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TEACHER AND PRINCIPAL ASSESSMENT LITERACY

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Dissertation

Presented in partial fulfillment of the requirements for the degree of

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In Educational Leadership

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## ABSTRACT

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Educational Leadership

Teacher and Principal Assessment Literacy: A look at the level of assessment literacy of high school principals and high school teachers in the state of Montana.

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The implementation of the No Child Left Behind (NCLB) Act in 2002 has increased the emphasis on standardized achievement tests. Principals are asked to lead instruction and improve student achievement through assessment. NCLB has sanctions that could include replacing a school principal. The purpose of this study was to look at the level of assessment literacy of high school principals in the state of Montana.

An email was sent to all practicing high school principals (N=169) inviting them to participate in a survey. The survey asked demographic questions regarding years in the classroom, years as principal, overall education, size of school population, and region. The survey was also designed to test their level of assessment literacy using the Classroom Assessment Literacy Inventory (CALI) as used in similar studies. The principals that completed the survey were also asked to have two teachers of English, science, or math take the same CALI. A total of 32 principals and 14 teachers completed the survey.

The responses indicated that the level of teacher assessment literacy closely mirrored the results from studies conducted in 1993 and 2003 using the CALI. The results from the principals' participation showed lower scores in all but one area of the Standards for Teacher Competence on Educational Assessment of Students. The overall score by principals on the CALI was 59% correct in comparison with the teachers' overall score of just under 63%.

Findings included the level of teacher scores on the CALI have not changed significantly in over twenty years. In an era of increased use of assessment, principal scores are lower than that of classroom teachers. The study was conducted in one state of a rural nature when compared to populations nationwide. The results are discussed in terms of use to establish a baseline that can be used in further study of assessment literacy of both classroom teachers and principals in the state of Montana.

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## CHAPTER ONE – INTRODUCTION

### **Public Education**

The federal government is calling upon public schools to increase the level of accountability in the classroom. No Child Left Behind (NCLB) provides the avenue for the Federal government to have a great impact on schools through funding and mandatory accountability measures. The U.S. Constitution does not specifically mention the responsibility of public education, so by virtue of the 10<sup>th</sup> Amendment to the Constitution, those rights are retained by the states. The federal government does provide money to public schools through various federal programs and through these means dictates some rules and regulations regarding public schools. The main source of federal funding for public schools is through the Elementary and Secondary Education Act (ESEA). President Johnson introduced the ESEA in 1965. The act was originally authorized through the 1970 fiscal year and provided targeted resources to help disadvantaged students. The act has been renewed every five years with an increase in funds, an increase in regulations, and new titles. The remainder of money necessary for providing a public education is provided through state and local dollars.

As schools begin to be held more accountable for student scores, and teachers and administrators face possible sanctions for poor performance on standardized tests, the need for knowledge and skills in the area of classroom assessment has increased (Linn, 2003). NCLB requires a school that fails to meet AYP for a fourth consecutive year must start to replace relevant staff. After a fifth consecutive year, a school must look at replacing most or all of the staff (Skinner, 2009). In the 2006–07 school year, more than 750 schools in “corrective action,” the NCLB phase preceding restructuring,

implemented a new research-based curriculum, more than 700 used an outside expert to advise the school, nearly 400 restructured the internal organization of the school, and more than 200 extended the school day or year. Importantly, more than 300 replaced staff members or the principal, among the toughest traditional interventions possible (Smarick, 2010).

The call for accountability for money spent in public education is on an increase from parents and community members, and the politicians are working hard to increase the level of accountability to the public (Corter & Pelletier, 2004). Politicians use education policy as part of their platform, especially during election years, and in response to constituents have worked to make a simple process for the majority of parents to determine which schools are best. Reporters working in television and print discuss and disperse test scores to the public in detail. The federal ESEA, also known as NCLB, mandates testing for students in grades 3-8, and grade 10. NCLB established formulas to create benchmarks used to label a school as successful or failing based upon the annual standardized test given each spring.

### **Public Perception**

The United States Department of Education stated on the NCLB website the following:

Testing tells parents, communities, educators and school boards which schools are doing well. If students do not perform up to the level as set by state and federal regulations, there are consequences to the students, such as retention and failure to graduate (Testing for Results section, para. 3).

In describing the use of standardized tests, Perrone (1991), professor at the Harvard School of Education stated, “More often than ever before, they became the basis for selection and retention in numerous educational programs and grade levels. The Federal government has adapted the same idea but is using it to decide which schools should be selected as passing or failing” (p. 2). The public’s strong support bolsters the federal government’s focus on testing. A Gallup poll conducted in 2001 reported 53 percent of over 1000 Americans favored use of a single test to decide grade to grade promotions, and 57 percent favored the use of a single test in the decision to grant a diploma (Bennett, 2002).

In the last 50 years, the United States has descended from viewing tests first as a useful tool, then as a necessity, and finally as the sole instrument needed to evaluate teachers, schools, districts, states and nations (Bracey, 2009). Eisner (1999) expressed two reasons why the public puts its trust in standardized testing. The first reason is that the public wants objective scores and believes the subjectivity of teachers regarding the effects of their own effort is unlikely to provide a credible picture of student performance. The second reason is that the public wants an easily scored test to be administered widely and uniformly that can provide scores to make comparative judgments about the quality of schools. While the development of accountability programs has been underway in some states for the past two decades, NCLB has propelled accountability activity in all states and heightened debate about the impact of both the federal law and state accountability systems (Chester, 2005; Luo, 2008).

