools. In an attempt to bring meaning to the ways in which acts of leadership contributed to the success of assessment initiatives in the subject schools, I also examine the tensions inherent in key leadership practices in the context of the leadership networks described by participants in each school.

Impacts of Formal and Informal Professional Learning

One reason for the success of the assessment initiatives in the schools lies in the potential of the ideas of the project. Both school principals identified the power of the central idea as one reason for their school's success – that is, they began by studying an undeniably powerful practice in improving student learning – formative assessment. Despite the difficulties and discomfort that teachers reported during their own learning process, school leaders gained commitment from staff to engage in the professional learning process, in part, because the idea of improving student learning by changing classroom assessment practices resonated with staff. While staff's initial commitment to the potential power of the idea helped to sustain teachers' work, participants also described how the emergence of an effective learning cycle seemed to sustain their energy as the assessment initiative evolved.

Even though teachers described adapting different practices as a result of formal in-services, the dialogue and sharing that occurred during the ongoing informal learning were also instrumental in stimulating and challenging teachers through this exchange of approaches and experiences. Fullan (2005) described this experience of feeling infused with positive energy by engagement in a learning cycle as, “cyclical energizing” (p. 25). He concluded that learning and implementing new practices works most efficiently when people can move between being fully engaged with colleagues and less intensive activities associated with renewal.

The effect of teachers engaging in both formal and informal exchanges of ideas is grounded in previous studies of school improvement initiatives focused on assessment: “. . . different departments interpret ideas differently, so that comparisons between

existing practices and between experiences with innovations can help open up new and creative ideas” (Black et al, 2003, p. 108). In my study, formally designated learning times for in-service, sharing student data, and sharing experimentation with practice were balanced by many ongoing, collegial conversations that served as safe arenas for solving the problems of implementing new practices as part of the day-to-day professional life of the community.

The Western and Northern Canadian Protocol (2006) also called for a complex mix of professional learning opportunities in order to help teachers learn and adopt new assessment practices:

Deep learning and its application in practice requires more than just attending workshops and courses. Effective professional development is not simply a uniform delivery of information to teachers, but takes into account teachers’ diverse backgrounds and the diverse contexts in which they work. Teachers themselves have a responsibility of acquiring pedagogical knowledge and disseminating it to others through networking. (p. 75)

A study of an assessment for learning initiative in Edmonton Catholic Schools District showed that collaboration between teachers and administrators in a multi-faceted approach to learning served as a catalyst for improving student learning (Patterson & Rolheiser, 2004). This district’s use of study groups, classroom visitations, and team planning to facilitate teacher learning appears similar to the use of collaborative planning and analysis of student work, co-teaching, and practice-focused reflective conversations used by the schools involved in the present study.

This multi-faceted approach seemed to mitigate some of the initial feelings of discomfort and dislike teachers described experiencing when they first began sharing assessment practices with one another. While teachers stated that they found collaborating in this more open way to cause some dissonance at first, they valued the many opportunities to converse, collaborate, and share their work with colleagues on a regular and often informal basis. Wiliam (2006, 2009) described this tension between being accountable for sharing examples one's teaching practices, and opportunities for ongoing professional learning, as supportive accountability.

He concluded that establishing a professional learning environment in which teachers are both expected to communicate about their progress towards shared goals, and enabled to help one another reach those goals is a key aspect of successful teacher learning communities. This finding has relevance for future school administrators who undertake the work of trying to improve classroom assessment: teachers will find the early expectation to share new practices uncomfortable, but will gain motivation and persistence if there are enough varied learning opportunities to support their work in the school.

Application of Assessment for Learning Principles to the Work of the Assessment Initiative

Black, Harrison, Lee, Marshall, and Wiliam (2003) argued that an incidental though considerable benefit for teachers developing formative assessment practices through learning networks was, “. . . precisely that which the formative assessment strategy of peer tutoring offers in the classroom: it offers opportunities to reflect on their work and consolidate their understanding of the process through coaching other teachers”

(p. 116). In my study, whether the participants' use of assessment for learning strategies to facilitate professional learning was deliberate or unconscious, it was never incidental.

Teacher-leaders in each school who first experimented with some formative assessment practices were able to support other teachers within the various learning communities to which they were attached. These teachers were able to engage in discussions that helped them to incorporate each others' examples of practice within their own approach in different subjects and contexts. In talking about these formal and informal learning conversations, participants identified them as acts of self-reflection, opportunities to provide and receive feedback, and as opportunities to activate one another as instructional resources. In many cases, the school principals in this study actively found ways to elicit evidence of teacher learning by engaging staff in a reflective conversation or observing the learning processes teachers used during formal moments of giving and receiving feedback from each other.

In light of the deliberate use of assessment strategies by participants in this study, the direct application of assessment for learning principles to facilitate professional learning seemed much more than incidental; rather, their use in this context seemed central to implementing effective formative assessment strategies in the classroom. The Western and Northern Canadian Protocol for Collaboration in Education (2006) also supported the notion that in order for teachers to come through the dissonance involved in examining and changing core beliefs and practices about teaching, they must use the same processes as their students, and engage in an ongoing process of self-assessment and feedback (p. 71).

Both school principals involved in this study consciously used the same strategies with teachers to increase teacher metacognition that teachers were using with students for similar purposes. A synthesis of the participants' descriptions of their overall professional learning experiences pointed to the use of formative assessment as an effective framework for engaging teachers in their own learning.

This practice of employing assessment for learning principles to professional learning echoed Reeves' (2008) assertion that, "If we wish to maximize the power of feedback, then we must provide feedback more frequently at every level – students, teachers, and leaders" (p. 79). In the context of Goleman's (2006) suggestion that humans are hardwired for social connection, providing a learning framework where not only students, but teachers, administrators, and central office staff have many opportunities to connect with each through feedback mechanisms focused on a learning initiative like assessment reform seems to promote the use of assessment for learning strategies as part of an overall successful learning process.

Assessment for learning has become a powerful tool for both school improvement and increasing student learning (Black, Harrison, Lee, Marshall, & William, 2004; Stiggins, 2001). In my study, teacher participants described the positive feelings of support, and the influx of energy they experienced through their collegial conversations with other teachers, even when the initial experience of sharing experimentation with practice was uncomfortable. Loehr and Schwartz (2003) described this feeling of engagement associated with effective school improvement as positive energy gained by those involved in the improvement effort. They argued that one of principles of

engagement in learning is the establishment of “positive energy rituals” (p. 14), which are specific routines for managing energy.

Because of its positive energy-inducing effect, the application of assessment for learning principles to the professional learning experiences in these two schools seemed to have played an important role not only in sustaining a focus on classroom assessment, but also in helping all teachers involved in the study to adapt and acquire new assessment practices. While some teachers might have been receptive to the ideas and arguments for change, others may only have been convinced by examples of experimentation shared by colleagues, or by evidence of the responses given by students in their schools. For example, while the School B teacher-leaders described how her initial excitement about classroom assessment led her to begin experimenting with new assessment practices almost immediately, the former School B vice-principal described beginning with new practices only after sharing initial experiences with other colleagues in the school.

While the findings of this study point to the importance of a range of learning experiences for teachers in general, this use of assessment for learning strategies as a framework for teacher learning is particularly relevant to changes made during assessment initiatives, because they involve changes to the core of a teacher’s work in the classroom. Black et. al (2003) argued that successful changes to classroom assessment practices mean deep changes to how students are involved in their own learning, and to their role as learners responsible for their own learning. The authors concluded that given the intimate nature of these sorts of changes to teacher practice, it is natural for teachers to differ from one another in their trajectories of change, both in what methods and approaches to which they give priority, and in time-scale. In light of energy-giving

properties of the use of assessment for learning, the use of these strategies as a core component of teacher learning seems to be one way to help a diverse teaching staff each build on their own strengths and approaches to learning and teaching.

Leadership Networks

Fullan (2005) argued that changing whole systems means making changes to the context in which people work. He defined contexts as, “. . . the structure and cultures within which one works. In the case of educators, the tri-level contexts are school/community, district, and system. . . . context change for all levels of the system is essential.” (p. 16). Drawing on complexity theory, Fullan (2003a) showed that people engaged in reforms that attempt to change systems need to increase the amount of purposeful interaction between individuals across school, community, and district levels of the school system.