## **Statement of the Problem**

### **Assessment**

In the era of NCLB, principals nationwide have the responsibility of improving achievement for all students on their campuses (Polnick, 2005). Due to NCLB regulations the standardized achievement test has become the primary tool used to determine educational effectiveness. The effectiveness of schools' accountability policies is of paramount importance to the success of NCLB. If schools are not actively engaged in effectively using accountability data, the student achievement increases required by this legislation will likely be unattainable (Englert, Fries, Martin-Glenn, & Michael, 2005). Adequate yearly progress (AYP), an evaluation system based on student proficiency on standardized assessment performance, dictated that the principal's job performance rested on the performance of all students (Collins et al., 2005). NCLB requires states to define proficient achievement in math and reading. An annual target must then be identified by the state for the percentage of students who score at the proficient level or above in math and in reading. The targets must be set in a way leading to an ultimate goal of having all students at the proficient level or above in each subject by 2014 (Linn, 2008). Schools must provide separate and measurable objectives for all children and for specific groups (disadvantaged, racial/ethnic, disabled, limited English proficiency, migrant) (Montana Office of Public Instruction, 2002). Schools where students do not achieve the benchmarks of AYP, as defined by the state, are subject to various forms of assistance, intervention and other actions, depending on how long the record of low performance persists (Montana Commission on Teaching, 2002).

## **Results**

The media is quick to publish test scores, and parents may have the option to select a different school for their child based on a schools failure to meet set benchmarks. Each school district must prepare district report cards to describe the state test results for students in the district as compared to results from all schools in the state of Montana.

In addition, individual school results from within a district must be compared to other schools in the district and the state. Schools “in need of improvement” must be identified in this reporting process (Montana Commission on Teaching, 2002). According to the Office of Public Instruction (OPI) in an August 2002 bulletin to parents and all citizens of the state of Montana, educators will use student, school, and district results extensively to review curriculum and instruction and plan for improvement. This will fulfill, in part, the intent of NCLB to improve instruction and the achievement of Montana students based on the learning standards.

## **Principal’s Role**

Leadership could be considered the single most important aspect of effective school reform (Marzano, 2003). Numerous studies conducted by Hallinger and Heck (1996), Leithwood and Jantzi (2008), and Robinson, Lloyd, and Rowe (2008) have consistently found positive relationships between principals’ practices and various school outcomes, including student achievement (Orr & Orphanos, 2011). The lack of a designated leader for the process of data-driven inquiry was one of the most frequently-cited inhibitors to its implementation (Boudett, City, & Murnane, 2006). Arter, Stiggins, Duke, and Sagor (1993) asked, “What do principals need to know, and what do they need to be able to do in order to ensure the development and use of instructionally relevant

assessments in their schools” (p. 4)? The principal must be a key player in ensuring the accuracy and effective use of evidence of student achievement at the school and classroom level. The well-prepared principal is ready to ensure that assessments are of high quality and used effectively (Stiggins & Duke, 2008). Assessment of student learning needs to be an essential function of a school assessment program. The program should include continuous efforts to evaluate student knowledge, skills, and dispositions as well as overall academic effectiveness (Williams & Szal, 2011). Principals want to know if curriculum, instruction, or pacing issues must be changed to create a culture in which all students are able to learn (Jakicic, 2009).

Every building principal needs the skills necessary to read the test results and use those interpretations as tools to improve instruction within his or her building. To obtain the information they need, educators must have a balanced assessment system, including both formative and summative assessments (Jakicic, 2009). The principal must be able to view the scoring report and identify specific objectives to focus teaching and improve learning. Stiggins (2001), founder of the Assessment Training Institute, noted two specific conditions are needed for a principal to help with assessment: clear and appropriate achievement targets and an assessment-literate faculty. An assessment-literate principal can differentiate between summative and formative assessment and can explain specific classroom assessment for learning practices. The principal can provide examples of what formative assessment looks like in the classroom, including how students might be involved (Chappuis, Commodore, & Stiggins, 2010).

## **Instructional leader**

NCLB and Individuals with Disabilities Education Act (IDEA) brought the principal's role as instructional leader to the forefront of public education in the United States (Lynch, 2012). As accountability for student performance increases, the role of the instructional leader is perhaps the most crucial responsibility of today's principal (Lynch, 2012). First, beyond the classroom teacher, the principal exists as the most powerful factor affecting academic performance (Boscardin, 2005; Herrington & Willis, 2005; Leithwood, Louis, Anderson, & Wahlstrom, 2004). Second, increased statewide emphasis on student performance, as measured by standardized assessments, has magnified the pressure for all students to obtain proficient levels of academic performance (Provost, Boscardin & Wells, 2010). Third, a school's quality of instruction directly reflects its principal's commitment to teachers.

The principal must be assessment literate in order to be the instructional leader in the building. A study of reform efforts in the state of Illinois found that the lack of development of local educator assessment literacy skills limited policy effectiveness (Vogel, Rau, Baker, & Ashby, 2009). Instructional leadership requires an understanding of the role of sound assessment in efforts to improve teaching and learning (Stiggins & Duke, 2008). The principal's role as instructional leader exists as a critical responsibility for multiple reasons. Stiggins defined assessment literacy as comprising two skills: the ability to gather dependable and quality information about student achievement and the ability to use information effectively to maximize student achievement (2001). The U.S. Department of Education website dedicated to the NCLB Act discusses how the annual tests will show principals exactly how much progress each teacher's students have made.

The principals can use this information to guide decisions about program selection, curriculum arrangement, and professional development for teachers and school resources they might need. The tests show principals the strengths and weaknesses of students in terms of the whole school, various subgroups and as individuals and enable them to make plans to bolster strengths and address weaknesses (United States Department of Education, 2005).

Each annual spring standardized test, as required by NCLB, has an immediate impact on the building principal as the principal is asked to explain test scores to students, staff, parents, and community members. The principal is expected to make decisions for the building based upon the scores. According to NCLB, schools continuing to perform below proficiency levels would be subject to corrective actions, and states with underperforming schools would receive funds to improve those schools if they implemented one of four intervention models (USDOE, 2010). Two of the models call for the replacement of the principal. A third model reopens the school under the management of a charter group and the fourth model calls for school closure (Lynch, 2012).

Ashworth and Saxton (1990) discussed that when using standardized tests to make comparisons, it is clear tests can be used to hold individuals accountable for leadership, teaching, or learning – or the lack of leadership, teaching, or learning. Principals can debate the advantages and disadvantages of standardized testing, but it is currently the primary method for determining the success of a public school because the general public views test scores as the primary factor in school accountability.

## **Standardized Testing**

A standardized achievement test is a test, either norm referenced or criterion referenced, administered, scored, and interpreted in a standard manner (Popham, 1995). A move toward statewide testing programs began in the 1970s, with three states using commercially-developed, norm-referenced tests for local accountability. By the end of the decade 37 states were using testing programs (Stiggins, 2001). All 50 states now use commercially prepared tests as an accountability measure on local, state, national, and international levels. In the United States, the use of nationally developed standardized tests has proliferated during the past two decades (Council of Chief State School Officers [CCSSO], 2008; Linn, 2008). Standardized testing has become a staple in the educational community. One reason standardized tests are so popular is that community members view test scores as tangible evidence of school success or failure. Many school districts use commercially prepared tests due to the efficiency of use for both test taking and scoring.

**National test results.** The testing required by NCLB produced a wide variety of scores with the potential to impact schools positively or negatively. The Center on Education Policy (2012) has been monitoring national Adequate Yearly Progress (AYP) data since the 2005-2006 school year. The latest report released in November 2012 is based on data from the Consolidated State Performance Reports (CSPR). The CSPR AYP data are submitted to the United States Department of Education by all 50 states and the District of Columbia. The most current data shows that nearly half (48%) of the nation's public schools did not make AYP in 2011. The percentage of failing schools is up from 39% in 2010 and the highest percentage since NCLB was enacted in 2002.

The reliance on standardized testing scores is having an impact on schools across the nation. NCLB has forced states to set test cut scores that ultimately label schools as “passing” or “failing.” Due to this requirement, the Michigan Board of Education is looking at lowering the level of scores used to determine failing schools. The new standard will be set at the 20<sup>th</sup> percentile, which the Board stated is a more “realistic” standard. Based on the test scores of 2001, Michigan had more than 1,500 of the nation’s 8,000 failing schools (Walsh-Sarnecki, 2002). According to Higgins (2011), 98 persistently low-achieving schools in Michigan could end up in a newly created statewide reform district based largely on reading and math scores.

The headlines in the Indianapolis Star read, “1/3 More Schools Rated As Failing” and the outgoing superintendent commented, “it is disappointing.” Ninety-nine schools were named to the federal list for failing to meet expectations in 2004, an increase of a third from the year before (Hupp, 2005). According to Hupp (2005), the schools did not show overall failure on the test but instead indicated failure in one or two of the disaggregated groups set forth by federal regulations. The most common group failing on the test and putting the school on to the federally designated failing list was special education.

According to the benchmarks set forth by NCLB, almost 87 percent of New Mexico’s schools were not making AYP (Resmovits, 2011). Continued failure on standardized testing can cause sanctions to be implemented by school district officials, such as developing a school improvement plan or transporting students to another school not under sanctions.

To make adequate yearly progress as defined by NCLB, public schools must meet yearly targets set by their state for the percentages of students scoring proficient on state tests (Usher, Yoshioka, Kober, Rentner, & Riddle, 2012). If test scores remain low for an extended period of time, the federal government can put further sanctions into effect, including replacing staff, turning the school over to a private management company, or letting the state come in and take over the school. NCLB now provides states with the ability to make changes in staffing and governance of a school not making adequate yearly progress on the annual exams. For example, Baltimore, which has the state's lowest performing system, announced plans to replace 11 of 23 middle school principals and spend \$6 million to improve these schools (Smarick, 2010). In Georgia, 63.2 percent of schools made AYP in 2011, down from 71 percent in 2010, at the same time proficiency levels increased in all four measured categories, which included three standardized tests and overall graduation rate. Forsyth Central High School in Georgia did not make AYP because of poor performance on English exams among the Hispanic and Economically Disadvantaged subgroups, but increased the graduation rate to 87.7 percent, the highest in school history, a 2.7 percent increase. The school also posted an 11 percent increase in the graduation rate of Economically Disadvantaged students (Resmovits, 2011).