Hargreaves (2003) defined this sort of non-linear interaction between colleagues as lateral capacity. He argued that people learn most effectively from colleagues when there is enough opportunity for ongoing exchanges focused on common goals, and the system is designed to develop and disseminate creative practices that work. He said that in order for the system to foster this sort of exchange, leadership must be developed and mobilized in many different areas, along with a sense of ownership at the school level.

In the leadership networks supporting both School A and School B, acts of leadership that enabled others to move forward with learning were undertaken by educators at the teacher, vice-principal, principal, and central office support staff levels. While participants described having relationships of varying strengths with people in different roles, each was able to clearly describe the ways in which they were connected.

A common feature across interviews was how participants described the speed with which new learning about assessment practices could travel from teacher to teacher. This speed suggests that the topology of these leadership networks was less hierarchical, and more lateral.

According to Fullan (2005), “Lateral capacity building has the double advantage of accessing more ideas while increasing people’s identification with larger pieces of the system” (p. 70). However, he warned that functioning networks do not automatically lead to long-term success in and of themselves. He argued that in order to move innovation into focused implementation, leaders must combine the power of learning networks with a checks and balance process that helps to control the quality and use of the knowledge and skill generated by people in the network.

Stoll et al. (2003) described this combined effect of functioning networks and a system for monitoring for quality and use of knowledge and skill as overall capacity – a complex blend of persistence, skill, learning, positive cultural conditions at the organizational level, and ongoing infrastructure supports. They argued that together, these factors enable schools to begin and sustain changes that lead to improved learning.

An examination of the leadership networks supporting the assessment initiatives in this study seemed to show indicators of lateral capacity, where people learned quickly from one another across roles, schools, and system. The leadership networks associated with each school also seemed to exhibit indicators of overall capacity, avenues for monitoring for quality of implementation and providing the necessary infrastructure to keep learning moving forward.

Both schools described high, sustained levels of lateral and overall capacity. This heightened capacity for adapting new learning had particular relevance for the ability of teachers in both schools to persist with the development of effective formative assessment practices, despite their initial dislike of being required to share evidence of experimentation with other teachers and their principals. In both School A and School B, the tension created by this mechanism for monitoring quality and implementation seemed to have been overcome by the positive forces put to work by the leaders in the learning network.

The critical role of leaders within a learning community to support the overall learning community is supported by The Western and Northern Canadian Protocol for Collaboration in Education (2006). It argued that,

Even when high-quality professional development and communities of practice are in place, changes will not occur unless there is also strong instructional leadership and creative management on the part of school administrators.

Administrators have the responsibility for creating the conditions necessary for growth in teachers' professional knowledge. (p. 72)

In the context of this study, school administrators worked at the start of the assessment initiative to foster a community of practice by creating the conditions for connections between teachers within and between their schools. A professional development calendar that balanced formal in-service with ongoing, job-embedded conversations, coupled with the use of self assessment, professional goal setting, and multiple loops for feedback provided the channels. Through these opportunities to learn,

teachers used their connections with one another to share ideas, solve problems, and move learning forward.

As the assessment initiatives continued, school administrators described their ongoing efforts to identify staff that were moving forward with classroom assessment practices, and sought to connect them with other staff members. School administrators continued to monitor for quality both formally and informally, and used this evidence within their own network of principals and central office support staff to make decisions about how to best guide teacher learning.

Gladwell (2000) argued that in order to change people's behavior, "You need to create a community around them, where these new beliefs could be practical, expressed and nurtured" (p. 173). Creating this sort of community is vital to any successful focus on classroom assessment because the changes required of teachers happen not only at the surface level of classroom practice, but at the deeper level of belief:

Implementing assessment for learning requires personal change. It means changing the way a teacher thinks about their teaching and their view of their role as a teacher. Since the way a teacher teaches is inextricably linked with their own personality and identity, ultimately it means changing yourself. (Black, P. et al, 2003, p. 80)

In order to fully see how the practices of participants in this study helped support this sort of deep change in teacher assessment practices, one must think of the work of leadership not only as a series of practices used by key members of the learning community. These practices may also be thought of as pathways along which educators focused on a common goal connect with one another.

Taken together, the leadership networks surrounding each of these schools, along with the practices used by leaders, are a way of describing the ecology of the assessment initiative – that is to say, the dynamics of how new learning was created and spread across the learning community as teachers gradually transformed their assessment practices. In his review of the literature on network theory, Barabasi (2009) concluded that the topology of the network plays a fundamental role in changing the behavior of the individuals in the system:

Indeed, although we continue to lack a universally agreed on definition of complexity, the role of networks in this area is obvious: All systems perceived to be complex, from the cell to the Internet and from social to economic systems, consist of an extraordinarily large number of components that interact via intricate networks. To be sure, we were aware of these networks before. Yet, only recently have we acquired the data and tools to probe their topology, helping us realize that the underlying connectivity has such a strong impact on a system's behavior that no approach to complex systems can succeed unless it exploits the network topology. (p. 413)

Each leader identified as playing a key role in supporting the assessment initiatives in this study was responsible not only for his or her roles and practices, but also for tending to the complex network of relationships and connections he or she had with other educators that enabled their practices to evolve as well. There are several connections to be made between network environments that foster learning, and recommendations in the literature for implementing assessment practices.

Synthesizing their research from schools in Medway and Oxfordshire, Black et. al (2003) concluded that some elements of a system of support should include in-school support from “critical friends” (p. 107), regular sharing of experiences with colleagues, opportunities for teachers to reflect on learning with colleagues outside the school, and “overt support from the school management team who knows at least something about formative assessment and who is keen to learn more” (p. 107).

According to an NCSL (2003b) publication, professional learning through networks fosters collaboration over competition, and is based on the belief that, “. . . learning communities could achieve [goals] more profoundly by working together independently in networks” (p. 1). The WNCP (2006) also recommended the use of critical friends, and identified several strategies for more strongly connecting teachers and administrators in and between schools as a way of promoting learning.

In light of this body of research, educators playing leadership roles in the networks supporting the schools in this study may be seen as the keys to a genuinely collaborative team that supported the process of improving assessment practices. The networks of leaders described in my study collectively tended to the assessment initiatives while developing a growing community of learners. While more in-depth inquiry remains to be done in this area, it appears that the practices of teacher-leaders, school administrators, and central office leaders, as seen through the topology of the leadership networks surrounding each school, had a positive influence on the success of each school’s improvement of classroom assessment practices.

Implications

Teachers need motivation and justification if they are expected to deal successfully with the challenges of change. Few initiatives aimed at school improvement have such convincing support in the research as do the practices of assessment for learning (Meisels, 2006; Davies 2007; Black & Wiliam 2006, 1998; Marzano 2006). Even with a convincing body of evidence to support the reasons for undertaking the burden of change, leadership of a school-wide focus on classroom assessment is complicated.

Seen together, the practices of leaders in this study were far more complex and extensive than those suggested on the basis of the research literature reviewed in chapter two. Most leadership practices described in this study involved reflecting on current practice and changes in the way they worked with students and their colleagues. These practices demonstrated that, with a network of support, teachers can adapt and embed research-based assessment practices into the normal, every day workings of their instructional repertoires. The implications are far-reaching for leadership practices, system policy, theory, and future directions in research.

Implications for Leadership Practices

The principals of the schools in this study demonstrated a sustained commitment to setting a learning agenda, to winning commitment from teachers and central office support staff to the agenda, and to motivating staff to work towards it. This work has both practical and conceptual implications for the work of school leaders. One study of leadership that leads to successful school improvements identified two key elements:

It is our contention that how effectively planning is undertaken depends to a significant extent on how well the change leaders in the school understand the content and process of change. This understanding is often the outcome of their own motivation, and the resulting combination of developed expertise and commitment gives effective change leaders the impetus to use more powerful and persistent approaches to change and to maintain a strategic focus. Simple operationalization of initiatives which are neither fully understood by change leaders nor personally engaging to them results in superficial change which has little real impact on the school. (Reeves J. et al., 2001, p. 136)

Reeves, J. et al. (2001) concluded that leaders who make a difference engage emotionally and intellectually in the purpose and nature of their business. By comparison, the data in the present study suggested that the school principals began with a clear vision about the focus on students and their learning, and on what teachers would need to learn in order to more deeply engage students in their learning through classroom assessment.