**Montana test results.** In 2011-2012, Montana had 212 out of 820 public schools designated as failing, according to the Federal government's definition of "successful" (Montana Office of Public Instruction, 2013). The Federal government uses the term "successful" as defined by the AYP label for school performance on standardized testing (Farrell & Olp, 2003). In response to the federal designation, Montana Superintendent of

Public Instruction Denise Juneau stated that Montana schools and students continue to outperform the nation (Montana Office of Public Instruction, 2013). Billings, Montana, can lay claim to two high schools that have earned the title of exemplary from the Northwest Association of Schools, Colleges, and Universities, and yet the schools both were labeled as failing according to the standards set by NCLB. Billings, Montana district superintendent, Rod Svec, stated the report was “heightening concerns when it does not need to” and “it is unfortunate the federal government is stepping in to dictate what is supposed to be a state issue” (Farrell & Olp, 2003). NCLB’s stipulations are so stifling that some states, such as Montana, Idaho, and South Dakota, considered defying its regulations. Montana would have faced a decrease in federal education funding as a penalty for the decision. Education officials were able to develop a compromise plan by using a provision in NCLB to reset the states’ performance targets (Resmovits, 2011).

Since 1988, Montana has required all public school students in grades 4, 8, and 11 take a norm-referenced, state-approved assessment. Schools had the option of five approved assessments between the years of 1988 and 1997, at which time the State of Montana reduced the number of approved assessments to three and further reduced the number to one in 2000. Starting in 2000, Montana required students to complete the Iowa Test of Basic Skills (ITBS) in grades 4 and 8 and the Iowa Test of Educational Development (ITED) in grade 11. According to the Montana Commission on Teaching, the U.S. Department of Education determined the Iowa tests were not fully aligned with Montana’s Content and Performance Standards and required Montana to develop a test that better fits those standards (2002). The State of Montana contracted with Measured Progress, a commercial testing company, to develop a statewide criterion referenced test.

The criterion referenced test is referred to as MontCAS, the Montana Comprehensive Assessment System, and is being given to students in grades 3-8 and 10 at an annual cost of \$2.5 million per year with \$375,000 to \$400,000 being spent to give an alternate version of the test to specifically identified populations, such as English Language Learners and special education students.

### **Purpose of The Research**

The current environment created by NCLB needs principals who function as instructional leaders and can rely on their ability to use accountability to lead data-driven decision-making (DDDM) (Styron & LeMire, 2009). Boscardin did a meta-analysis of several studies and discovered the need to reform principal preparation programs in order to address responsibilities associated with being a schools instructional leader (2005). Creighton (2001) commented that one precondition for using accountability, as an effective management tool is that principals be equipped to make use of data, research, and the associated technology. Previous research shows principal preparation programs, at best, frequently have only minimal coursework focused on assessment literacy (Hess, 2005; Stiggins & Duke, 2008). A study conducted by Hess and Kelly (2005) discovered that on average principal preparation programs spend between 6-7% of course time addressing topics related to assessment. Assessment literacy has not been a part of the majority of administrator training programs (Arter, Stiggins, Duke, & Sagor, 1993). Most of today's public school teachers were never required to take pre-service or in-service training in educational testing (Popham, 2004; Stiggins & Duke, 2008). A review of the top ten graduate schools in Educational Administration and Supervision as listed by U.S. News and World Report in 2013 show that 6 out of 10 programs require a course in

assessment or data driven decision making (U.S. News and World Report LP, 2013). The purpose of this research is to determine the level of assessment skill and knowledge of high school principals in comparison to teachers.

### **Research Questions**

The research questions in this study focused on the level of assessment literacy by principals and teachers. Three research questions were asked to address this issue.

1. What is the level of assessment literacy of Montana high school principals as measured by the Classroom Assessment Literacy Inventory?
2. What is the level of assessment literacy of Montana high school teachers as measured by the Classroom Assessment Literacy Inventory?
3. How does the assessment literacy of Montana high school principals compare to that of Montana high school core subject teachers?

### **Significance of the Research**

The significance of the study should indicate how the study will add to scholarly research and improve both practice and policy (Creswell, 2003). According to NCLB, teachers and administrators can be replaced if schools are not showing improvement from year to year on the standardized tests. The literature has shown the importance of data use to improve student achievement. The information gained from this research will add to the body of knowledge regarding the importance of assessment literacy in education in the current age of accountability.

### **Definitions of Terms**

The following terms are defined in the context in which they are utilized in this research:

*Adequate Yearly Progress (AYP)*. Shall be defined by each state according to its lowest achieving schools. Annual yearly progress will then be defined in raises by equal increments in order for 100% of students to reach proficiency by 2014 (United States Department of Education, 2001)

*Assessment*. The deliberate use of many methods to gather evidence to indicate students are meeting standards (Wiggins & McTighe, 1998).

*Assessment Literacy*. The ability to gather dependable and quality information about student achievement and the ability to use information effectively to maximize student achievement (Stiggins, 2001).

*Criterion-referenced assessment*. A test or other type of assessment designed to provide a measure of performance interpretable in terms of a clearly defined and delimited domain of learning tasks (Linn & Gronlund, 2000).

*Data-Driven Decision Making*. Utilizing demographic, student performance, perceptual and school process data to inform decisions related to the school (Bernhardt, 2003).