However, it was as a result of their ongoing, active involvement with teachers throughout the assessment initiative that other members of the school staff took on this sense of focus. This high level of commitment to both the conceptual and practical suggests that school leaders adopt a strong praxis orientation towards improving classroom assessment practices. In the schools involved in my study, it was not enough to set an agenda and organize professional learning experiences for teachers.

The learning networks that developed over time supported new learning in part because of the close working partnerships established between school principals and teachers. The influence of the learning network suggests that future leaders of assessment

initiatives in schools should be mindful of both their orientations toward the practical, pragmatic work of creating a successful context for teacher and student learning, but also be aware of how these practices form networks of learning relationships between teachers and other educational colleagues. The findings of my study seem to indicate that the topology of the learning network may have as great an impact on implementing assessment for learning strategies as any set of practices used by the leaders working to support the initiative.

The crucial nature of support at the division level was also clear in the findings of this study. Without support at the division level, it would have been far more difficult for the schools involved to build credibility and sustain the necessary focus over a number of years. The principal's role in seeking out a productive relationship with central office support, and maintaining it throughout the assessment initiative was important.

In both schools, the contribution at the central office level was critical. It provided access to expertise and experience crucial for initial new learning by teachers, and it provided resources to support the work of the assessment initiative. The central office also lent support that stimulated initial commitment to the learning agenda, and helped to formulate the complex plans. Outside support also provided feedback throughout the process in order to help catalyze progress. Finally, though not mentioned by central office participants themselves, teachers identified the benefit of the central office role in connecting teachers from different schools in the service of sharing new assessment practices.

The identification of the central office role in connecting teachers from different schools suggests that this practice of dissemination should be adopted by central office

staff that support professional learning as a way of widening and strengthening the learning networks available to teachers and schools. Centrally-based support staff assisting with future school improvements may benefit from considering these stances as part of their own practice of support as well, not only for the benefits derived by the schools in question, but for the learning opportunity available to these outside support staff that could further inform their work with other schools.

Implications for Policy

A wide-lense view of these implications for the practice of teachers, teacher-leaders, school principals, and central office support staff suggests a need for alignment of policies at the system level that foster the focused interconnection between educators working in different parts of the system in the service of student learning. These sorts of policies would enable educators at every level of the organization, including senior administrators, to serve as the architects of networks in which examples effective assessment practices are shared as efficiently as possible.

This sort of policy-making could have a far-reaching effect on how new learning travels through an educational system. Since hierarchy models maximize degrees of separation between people at different levels of the system (Reeves, 2008), new learning travels very slowly along the path from students to teachers to principals to superintendents to directors. Ideas lose power and become distorted by the time it reaches the end of the line, thus slowing the pace of change and lessening the chance those educators furthest away from the idea's origin benefit from it. Policies that enable senior administrators and other educators to design and reshape the ways in which educators are connected across a school system could increase the fluency and potency with which they

learn from one another, thus leading to sounder adaptation and implementation of assessment for learning practices.

Implications for Theory

One limitation of this study could be that it lacks a clear theoretical basis for establishing the leadership network and the practices of leaders that supported the assessment initiatives in the schools. My study was influenced by general ideas about the nature of leadership in schools that focused on improving student learning through classroom assessment, and the general need for leaders in all parts of the system to take responsibility for supporting the work of teachers, as described in the literature. Thus, the main approach was pragmatic in recommending a set of practices that were identified by the data analysis process, and the connection of the data to a variety of principles grounded in the research.

A coherent theory of how a network of leaders influences assessment initiatives in schools has not yet been developed. Perhaps the findings of this study will offer ideas to support the development of such a theory in future inquiries. Hargreaves (1999) argued for the concept of the knowledge creating school, where the implementation of new practices inevitably leads to the transformation of the ideas on which these practices are based.

The new knowledge created by the participants in my study about how leaders can influence the application of formative assessment practices in the classroom may serve as a stepping stone for other educators to adapt these ideas in their own work as well. Last, a more in-depth study into the relationship between these practices and the

network effect on school improvement efforts may lead to a greater understanding of the dynamics at play in networks of educators working together to improve student learning.

Implications for Future Research

A variety of studies could be undertaken to further develop an understanding of how learning networks are formed, and how they work in conjunction with the practices of leaders across a system to support and sustain assessment focused school improvement initiatives. Both schools involved in this study were elementary schools, and while other studies related to implementing formative assessment practices have been conducted in secondary schools (Wiliam, 2004), it may be beneficial to conduct an in-depth examination of the leadership networks in secondary schools where this work has had a positive effect on student learning. Any future theory regarding leadership practices and the network of leaders that support assessment initiatives in schools would require that more studies of this nature be conducted in a wider variety of school contexts.

Additionally, while my study used an interview methodology to examine the networks and practices of leadership supporting the schools, further insights may be gained by using a variety of data sources in a full case study format. Other data sources could include classroom observation; document analysis of student data and teacher unit, lesson, and assessment plans; observation and document analysis related to professional development; and the shadowing of educators in formal and informal leadership roles across a school system. Using interpretive panels comprised of people in cross-role leadership positions to further interpret findings may be another possible future research avenue from which rich data could be gathered. Together, a wider array of data sources

from a range of school contexts may provide conceptual and practical insight into how best to support assessment initiatives in schools.

In addition to studying a wider range of schools, and mining the schools more deeply in a full case study approach, future studies might also inquire within specific populations, including teacher-leaders, school vice-principals and principals, central office support staff, and senior administrators. Perhaps the least explored role in the literature related to school improvement through a focus on classroom assessment is that of senior administration. While central-office support-staff participated in the present study, no members of senior administration were identified by participants as playing a leadership role that influenced the assessment initiatives in the schools. Since the chain-sampling methodology employed in this study precluded any approach to senior administrators for inclusion in the study, understanding of the overall leadership networks around a school assessment initiative would be widened by focusing specifically on the roles and practices of educators at all levels of the system.

Concluding Remarks: Reflection on the Research Journey

When I reflect on the highlights of this research journey, I often think of the initial stages of planning the study when I worried that I would not be able to collect sufficient data to satisfy the curiosity I had about assessment leadership. Once data collection began, however, my initial concern evaporated when I observed the amount of data presented by the participants who agreed to be a part of this journey with me. Although the process of data analysis was lengthy, and at times frustrating, it uncovered several findings that were fascinating and unexpected for me.

In retrospect it was amazing to realize how much participants in different roles learned from one another, and were changed by one another as a result of their collective practices. Teachers were faced with the day-to-day challenge of putting formative assessment strategies into action with students; principals described the challenge of maintaining a learning focus in the schools while managing the many other day-to-day requirements of administration. Vice-principals described the challenge of living in both these worlds. Central office staff described the difficulties of making a positive contribution despite their weaker ties to the school environment. Yet each participant, regardless of role, spoke passionately about how their own work had been changed at both the conceptual and practical level as a result of their interactions with other members of this learning community.

As I reviewed the data, the way participants valued their interactions with one another was my first indication that the manner in which people were influenced the tasks of learning about, experimenting with, and then implementing assessment for learning practices in an important way.

At the same time, I began to see a complex, but nonetheless patterned series of practices emerge from the participants' discussion of their own, and others' contributions to the assessment initiative in each school. Principals created an initial network composed of principals and central office staff to create the initial design for the initiative. After leading staff to adopt the goals of the assessment initiative, they bore the initial burden creating the professional learning environment for their school communities.

Teachers described seeking out less visible, but equally important connections with colleagues to provide moral support, feedback, and the rapid sharing of ideas. I

began to wonder about how the practices of school administrators and teacher-leaders were affecting the shape of the learning networks that were being formed, and how these networks were influencing the educators within them.

It was not until the writing of the discussion for this study that I realized how the leadership networks in these schools served to not only energize, but to honor the uncomfortable trials each person underwent in the service of improving student learning by changing their assessment practices. Each participant described experiencing feelings of challenge, but also feelings of pride at supporting, and being supported by colleagues even when they felt their initial attempts at experimentation had not yet succeeded. I attempted honor the responsibility of describing the difficult task of collaborative learning that these teachers willingly undertook by conveying their thinking in a fair manner.

REFERENCES

- Ainsworth, L. (2003). *Power standards: Identifying the standards that matter the most*. Englewood, CO: Advanced Learning Press.
- Ainsworth, L., & Viegut, D. (2006). *Common formative assessments: How to connect standards-based instruction and assessment*. Thousand Oaks, CA: Corwin Press.
- Barabasi, A. (2009). Scale-free networks: A decade and beyond. *Science* 325, 412.
- Barton, P., (2005). *One-third of a nation: Rising dropout rates and declining opportunities*. Princeton, NJ: ETS.
- Bentley, T. (2003). Foreword. In D. Hargreaves (Ed.), *Education epidemic*. London: Demos.
- Black, P., & Wiliam, D. (1998a). Assessment and classroom learning. *Assessment in Education*, 5(1), 7-74.
- Black, P., & Wiliam, D. (1998b). Inside the black box. *Phi Delta Kappan*, 80(2), 139-148.
- Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2003). *Assessment for learning – putting it into practice*. England: Open University Press.
- Black, P., Harrison, C., Lee, C., Marshall, B., & Wiliam, D. (2004). Working inside the black box: Assessment for learning in the classroom. *Phi Delta Kappan*, 86(1), 9-22.
- Blase, J. & Blase J. (2003) *Handbook of instructional leadership: How successful principals promote effective teaching and learning* (2nd ed.). Thousand Oaks, CA: Corwin Press.
- Capella, E., & Weinstein, R. (2001). Turning around reading achievement: Predictors of high school students' academic resilience. *Journal of Educational Psychology*, 93(4), 758-771.
- Cotton, K. (2003). *Principals and student achievement: What the research says*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Creswell, J. (2007). *Qualitative inquiry and research design: Choosing among five approaches*. Thousand Oaks, CA: Sage.
- Crooks, T. (1988). The impact of classroom evaluation practices on students. *Review of Educational Research*, 58, 438-451.

- Czarniawska, B. (2004). *Narratives in social science research*. Thousand Oaks, CA: Sage.
- Damasio, A. (2003). *Looking for Spinoza: Joy, sorrow, and the feeling brain*. New York: Harcourt.
- Davies, A. (2007). *Making classroom assessment work* (2nd ed.). Courtney, B.C.: Connections Publishing.
- Denzin, K., & Lincoln, Y. (2005). *Sage handbook of qualitative research* (3rd ed.). Thousand Oaks, CA: Sage.
- Dufour, R. (2001). In the right context. *Journal of Staff Development*. Retrieved November 10, 2009, from www.nscd.org/library/jsd/dufour221.html
- Eisner, E., (1999). The uses and limits of performance assessment. *Phi Delta Kappan*, 80(9), 658-660.
- Elmore, R. (2000). *Building a new structure for school leadership*. Washington, DC: Albert Shanker Institute.
- Elmore, R., (2002). *Bridging the gap between standards and achievement: Report on the imperative for professional development in education*. Washington, DC: Albert Shanker Institute.
- Elmore, R., (2004). *School reform from the inside out: Policy, practice, and performance*. Cambridge, MA.
- Elmore, R., & Jones, J., (2007). Professional networks and school improvement. *School Administrator*, 64(4), 20-24.
- Festinger, L, Schachter, S., & Back, K. (1948). *Social pressures in informal groups*. Cambridge, MA: MIT Press.
- Fullan, M. (2001). *Leading in a culture of change*. San Francisco: Jossey-Bass.
- Fullan, M. (2003). *The moral imperative of school leadership*. Toronto, ON: Corwin Press and the Ontario Principals' Council.
- Fullan, M. (2005). *Leadership and sustainability*. Thousand Oaks, CA: Corwin Press.
- Fullan, M. (2007). *The new meaning of educational change* (4th ed.). New York, NY: Teachers College Press.

- Fullan, M., Hill, P., & Crevola, C., (2006). *Breakthrough*. Thousand Oaks, Corwin Press.
- Gall, M., Gall, J., & Borg, W. (2007). *Educational research* (8th ed.). New York, NY: Pearson.
- Goleman, D. (2006). *Social intelligence: The new science of human relationships*. New York: Bantam Books.
- Goleman, D. (2006). The socially intelligent leader. *Educational Leadership*, 64(1), 76-81.
- Granovetter, M. (2004). The impact of social structures on economic outcomes. *Journal of Economic Perspectives*, 19(1), 33-50.
- Guskey, T. (2000). *Evaluating professional development*. Thousand Oaks, CA: Corwin Press.
- Guskey, T. (2002). *How's my kid doing? A parents guide to grades, marks, and report cards*. San Francisco: Jossey-Bass.
- Guskey, T., & Bailey, J.M. (2001). *Developing grading and reporting systems for student learning*. Thousand Oaks, CA: Corwin Press.
- Hargreaves, D. (1999). The knowledge creating school. *British Journal of Educational Studies*, 47(2), 122-144.
- Hargreaves, D. (2003). *Education epidemic*. London: Demos.
- Harris, A. (2002). *School improvement: What's in it for schools?* London: Routledge.
- Heifetz, R. (2003). Adaptive work. In T. Bentley & J. Wilsdon (Eds.), *The adaptive state*. London: Demos.
- Hoepfl, M. (2001). *Choosing qualitative research: A primer for technology education researchers*. Retrieved September 15, 2009, from <http://www.curriculum.edu.au/tech/articles/choose.htm>
- Holzman, M. (2006). *Public education and black male students: The 2006 state report card. Schott Educational Inequity Index*. Cambridge, MA: The Schott Foundation for Public Education.
- Huberman, M., & Miles, M. (1994). *Qualitative data analysis* (2nd ed.). Thousand Oaks, CA: Sage.

- Indian and Northern Affairs Canada. *INAC nominal role*. Retrieved November 5, 2009, from www.ainc-inac.gc.ca
- Joyce, B., Calhoun, E., & Hopkins, D. (2002). *The new structure of school improvement: Inquiring schools and achieving students*. Philadelphia, PA: Open University Press.
- Katzenmeyer, M., & Moller, G. (2001). *Awakening the sleeping giant: Helping teachers develop as leaders* (2nd ed.). Thousand Oaks, CA: Corwin Press.
- Leahy, S., & Wiliam, D., (2009). *From teachers to schools: Scaling up professional development for formative assessment*. Paper presented at American Educational Research Association conference. Retrieved October 15, 2009, from dylanwiliam.net
- Leininger, M., (1985). *Qualitative research methods in nursing*. Ann Arbor, MI: W.B. Saunders Company.
- Leithwood, K., Seashore Louis, K., Anderson, S., & Wahlstrom, K. (2004). *How leadership influences student learning*. Toronto, ON: Ontario Institute for Studies in Education.
- Lincoln, Y., & Guba, E. (1985). Establishing trustworthiness. In Y.S. Lincoln & E. Guba (Eds.), *Naturalistic inquiry*. Thousand Oaks, CA: Sage.
- Lyon, C., Gannon, M., & Cleland, D. (2007). *Letting go of the reins: Learning about scalability in the context of one district wide implementation*. Paper presented at the annual meeting of the American Educational Research Association (AERA) and the National Council on Measurement in Education (NCME). Retrieved December 10, 2008, from <http://hub.mspnet.org/>
- Marzano, R., McNulty, B., & Waters, T. (2005). *School leadership that works*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Marzano, R. (2006). *Classroom assessment and grading that works*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Marzano, R., & Kendall, J. (1998). *Implementing standards-based education*. Washington, D.C.: National Education Association.
- Marzano, R., Pickering, D., & Pollock, J. (2001). *Classroom instruction that works: Research-based strategies for increasing student achievement*. Alexandria, VA: Association of Supervision and Curriculum Development.