*Failed Schools*. This is defined to be three consecutive years of not achieving adequate yearly progress (AYP) toward state standards, accountability measures and remediation will be required by ESEA such as replacing certain staff or adopting a new curriculum (United States Department of Education, 2001).

*ISLLC*. The Interstate School Leaders Licensure Consortium, a council of the Chief State School Officers charged with improving educational leadership training (CCSSO, 2008).

*No Child Left Behind Act of 2001.* Federal accountability passed with the reauthorization of the 1965 Elementary and Secondary Education Act, which required increased levels of accountability for states, school districts and schools (Bernhardt, 2003).

*Norm-referenced assessment.* A test or other type of assessment designed to provide a measure of performance interpretable in terms of an individual's relative standing in some known group (Linn & Gronlund, 2000).

*Principal.* A public school administrator who supervises any of the K-12 grade levels pursuant to the Montana School Accreditation Standards (General Provision 10.55.703).

*Principal certification program.* Any college or university graduate level (principal preparation program) coursework program, which fulfills the state licensure requirements for the certification of principals for public school administration (Davis, Darling-Hammond, LaPointe, & Meyerson, 2005).

*Proficiency.* Having or demonstrating an expected degree of knowledge or skill in an area (Oxford University Press, 2008).

*Reliability.* The degree to which the result of a test is dependable and has consistent results. Reliability is an indication of the consistency of a student's scores with the same tests, across time, or different tests measuring the same thing (Popham, 2010).

*Standardized Testing.* A standardized test is any test that's administered, scored, and interpreted in a standard, predetermined manner (Popham, 2010).

*Validity.* A measure of whether a test measures what it is intended to measure (Popham, 2010).

## Summary

The increased accountability inherent in NCLB has created pressure on the principal to take more of a role as instructional leader. According to the National Bureau of Economic Research, there is a substantial variation in the effectiveness of principals, showing that the quality of the principal does impact student learning (Briggs, Davis & Cheney, 2012). A principal needs to understand the impact of data in order to implement program changes to increase student achievement. The primary purpose of this study was to determine the assessment literacy level of Montana high school principals. The research from this study will add to the literature regarding principal assessment literacy. The following chapter will review the available literature on assessment literacy.

## CHAPTER TWO – REVIEW OF LITERATURE

This chapter will present a review of literature regarding assessment literacy.

According to Boote and Beile (2005), a thorough literature review is the foundation for substantial, useful research. The review will include a look at the argument for administrator assessment literacy, standards of assessment competence for administrators, and the level of assessment literacy in administrator preparation programs.

### **Assessment Literacy for Administrators**

During the last 50 years, the United States has evolved from viewing tests first as a useful tool, then as a necessity, and finally as the sole instrument needed to evaluate teachers, schools, districts, states, and nations (Bracey, 2009). Accountability measures in the 21<sup>st</sup> century, such as NCLB, are helping redefine school leadership as instructional leadership (Reames, 2010). NCLB has called for an increase in school accountability based on mandatory assessments. The public scrutiny of a school's performance on the system of assessment, particularly the scrutiny accompanying a "warning" or "school improvement" designation, places direct pressure on principals to change school practice and increase student achievement (Silva, White, & Yoshida, 2011). Assessment data are the primary source of information under NCLB, and assessments have become the primary tool for gauging students' success, as well as the success of teachers, schools and districts (Englert, Fries, Martin-Glenn, & Michael, 2005). The school leader must understand how to link those results to productive instructional improvement and fulfilling this responsibility requires assessment literacy (Stiggins & Duke, 2008). A study conducted in 1993, by Impara and Plake surveyed members of professional organizations for both principals and superintendents regarding specific assessment-

related tasks and knowledge. The results showed all groups responding rated all 47 items as frequent or important to their professional duties. The two highest rated assessment task items were communicating testing results and evaluating student performance using student achievement data. The two highest rated knowledge and skills items were knowing terminology found in reports about standardized test and knowing the purposes of different kinds of testing, e.g., achievement, IQ, diagnostic (Impara, Plake, & Merwin, 1994).

The ability to accurately and appropriately use the data made available to them through local, state, and national accountability measures is critical to principals' effectiveness at improving student achievement (Polnick, 2005). Today, more than ever, education assessment plays a pivotal role in the education of students (Popham, 2006). The Ontario Principals' Council (2009) denoted three dimensions of a data-driven principal: leader, professional developer, and communicator. In an era of increasing accountability and assessment, leadership is one of the most significant demands on instructional leadership in schools (DiPaola & Hoy, 2008; McEwen, 1995). Glickman (2002) placed assessment content and methods at the center of elements influencing student learning. He suggested educational leaders must have the tools to improve classroom instruction, including a focus on what to attend to in improving teaching, observing classrooms, using achievement data, and considering samples of student work.

Dylan Wiliam, the deputy director of the Institute of Education at the University of London, conducted a meta-analysis of more than four thousand studies on assessment undertaken during the last 40 years. According to Wiliam, the conclusion was clear, that when implemented well, formative assessment can effectively double the speed of

learning (2008). The charge to be leaders of instruction requires principals to understand the process of analyzing assessments (Hess & Kelly, 2005). A principal acts as an instructional leader in assessment by implementing specific, concrete practices.