- Meisels, S., Atkins-Burnett, S., Xue, Y., Nicholson, J., DiPrima Bickel, D., & Son, S., (2003). Creating a system of accountability: the impact of instructional assessment on elementary children's achievement test scores. *Education Policy Analysis Archives*, 11(9). Retrieved August 10, 2008, from <http://epaa.asu.edu/epaa/v11n9/>.
- Mintzberg, H. (2004). *Managers not MBAs*. San Francisco, CA: Barrett-Koehler.
- Murphy, J., (1995). Rethinking the foundations of leadership preparation. *Design for Leadership: The Bulletin of the National Policy Board for Educational Administration*, 6(1), 1-4.
- National College of School Leadership, (2003b). *Why networked learning communities*. Nottingham, UK: Author.
- National Institute on Educational Governance, Finance, Policymaking, & Management, (1999). *Effective leaders for today's schools: Synthesis of a policy forum for educational leadership*. Washington, DC: United States Department of Education Office of Educational Research and Improvement.
- Natrielo, G. (1987). The impact of evaluation processes on students. *Educational Psychologist*, 22, 155-175.
- Noonan, B., & Renihan, P. (2006). Demystifying assessment leadership. *Canadian Journal of Educational Administration and Policy*, 56. Retrieved August 10, 2008, from <http://www.umanitoba.ca/publications/cjeap/articles/noonan.html>
- Oberman, I., & Symonds, K. (2005, January-February). What matters most in closing the gaps. *Leadership*, 8-11.
- Patterson, D. and Rolheiser, C. (2004). Creating a Culture of Change. *Journal of Staff Development*, 25(2), 1-4. Retrieved August 10, 2008. from www.nsd.org/library/publications/jsd/patterson252.pdf.
- Perkins, D. (2003). *King Arthur's round table*. New York, NY: Wiley.
- Pfeffer, J., & Sutton, R. (2006). *Hard facts, dangerous half-truths, and total nonsense: Profiting from evidence-based management*. Boston: Harvard Business School Publishing.
- Popham, J. (1995). School-site assessment: What principals need to know. *Principal*, 75(2), 38-40.
- Popham, J. (2006a.). Assessment for learning: an endangered species? *Educational Leadership*, 63(5), 82-83.

- Popham, J. (2006b). Needed: a dose of assessment literacy. *Educational Leadership*, 63(6), 84-85.
- Popham, J. (2008). Formative assessment: Seven stepping stones to success. *Principal Leadership*, 9(1), 16-20.
- Popham, J. (2008). *Transformative assessment*. Alexandria, VA: ASCD.
- Reeves, D. (2002). *Making standards work: How to implement standards-based assessments in the classroom, school, and district* (3rd ed.). Denver, CO: Advanced Learning Press.
- Reeves, D. (2004). *Assessing educational leaders*. Thousand Oaks, CA: Corwin Press.
- Reeves, D. (2004a). *Accountability for learning: How teachers and school leaders can take charge*. Alexandria, VA: Association of Supervision and Curriculum Development.
- Reeves, D. (2004b). *Accountability in action: A blueprint for learning organizations* (2nd ed.). Englewood, CO: Advanced Learning Press.
- Reeves, D. (2004c). *Assessing educational leaders: Evaluating performance for improved individual and organizational results*. Thousand Oaks, CA: Corwin Press.
- Reeves, D. (2006a). *The learning leader: How to focus school improvement for better results*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Reeves, D. (2006b). Of hubs, bridges, and networks. *Educational Leadership*, 63(8), 32-37.
- Reeves, D. (Ed.). (2007). *Ahead of the curve: The power of assessment to transform teaching and learning*. Bloomington, Indiana: Solution Tree.
- Reeves, D. (2008). *Reframing teacher leadership to improve your school*. Alexandria, VA: Association for Supervision and Curriculum Development.
- Reeves, J., McCall, J., & MacGilchrist, B. (2001). Change leadership: Planning, conceptualization and perception. In J. Macbeath and P. Mortimore, (Eds.), *Improving school performance*. Buckingham: Open University Press.

- Rodriguez, M. (2004). The role of classroom assessment in student performance on the Trends in International Mathematics and Science Study. *Applied Measurement in Education*, 17(1), 1-24.
- Rossi, M. (1993). The California Mathematics Project: Empowering elementary teachers to be leaders and change agents in mathematics reform. *Dissertation Abstracts International*, 54(09), 3314A (UMI No. 9405218).
- Sabatini, M. (2002). *Teachers' perspectives of emergent teacher leadership in an elementary school*. Unpublished doctoral dissertation. Athens, GA: University of Georgia. Retrieved August 10, 2008, from Proquest Educational Journals.
- Schlechty, P., (2002). *Working on the work: An action plan for teachers, principals, and superintendents*. San Francisco, CA: John Wiley & Sons, Inc.
- Senge, P. (1990). *The fifth discipline*. New York, NY: Doubleday.
- Shields, C., & Vibert, A., (2003). Approaches to student engagement: Does ideology matter? *McGill Journal of Education*, 38(2), 221-231.
- Snipes, J., Doolittle, F., & Hirlihy, C. (2002). Foundations for success: Case studies of how urban school systems improve student achievement. Research report for the MDRC Council of the Great City Schools.
- Sparks, D., & Hirsch, S. (1997). *A new vision for staff development*. Alexandria, VA, and Osford, OH: Association for Supervision and Curriculum Development.
- Stake, R. (2000). Case studies. In N.K. Denzin & Y.S. Lincoln (Eds.), *Handbook of qualitative research* (2nd ed.). Thousand Oaks, CA: Sage.
- Statistics Canada, (2005). *Education indicators in Canada: Report of the pan-Canadian education indicators program 2005*. Retrieved October 10, 2009, from <http://www.statcan.gc.ca>
- Statistics Canada (2009). Summary Public School Indicators for the Provinces and Territories, 2000/2001 to 2006/2007. Retrieved March 12, 2010, from www.statcan.gc.ca
- Stein, M., & D'Amico, L. (2000). *How subjects matter in school leadership*. Paper presented at the annual meeting of the American Educational Research Association, New Orleans, LA.
- Stiggins, R., (2001). The principal's leadership role in assessment. *National Association of Secondary School Principals, NASSP Bulletin*, 85, 13-26.

- Stiggins, R. (2002). Assessment crisis: The absence of assessment for learning. *Phi Delta Kappan*, 86(1), 22-27.
- Stiggins, R. (2004). New assessment beliefs for a new school mission. *Phi Delta Kappan*, 83(10), 22-27.
- Stoll, L., Stobart, G., Martin, S., Freeman, S., Freedman, E., Sammons, P., & Smees, R. (2003) *Preparing for Change: Evaluation of the Key Stage-3 Strategy Pilot*. Final Report. London: Routledge Falmer.
- Togneri, W., & Anderson, S. E. (2003). *Beyond islands of excellence: What districts can do to improve instruction and achievement in all schools*. Washington, DC: The Learning First Alliance and the Association for Supervision and Curriculum Development.
- Van Manen, M. (2000) *Challenges of phenomenological research*. [electronic version] Retrieved November 25, 2008 from <http://www.phenomenologyonline.com>
- Van Manen, M. (2000). *Researching lived experience: Human science for an action sensitive pedagogy*. New York, NY: State University of New York Press.
- Western and Northern Canadian Protocol for Collaboration in Education. (2006). *Rethinking classroom assessment with purpose in mind*. Retrieved December 15, 2009, from www.wncp.ca
- White, S. (2005a). *Beyond the numbers: Making data work for teachers and school leaders*. Englewood, CO: Advanced Learning Press.
- White, S. (2005b). *Show me the proof! Tools and strategies to make data work for you*. Englewood, CA: Advanced Learning Press.
- Wiggins, G., & McTighe, J., (2007). *Schooling by design: Mission, action, and achievement*. Alexandria, VA: Association for Supervision and Curriculum Development.
- William, D. (2007). Content *then* process: Teacher learning communities in the service of formative assessment. In D. Reeves (Ed.), *Ahead of the curve: The power of assessment to transform teaching and learning* (pp. 183-206). Bloomington, IN: Solution Tree.
- William, D., Lee, C., Harrison, C., & Black, P. (2004). Teachers developing assessment for learning: Impact on student achievement. *Assessment in Education*, 11(1), 49-63.

- Wiliam, D., Steinburg, J., Bell, C., & Wylie, C. (2008). *Professional development programs in formative classroom assessment: Do changes in teacher practice improve student achievement?* Paper presented at an invited symposium at the annual meeting of the National Council on Measurement in Education, New York, NY. Retrieved November 15, 2009, from <http://dylanwiliam.net>
- Wiliam, D., & Thompson, M., (2007). *Tight but loose: A conceptual framework for scaling up school reforms.* Paper presented at the annual meeting of the American Educational Research Association. Retrieved November 15, 2009, from <http://dylanwiliam.net/>
- Witziers, B., Bosker, R., & Kruger, M. (2003). Educational leadership and student achievement: The illusive search for an association. *Educational Administration Quarterly*, 39(3), 398-425.
- Wolcott, H. (1994b). *Transforming qualitative data: Description, analysis, and interpretation.* Thousand Oaks, CA: Sage.
- Wylie, C. (Ed.). (2008). *Tight but loose: scaling up professional development in diverse contexts.* Princeton, NJ: Educational Testing Service.
- Yin, R., (1998). The abridged version of case study research. In L. Bickman & D. Rog (Eds.). *Handbook of applied social research methods.* Thousand Oaks, CA: Sage.

APPENDIX A

Application for Approval of Research Protocol



Behavioral Research Ethics Board (Beh-REB)

APPLICATION FOR APPROVAL OF RESEARCH PROTOCOL

1. **Name of researcher(s)**
 Dr. Patrick Renihan Supervisor, Educational Administration

- 1a. **Name of student(s)**,
 Michael Bradford M.A., Educational Administration

- 1b. **Anticipated start date of the research study (phase) and the expected completion date of the study (phase).**
 Anticipated Start Date: January, 2009
 Anticipated Completion Date: March, 2009

2. **Title of Study**
 Assessment Leadership: A Case Study of Effective Practice

3. **Abstract (100-250 words)**
 The purpose of this study is to investigate the role of school-based and system leadership in schools where changes in classroom assessment practices have resulted in increased student learning. The study will look at role of leadership from inside and outside the school in engaging teachers in implementing and sustaining classroom assessment practices that support student learning. The study will be limited to two school sites, and will be conducted in three phases. The first phase will be to identify school sites that demonstrate improved student learning as a result of their focus on classroom assessment. The second phase will involve a series of connected interviews with administrators and teachers identified as playing a leadership role. Following an initial analysis of data, the third phase involves a further examination and clarification of participants' perspectives on the role and pattern of leadership supporting classroom assessment practices in the school, thereby providing the opportunity for the collection of rich data for further analysis.

4. **Funding**
 This study will be self-funded.

5. **Conflict of Interest**
 There is no anticipated conflict of interest in this study.

6. **Participants**

Participant schools will be selected using a purposive sampling method. In phase one of the study, three coordinators of one school division will be contacted and requested to identify and nominate all elementary schools that have successfully improved student learning through a focus on classroom assessment practices based on reputational criteria. If possible, following this initial nomination, schools identified by two or more coordinators as having met the criteria will be referenced against a list of school demographics in order to select two elementary schools of differing demographics for invitation to participate in the study. School nomination criteria and coordinator nomination form are included in appendix A.

7. **Recruitment**

Recruitment material is included in Appendix B.

- letter for permission to access sample
- invitation to participate for:
 - o coordinators
 - o individuals

School nomination form is included in Appendix D.

- school nomination criteria and coordinator school nomination form

8. **Consent**

The informed consent form for participation, and consent form for data transcription release are included in Appendix C.

9. **Methods/Procedures**

This is a qualitative study that follows components of the case study approach described in Creswell (2007). The primary tool for data collection will be a semi-structured interview protocol (**Appendix D**). Initial interviews will begin with each school principal. Further interview participants will be identified using a snowball or chain-sampling technique (Gall, Gall, and Borg 2007), in which initial and each subsequent participant will be asked to use their extensive knowledge of the school's focus on assessment reform to identify other teachers and educators inside and outside the school who they believe played an important leadership role in making changes to classroom assessment practices in the school. Additional people will be added to the sample from this data, and each additional member of the sample will also be asked to identify suitable candidates until the information saturation point is reached.

After the initial data analysis, follow up will be conducted as needed with appropriate participants by telephone or email with new questions that emerge from any issues initially identified in the analysis. The purpose of this follow up will be for participants to clarify relationships between leadership, changes to teacher practice, and student learning, and to provide a richer context for any critical areas that emerge in the data. According to Gall, Gall and Borg (2007),

and Denzin & Lincoln (2005), this sort of follow-up constitutes a form of member-checking. They define member-checking as the evaluation of analytic categories, as well as of any interpretation or conclusions made based on participant data, and is one critical component of building trustworthiness and confirmability into qualitative inquiry research. Any new data collected via follow-up

interviews will be used to confirm and clarify patterns that emerge in earlier phases of collection and analysis, and discussion of these additional findings will be added to the initial analysis during the writing of the discussion and conclusions of the study.

10. Storage of Data

Following completion of the study, all data (audio tapes, electronic, and paper) will be stored and retained by Dr. Patrick Renihan, Department of Educational Administration in the College of Education in accordance with the guidelines defined by the University of Saskatchewan. The data will be placed in a locked cabinet for a minimum of five years. The data will be stored for five years after the completion of the study. After this time, the data will be destroyed.

11. Dissemination of Results

Results from this inquiry will be used in partial fulfillment of an M.A. thesis in Educational Administration. It may potentially be used for scientific publications and presentations to professionals or other educators. Results of the study may also be used in a book or other publishable format. Data will be reported using pseudonyms; information from participants will be fictionalized in such a manner that third parties and locations cannot be identified.

12. Risk, Benefits, and Deception

No deception is involved in this study. Participants will not be exposed to harm, discomforts, or perceived harm.

There is one possible risk. It is possible that one or more participants will share negative information, such as a lack of support from a colleague, administrator, or school division. If anyone found out who the participant is or where he / she works, this could put the participant and the third party at risk. The participants will be warned of this possibility during the individual interview. However, since the names and locations are not of interest to the study, they will be changed to protect the participant's anonymity. The participants will also be able to change their transcripts if they believe, in hindsight, that the information they shared could compromise their anonymity or their careers.

- a) Are you planning to study a vulnerable population? This would include, for example, people who are in a state of emotional distress, who are physically ill, who have recently experienced a traumatic event, or who have been recruited into the study because they have previously experienced a severe emotional trauma, such as abuse. **NO**

- b) Are you planning to study a captive or dependent population, such as children or prisoners? **NO**
- c) Is there is a institutional/ power relationship between researcher and participant (e.g., employer/employee, teacher/student, counselor/client)? **NO**
- d) Will it be possible to associate specific information in your data file with specific participants? **NO**
- e) Is there a possibility that third parties may be exposed to loss of confidentiality/ anonymity? **NO** (see above)
- f) Are you using audio or videotaping? **YES**. Participants will be audio-recorded, but recordings will only be heard by the researcher and the transcriber, who is separate from the school division. Transcriptions will be returned to participants for their review to edit or delete sections as they choose. Participants will be asked if they think there is any information that will identify them to those in their school or school division, and if they do find any, this information will be deleted or changed. Participants will be asked to sign a transcript release form.
- g) Will participants be actively deceived or misled? **NO**
- h) Are the research procedures likely to cause any degree of discomfort, fatigue, or stress? **NO**
- i) Do you plan to ask participants questions that are personal or sensitive? Are there questions that might be upsetting to the respondent? **NO**
- j) Are the procedures likely to induce embarrassment, humiliation, lowered self-esteem, guilt, conflict, anger, distress, or any other negative emotional state? **NO**
- k) Is there any social risk (e.g., possible loss of status, privacy or reputation)? **NO**
- l) Will the research infringe on the rights of participants by, for example, withholding beneficial treatment in control groups, restricting access to education or treatment? **NO**
- m) Will participants receive compensation of any type? Is the degree of compensation sufficient to act as a coercion to participate? **NO**
- n) Can you think of any other possible harm that participants might experience as a result of participating in this study? **NO**

13. Confidentiality

All participants will be assigned pseudonyms. Locations and other identifying information will be fictionalized. Every attempt will be made to report the data in such a way as to avoid identifying features. The total number of schools involved will be 2. As interview participants can be drawn from both schools, as well as from outside the school, the identification of one teacher is unlikely. A transcript release form will be required by each participant.