Analyzing assessment data helps schools identify which of their improvement efforts are making a difference and by how much (Huff, 2009). School leaders cannot provide instructional leadership in assessment without themselves understanding key principles of sound assessment (Chappuis, Commodore, & Stiggins, 2010). A school not meeting the standards set for AYP will, after four years, be moved into corrective action this could include replacing the principal (United States Department of Education, 2001). If assessment is ever to reach its immense potential as a force for good in schools, principals across the country must fulfill critically important assessment leadership responsibilities (Stiggins, 2001). The role of school administrators has become increasingly complex. Roles that include knowledge of curriculum, discipline issues, working with parents, and an increasing emphasis on a knowledge of state mandated testing that affects all schools and classrooms (Ediger, 2007). The principal is expected to take responsibility for their school's achievement, which is being determined by test scores (Arter, Stiggins, Duke, & Sagor, 1993).

### **Instructional Leadership**

With the passage of NCLB, principals are called on to lead their schools in the analysis of and the response to trends found in various sources of data (Butler, 2008; Irwin & White, 2004). Expecting principals to support their teachers' use of test data is impractical if the former have not received proper training and do not understand using assessments for learning (Stiggins & Duke, 2008). Holcomb (1999) found that lack of

proper training is one barrier that prevents school leaders from effectively using data. In her words, the ability to effectively use data is a skill “that too few school leaders have had the opportunity to acquire in their graduate work or have seen modeled in their own experiences” (p. 27). Every summer, when state departments of education release their test scores, education leaders pay close attention to see how their school or district ranks (Huebner, 2009). Roeber and Mastie (1999) stated:

Regardless of who does the actual reporting, the participation of the building principal in determining how the results will be interpreted and reported is vital. The principal is integral in seeing the results are used for improvement purposes and sees the plans are implemented. (p. 35)

Principals can use the assessment process to benefit students only when they understand how assessment can contribute to effectiveness (Stiggins, 2001). Principals need to know whether or not teachers can describe the purpose of each assessment given, who will use the results, how the results will be reported, and when to use each assessment method (Chappuis, 2003). McLean (1995) found a high quality data collection program is likely to do more to improve instruction than any other innovation. A study conducted by Reeves and Flach in 2011 analyzed data from more than 600,000 students in more than 700 schools to examine the relationship between effective data analysis and gains in student reading and math scores. The results showed that there is a clear and consistent relationship between deep implementation of professional practices surrounding data analysis and gains in student achievement (2011). In another study conducted by Silva, White, and Yoshida in 2011, results showed a principal that uses reading scores in discussions with non-proficient students had a direct and significant

effect on the student's subsequent reading achievement gains. Measuring student achievement and school progress toward goals in multiple ways is important; equally critical is strategically using these data to diagnose problems and to work toward solutions. By using data to evaluate curricula, staff, and students, principals can focus their efforts and resources in the areas most deficient (Englert, Fries, Martin-Glenn, & Michael, 2005). If educators are expected to thrive in this assessment-driven environment and continue to meet the developmental needs of their students, principal leadership will be the key for school success (Fullan, 2001a).

As an instructional leader, the principal has the responsibility to be an informed user of assessment in the decision making process. Research indicates effective schools typically use data to develop and provide teachers' professional development (Protheroe, 2009). NCLB specifically mentions the term data-driven decision-making. The most influential role for the principal is to assume the role of questioner and to use data as a tool. Facilitative questioning drives school improvement (Irwin & White, 2004). In the hands of skilled principals and teachers, assessment data can provide important insights into student learning and guide instructional decision-making (Fox, 2003). A document published in 2001 by the National Association of Elementary School Principals (NAESP), indicated one of the standards of practice for effective elementary principals is the ability to use multiple sources of data as diagnostic tools to assess, identify, and apply instructional improvement.

The extent to which instruction is guided by unit assessment data depends on the leadership of the principals. Specifically, it depends on: the ability to model tools and strategies for using thematic assessment data to improve instruction; help the staff acquire

the requisite skills to use unit assessment data for instructional decision making; and establishing a school-wide norm so instruction will change based on unit assessment data (Fox, 2003). Educators need to become sufficiently assessment literate so they can understand and if necessary help improve accountability systems relying on achievement tests (Popham, 2004). It is imperative that educators become assessment literate to act as an advocate and practitioner of school change in order to support the learning of all students (Vogel et al., 2009). The Harvard Graduate School of Education developed a “Data Wise” improvement process; one of the steps in the process is building assessment literacy (Boudett, City, & Murnane, 2006). Assessment-literate educators understand that education tests merely provide evidence to enable people to make judgmentally based inferences about students (Popham, 2006).

### **Assessment Knowledge**

A principal needs to have a basic knowledge of assessment, including the construction and content of standardized tests, what they actually measure and knowledge of test construction and design (Noonan & Renihan, 2006). The National Education Association (2003) reported that every educator must understand the principles of sound assessment and must be able to apply those principles as a matter of routine in doing their work. An administrator needs to be at least as well trained as teachers to lead in the area of assessment (Popham, 1995). Assessment techniques, too, need to be in the administrators’ repertoire to help teachers determine what students have learned or have yet to learn (Ediger, 2007). Fullan (2001b) attested a principal’s knowledge of effective practices in assessment is necessary to provide guidance for teachers on the day-to-day tasks of teaching and learning. Well-documented assessment information is critical to the

job demands of administrators. In addition, because administrators may be asked to provide resource support for teachers in solving assessment problems, classroom measurement training should extend to these educational professionals as well (Impara & Plake, 1995).