14. Data/Transcript Release

Because it is possible that the anonymity of participants may be compromised through direct quotations, participants will be provided with the opportunity to withdraw their responses after their interview and prior to the publication of the

findings. Participants will be asked to review the final transcript and sign a transcript release form wherein they acknowledge by that the transcript accurately reflects what they said or intended to say.

15. Debriefing and feedback

Participants are provided with information on how the researcher can be contacted if they have questions or concerns in the letter of information describing the study they received. A brief executive summary of the project will be provided to each of the participants upon request.

16. Required Signatures

Michael Bradford
 Student
 411 7th Street East
 Administration
 Saskatoon, SK
 S7H 0X4
 Saskatchewan
 (306) 343-1307
 mbradfordwilson@yahoo.ca
 stewart@usask.ca

Dr. Patrick Renihan
 Supervisor
 Educational Administration
 College of Education
 University of Saskatchewan
 Saskatoon, SK
 (306) 966-7620
 pat.renihan@usask.ca

Dr. Sheila Carr-Stewart
 Department Head
 Educational
 College of Education
 University of
 Saskatoon, SK
 (306) 966-7611
 sheila.carr-

APPENDIX B
Letters of Transmittal

Letter for Permission to Access Sample

[Insert Date]

Dear Coordinator of Research and Evaluation,

Thank you for considering this request to allow me to conduct my research, entitled
Assessment

Leadership: A Case Study of Effective Practice. The purpose of this study is to investigate the role of school-based and system leadership in schools where changes in classroom assessment practices have resulted in increased student learning. The study will examine the role of leadership from inside and outside the school in engaging teachers in implementing and sustaining classroom assessment practices that support student learning.

The study will be limited to two school sites, and will be conducted in three phases. The first phase will be to identify school sites that demonstrate improved student learning as a result of their focus on classroom assessment. I will ask school division coordinators to identify eligible sites for study using reputational criteria. The second phase will involve a series of connected interviews with administrators and teachers identified as playing a leadership role by other participants in the study. I anticipate that each participant would be involved in one semi-structured interview. Following an initial analysis of data, the third phase will involve a further examination and clarification of participants' perspectives on the role and pattern of leadership supporting classroom assessment practices in the school, thereby providing the opportunity for the collection of rich data for further analysis. I anticipate that some participants may be involved in a brief telephone or email follow-up during the final phase of data collection.

I will take great care to ensure that the privacy and confidentiality of all participants will be preserved using pseudonyms, and will only ask them to participate on a voluntary basis. I will also be as unobtrusive as possible, and will ask each participant to participate on their own time and at their convenience. All interviews will be semi-structured and recorded. Participants will be made aware of the purpose of the study, and will have the option of withdrawing from the study if they choose.

Each participant will also be provided with a copy of their data and transcripts, as well as a copy of the results of the study. The results will be used for my M.A. thesis in Educational Administration, and may later be published in a scholarly journal, or used for a presentation or at a conference.

I ask your cooperation by allowing me access to these individuals by confirming and signing this form, and, if possible, endorsing/supporting my study to the educators involved. Thank you for your support!

Michael Bradford
Researcher, University of Saskatchewan

Date

Introductory Letter for Coordinators – Sample

Dear Participant:

My name is Michael Bradford, and I am an M.A. student with the Department of Educational Administration at the University of Saskatchewan. My study is entitled **Assessment Leadership: A Case Study of Effective Practice**.

The purpose of this study is to investigate the role of school-based and system leadership in schools where changes in classroom assessment practices have resulted in increased student learning. The study will examine the role of leadership from inside and outside the school in engaging teachers in implementing and sustaining classroom assessment practices that support student learning. The key question of this inquiry: *what is the overall pattern of leadership that surrounds schools where assessment for learning practices have resulted in increased student learning?* The first phase of the study will be to identify possible schools for study using a set of reputational criteria. The second phase will involve a series of interviews with administrators and teachers identified as playing a leadership role in each school. Following an initial analysis of data, the third phase involves a further clarification of participants' perspectives on the role and pattern of leadership that supports classroom assessment practices in the school, thereby providing the opportunity for the collection of rich data for further analysis.

As a coordinator in your school division, I will be contacting you to provide a list of elementary schools in your school division that you believe meet a short list of criteria that would make them eligible to be included in this study. Following the recommendations of the coordinators, I will reference the possible school sites against a list of school demographics. If possible, I plan to select two elementary schools from your division with differing school contexts, and approach them with an invitation to participate in the study.

The information gathered from educators in this inquiry will provide valuable information for theories of action, knowledge, and practice related to implementing and sustaining school improvements focused on classroom assessment. It is my hope that data collected from your school division will provide a rich context from which other educators will be able to better improve assessment practices in the schools with which they are involved.

Information gathered from teachers who participate in this study will be used for my M.A. thesis in Educational Administration, and may later be published in a scholarly journal, or used for a presentation or at a conference. Every attempt will be made to ensure your participation in this study is anonymous.

Your cooperation in Assessment Leadership: A Case Study of Effective Practice would be greatly appreciated. If you are interested, please read and sign the consent form.

If you have any questions or concerns about this study, I can be contacted by email at mbradfordwilson@yahoo.ca or by phone (306-343-1307). Thank you in advance for your consideration and cooperation by participating in this study.

Respectfully,

Michael Bradford

University of Saskatchewan

Introductory Letter for Participants – Sample

Dear Participant:

My name is Michael Bradford, and I am an M.A. student with the Department of Educational Administration at the University of Saskatchewan. My study is entitled **Assessment Leadership: A Case Study of Effective Practice**.

The purpose of this study is to investigate the role of school-based and system leadership in schools where changes in classroom assessment practices have resulted in increased student learning. The study will examine the role of leadership from inside and outside the school in engaging teachers in implementing and sustaining classroom assessment practices that support student learning. The key question of this inquiry: *what is the overall pattern of leadership that surrounds schools where assessment for learning practices have resulted in increased student learning?*

As a case study participant, I will be contacting you initially to ask you questions about your involvement in classroom assessment practices in your school. If you are an educator working in a role outside a particular school, I will be asking you questions about your involvement in classroom assessment practices in a particular school with which you are connected. In a semi-structured interview format, I will ask you to describe the classroom assessment practices at work in this school, and to describe acts of leadership by yourself and others connected with the school that helped support teachers use of classroom assessment. At a later time, I may follow up with you via phone or email to clarify or confirm some of the major themes and trends that present themselves in the data. The goal is to determine how the leadership at work in the school is affecting teachers' use of assessment for learning strategies in the classroom to improve student learning.

The information gathered from educators in this inquiry will provide valuable information for theories of action, knowledge, and practice related to implementing and sustaining school improvements focused on classroom assessment. It is my hope that data collected from your school division will provide a rich context from which other educators will be able to better improve assessment practices in the schools with which they are involved.

Information gathered from teachers who participate in this study will be used for my M.A. thesis in Educational Administration, and may later be published in a scholarly journal, or used for a presentation or at a conference. Every attempt will be made to ensure your participation in this study is anonymous.

Your cooperation in Assessment Leadership: A Case Study of Effective Practice would be greatly appreciated. If you are interested, please read and sign the consent form.

If you have any questions or concerns about this study, I can be contacted by email at mbradfordwilson@yahoo.ca or by phone (306-343-1307). Thank you in advance for your consideration and cooperation by participating in this study.

Respectfully,
Michael Bradford
University of Saskatchewan

APPENDIX C

Consent

Informed Consent Form for Participation

You are invited to participate in a study entitled *Assessment Leadership: A Case study of Successful Practice*. Please read this form carefully, and feel free to ask any questions you might have.

Researcher(s):

Patrick Renihan, Ph.D. University of Saskatchewan 306-966-7620

Michael Bradford University of Saskatchewan, M.A. Candidate 306-343-1307

Purpose: The purpose of this study is to investigate the role of school-based and system leadership in schools where changes in classroom assessment practices have resulted in increased student learning. The study will examine the role of leadership from inside and outside the school in engaging teachers in implementing and sustaining classroom assessment practices that support student learning. The key question of this inquiry: *what is the overall pattern of leadership that surrounds schools where assessment for learning practices have resulted in increased student learning?*

As a case study participant, I will be contacting you initially to ask you questions about your involvement in classroom assessment practices in your school. If you are an educator working in a role outside a particular school, I will be asking you questions about your involvement in classroom assessment practices in a particular school with which you are connected. In a semi-structured interview format, I will ask you to describe the classroom assessment practices at work in this school, and to describe acts of leadership by yourself and others connected with the school that helped support teachers use of classroom assessment. At a later time, I may follow up with you via phone or email to clarify or confirm some of the major themes and trends that present themselves in the data. The goal is to determine how the leadership at work in the school is affecting teachers' use of assessment for learning strategies in the classroom to improve student learning.

Potential Risks: All participants will be assigned pseudonyms. As the possible pool of teachers extends beyond each school involved in the study, identification of one teacher is unlikely. However, because it is possible that the anonymity of participants may be compromised through direct quotations, participants will be provided with the opportunity to withdraw their responses after their interview and prior to the publication of the findings. Participants will be asked to review the final transcript and sign a transcript release form wherein they acknowledge that the transcript accurately reflects what they said or intended to say.

Potential Benefits: The information gathered from educators in this inquiry will provide valuable information for theories of action, knowledge, and practice related to implementing and sustaining school improvements focused on classroom assessment. It

is my hope that data collected from your school division will provide a rich context from which other educators will be able to better improve assessment practices in the schools with which they are involved.

Storage of Data: Following completion of the study, all data (audio tapes, electronic, and paper) will be stored and retained by Dr. Patrick Renihan, Department of Educational Administration in the College of Education in accordance with the guidelines defined by the University of Saskatchewan. The data will be placed in a locked cabinet for a minimum of five years. The data will be stored for five years after the completion of the study. After this time, the data will be destroyed.

Confidentiality: All names and locations will be given pseudonyms in this study. Participants will be asked to sign a transcript release form. Data resulting from the interviews will be examined for themes. Direct quotations may be used as supports to the themes, however, pseudonyms will be used in the quotations as well.

Right to Withdraw: Your participation is voluntary, and you may withdraw from the study for any reason, at any time, without penalty of any sort. If you withdraw from the study at any time, any data that you have contributed will be destroyed at your request. Throughout the study you will be asked to complete additional consent forms for each of the case study participant contacts. As researchers, we will advise you, the participant, of any new information that may have a bearing on your decision to participate.

Questions: If you have any questions concerning the study, please feel free to ask at any point; you are also free to contact the researchers at the numbers provided above if you have questions at a later time. This study has been approved on ethical grounds by the University of Saskatchewan Behavioral Research Ethics Board on [insert date]. Any questions regarding your rights as a participant may be addressed to that committee through the Ethics Office (966-2084). Out of town participants may call collect. A brief executive summary of the project will be provided to participants upon request.

Consent to Participate: I have read and understood the description provided above; I have been provided with an opportunity to ask questions and my questions have been answered satisfactorily. I consent to participate in the [first] phase of the study as described above, understanding that I may withdraw this consent at any time. A copy of this consent form has been given to me for my records.

(Name of Participant)

(Date)

(Signature of Participant)

(Signature of Researcher)

Please provide the phone number you wish to be contacted at:

Consent Form for Data Transcription Release

Study Title: Assessment Leadership: A Case study of Effective Practice

I am returning the transcripts of your audio-recorded interviews and a copy of the social network diagram for your perusal.

I _____, have reviewed the complete transcript and charts of my personal interviews in this study, and have been provided with the opportunity to add, alter, and delete information from them as appropriate. I acknowledge that the transcript and charts accurately reflect what I said in my personal interviews with Michael Bradford. I hereby authorize the release of the transcript to Michael Bradford to be used in the manner described in the consent form. I have received a copy of this Data Transcript Release Form for my own records.

Participant Signature

Date

Researcher Signature

Date

APPENDIX D

Data Collection Instruments

Coordinator School Nomination Form

The first phase of this inquiry is to identify possible school sites for participation in the study using reputational criteria. Using your professional expertise as a coordinator in your school division, you are asked to use your knowledge of school strategic plans, professional learning focus, and student data to nominate all schools you believe meet the below criteria. For each school you nominate, please provide a brief description of three or four key attributes of the school that you considered in making your nomination.

Please return this form to the researcher no later than [insert date].

Reputational Criteria

1. Elementary school.
2. School identified focus on “assessment for learning” or “classroom assessment reform” in its school plan for two or more consecutive years.
3. Teachers and school-based leaders in those schools have engaged in professional development related to classroom assessment as part of their assessment initiative.
4. School staff has implemented changes to classroom assessment practices as part of their assessment initiative.
5. Professionals in the school attributed improvements in student learning to changes in classroom assessment practices.

Nominated School	List 3-4 key attributes of school related to criteria that you considered in making your nomination

Your completion of this nomination form will remain anonymous. Names of all schools will be changed to pseudonyms, and every attempt will be made to avoid reporting school features that could identify the school.

Individual Interview Protocol

Semi-structured interview guide to be used as a data collection instrument for interviewing principals and other educators who played a leadership role during a school focus on classroom assessment practices.

This is a visit to get acquainted with what changes to classroom assessment practices have been made in this school, and how these changes are affecting students. My main focus, though, is to examine how these changes came about. This is not an evaluation of you or any of your colleagues. What I want to do is to try and create a picture of the leadership networks at play as part of your school's focus on classroom assessment. I have a number of specific questions to ask, but we might have more in-depth conversation about topics or themes you think are important for me to understand as well. No names will be used in any part of the study, and every attempt will be made in the reporting of the data to ensure anonymity for all participants.

1. Background
 - a. Name
 - b. Job title (or role)
 - c. Thumbnail sketch of your job; what you do, who you work with.
 - d. How long have you been teaching?
 - e. How long have you been in this school?

2. I'm interested in hearing about your school's focus on classroom assessment
 - a. Think back to when your school first started focusing on classroom assessment practices:

Probe for:

- When was that?
 - Why did the school choose this focus?
 - What actions were taken to begin this initiative?
 - How did you personally get involved at this time?
 - Who were some of the key actors who played a leadership role in starting this initiative?
 - To what extent have staff come and gone during the initiative?
- b. In your mind, what made this initiative effective?

3. We've talked about how the school got started on this work; I want to move into the present:
 - a. What practices are used in this school for classroom assessment?
 - b. Who takes on the leadership for classroom assessment?
 - c. What kinds of activities are there to engage the staff in discussions and professional learning related to assessment?

4. I want to explore a bit more about the people who you see as playing a leadership role related to classroom assessment in your school:
 - a. Who would you identify as key people from inside the school who are most helpful in supporting teachers' classroom assessment practices?

Probe for participant's perceptions of person's:

- Main contributions
- Knowledge related to assessment
- Skills
- Appreciations and values expressed in words or through actions
- Practices used that supported teaching and learning related to assessment
- Descriptions of specific times when this person was especially helpful

Repeat question 4 as needed for additional people identified by participant.

- b. Are there any key people from outside the school who are most helpful in supporting classroom assessment practices in this school?

Probe for participant's perceptions of person's:

- Main contributions
- Knowledge related to assessment
- Skills
- Appreciations and values expressed in words or through actions
- Practices used that supported teaching and learning related to assessment
- Descriptions of specific times when this person was especially helpful

5. I'd like you to describe your involvement related to assessment in the school. What do you see as your own main contributions?

Probe for participant's perceptions of their own:

- Main contributions
- Knowledge related to assessment
- Skills

- Appreciations and values expressed in words or through actions
 - Practices used that support teaching and learning related to assessment
6. Finally, I want to focus on learning for you, other teachers, and students:
 - a. What evidence of your own learning have you noticed as a result of this work?
 - b. What evidence of learning for other teachers have you noticed as a result of this work?
 - c. What evidence of student learning have you noticed as a result of this work?
 7. What would you say are the most critical acts of leadership played by the people you identified that have contributed to the success of this work?
 8. What if anything would you care to add?