A principal who cannot differentiate between sound and unsound assessments will not be able to plan and carry out quality assessment nor adequately interpret and use the results of such assessment (Arter, Stiggins, Duke, & Sagor, 1993). Accurate assessment is not possible unless and until educators are given the opportunity to become assessment literate (National Education Association, 2003). In 1995, Cizek reported that administrators need to have four characteristics to provide good assessment leadership. First, administrators must possess good understanding of what occurs in the classroom. Second, they must have a clear idea of the desired educational outcomes given the existing programs in their schools. Third, they must be knowledgeable about the purpose of any given assessment and the audiences to whom the results are to be presented. Finally, administrators must have an understanding of assessment fundamentals. Although knowledge of the basic principles of assessment is critical for instructional leaders, it will be essential for administrators to go beyond assessment literacy to assessment leadership (Cizek, 1995).

### **Standards for Assessment Competence**

Professional organizations have set standards for pre-service principals. In 1990, a joint committee with members from the American Federation of Teachers, the National Council on Measurement in Education, and the National Education Association published *Standards for Teacher Competence on Educational Assessment of Students* (NCME,

1997). The standards specify teachers should be skilled in: choosing and developing assessment methods; administering, scoring and interpreting assessment results; using assessment results for decision making and grading; communicating assessment results; and recognizing unethical assessment practices. In 1997, the American Association of School Administrators, the National Association of Elementary School Principals, the National Association of Secondary School Principals, and the National Council on Measurement in Education published *The Competency Standards in Student Assessment for Educational Administrators* (Buros Center for Testing, 1997). The first standard is a summary of *The Standards for Teacher Competence in the Educational Assessment of Students*. Richard Stiggins published seven competencies, many of which are covered by *The Standards*.

The competency standards, as published, organized the competencies into three strands relating to school administrators: assisting teachers, providing leadership, and using assessment in making decisions and communicating assessment results.

The first strand is related to assisting teachers in creating and using assessments effectively and encompasses two competencies.

1. Principals should have a working level of competence in the Standards for Teacher Competence in Educational Assessment of Students.
2. Principals need to know the appropriate and useful mechanics of constructing various assessments. (Impara, 1993)

The second strand is providing leadership in the creation and implementation of building or district level assessment policies and comprises three competencies.

1. Principals need the ability to understand and apply basic measurement principles to assessments conducted in school settings.
2. Principals should be able to understand the purpose of different kinds of assessment and the appropriate assessment strategies to obtain the assessment data needed for the intended purpose.
3. Principals should understand the need for clear and consistent building and district level policies on student assessment (Impara, 1993).

The third strand involves using assessment results in making decision about students, teachers, instruction, and in reporting on assessment results to a variety of stakeholders and constituencies. This standard has seven associated competencies.

1. Principals should be able to understand and correctly express technical assessment concepts and terminology to others in non-technical terms.
2. Principals should be able to understand and follow ethical and technical guidelines for assessment.
3. Principals need the ability to reconcile conflicting assessment results appropriately.
4. Principals should be able to recognize the importance, appropriateness, and complexity of interpreting assessment results in light of students' linguistic and cultural backgrounds and other out-of-school factors in light of making accommodations for individual differences, including disabilities, to help ensure the validity of assessment results for all students.

5. Principals need the ability to ensure the assessment and information technology are employed appropriately to conduct student assessment.
6. Principals should be able to use technology appropriately to integrate assessment results and other student data to facilitate students' learning, instruction, and performance.
7. Principals need the ability to judge the quality of an assessment strategy or program used for decision making within their jurisdiction (Impara, 1993).

Standards developed by the Interstate School Leaders Licensure Consortium (ISLLC) have been written for principals (CCSSO, 2008). The standards are organized with knowledge, disposition and performance indicators for administrators to meet. Elements of assessment competencies are woven throughout the six standards. Some examples of assessment competencies for principals include strategic planning processes for a focus on student learning, data based research strategies to increase student learning, collecting, organization, and analysis of a variety of information to assess progress towards a district's vision, mission and goals. Additional strategies include the ability to collect, interpret, and analyze school data and promoting an environment to improve student achievement (Impara, 1993). The National Policy Board for Educational Administration published a training guide including 21 domains of competence for principals. Domain 12, entitled "Measurement and Evaluation," puts assessment competencies for principals into three broad categories: instructional leaders, instructional managers, and communication facilitators. Some competencies are specific to one category while other competencies cover multiple categories (Thomson, 1993).

Three competencies stretching over all three categories include the following; first, principals should be able to differentiate between sound and unsound assessments, and should be able to plan, implement or interpret a sound assessment program. Second, principals should have knowledge of how all the assessments within a school fit together. The third competency is that principals have knowledge of unethical and inappropriate use of assessment information and ways to protect students and staff from misuse (Thomson, 1993).

There are five competencies applying specifically to the role of a principal acting as instructional leader. The first is principals have knowledge of assessment policies and regulations contributing to the development and use of sound assessments at all levels. The second competency is the ability to set goals with staff for integrating assessment into instruction and assisting teachers in achieving these goals. Competency three states principals have knowledge of evaluating teachers' classroom assessment competencies and building such evaluations into the supervision process. The fourth competency states that principals have knowledge of planning and presenting to staff developmental experiences contributing to the development and use of sound assessment at all levels of decision making. Competency five suggests principals have knowledge of using assessment results for building-level instructional improvement (Thomson, 1993). Table 1 shows the competencies for the principal as instructional leader.

Table 1

*Domains of Competence-Instructional Leader*


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Instructional Leader Competencies
1. Knowledge of Assessment Policies and Regulations
2. Ability to Set Goals with Staff
3. Knowledge of Evaluating Teachers Assessment Competencies
4. Knowledge of Planning and Presenting for Staff Development
5. Knowledge of Use of Assessment Results for Building Level Improvement

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Two competencies listed as being specific to the role of instructional managers. Competency one states principals have knowledge of accurately analyzing and interpreting building level assessment information. The second competency states principals have knowledge of acting on assessment information (Thomson, 1993). The competencies for the role of instructional manager are listed in Table 2.

Table 2

*Domains of Competence-Instructional Manager*


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Instructional Manager Competencies
1. Knowledge of Analyzing and Interpreting Building Level Assessment Information
2. Knowledge of Acting on Assessment Information

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The role of communicator also contains two competencies. The first says that principals must have knowledge of creating conditions for the appropriate use of achievement information. The second competency states principals have knowledge of communicating effectively with school community members about assessment results

and their relationship to instruction (Thomson, 1993). The two competencies related to the role of communicator are listed in Table 3.

Table 3

*Domains of Competence-Role of Communicator*

Role of Communicator Competencies
1. Knowledge of Creating Conditions for the Appropriate use of Achievement Information
2. Knowledge of Communicating Effectively with School Community Members

McMillan (2000) summarized a set of standards, which he called the “big ideas” in assessment and fundamental principles for teachers and school administrators. The list was developed in 2000 and included 11 principles:

1. Assessment is inherently a process of professional judgment.
2. Assessment is based on separate but related principles of measurement evidence and evaluation.
3. Assessment decision-making is influenced by a series of tensions.
4. Assessment influences student motivation and learning.
5. Assessment contains error.
6. Good assessment enhances instruction.
7. Good assessment is valid.
8. Good assessment is fair and ethical.
9. Good assessments use multiple methods.
10. Good assessment is efficient and feasible.
11. Good assessment appropriately incorporates technology. (pp. 2-5)

Understanding these big ideas would be a foundation for being able to conduct assessment well (McMillan, 2000). In 2005, the Assessment Training Institute provided

ten specific competencies in assessment for well-qualified principals (Chappuis, Stiggins, Arter, & Chappuis, 2005):

1. Understands the principles of assessments for learning and works with staff to integrate them into classroom instruction.
2. Understands the necessity of clear academic achievement targets and their relationship to the development of accurate assessments.
3. Knows and can evaluate the teacher's classroom assessment competencies and helps teachers learn to assess accurately and use the results productively.
4. Can plan, present, or secure professional development activities contributing to the use of sound assessment practices.
5. Accurately analyzes student assessment information, uses the information to improve curriculum and instruction, and assists teachers in doing the same.
6. Can develop and implement sound assessment and assessment-related policies.
7. Creates the conditions necessary for the appropriate use and reporting of student achievement information, and can communicate effectively with all members of the school community about student assessment results and their relationship to improving curriculum and instruction.
8. Understands the standards of quality for student assessments and how to verify their use in the school/district assessments.
9. Understands the attributes of a sound and balanced assessment system.
10. Understands the issues related to the unethical and inappropriate use of student assessment and protects students and staff from such misuse. (pp. 19-20)

Each of these organizations argues that for school personnel to maximize student achievement adequate assessment training must be provided.

### **Assessment Literacy and Standards**

A study conducted by Plake and Impara in 1991 evaluated teachers' assessment literacy (Impara, 1993). The Standards of Teacher Competence were used to develop a survey instrument. The survey instrument, the Teacher Assessment Literacy Questionnaire, consisted of 35 questions, 5 per standard. The questions were developed to have teachers answer application-type assessment scenarios that were realistic and meaningful to teachers' actual classroom practices. The instrument went through content validation and pilot testing. A representative sample from around the country was selected to participate. A total of 98 districts in 45 states participated with a total sample of 555 surveys (Impara, Plake & Fager, 1993). The KR-20 reliability for the entire test was equal to .54 (Impara et al., 1993). A high KR-20 score, closer to 1.0, indicates a homogenous test.

The survey was given to in-service teachers. Teachers answered slightly more than 23 out of 35 items correctly. The teachers' highest scores were on Standard 3 ( $M = 3.95/5.00$ ) while the lowest scores occurred on Standard 6 ( $M = 2.70/5.00$ ).

A similar study was given to pre-service teachers by Campbell, Murphy, & Holt (2002). The renamed survey, Assessment Literacy Inventory, was given to 220 undergraduate students. The data from the pre-service teachers showed a higher level of reliability (.74) than the in-service teachers in the Impara and Plake study (Campbell, Murphy, & Holt, 2002). The pre-service teachers ( $M=21$ ) averaged two fewer correct answers than the in-service teachers ( $M=23$ ). The in-service teachers scored higher on all but one standard, Standard 1. The pre-service teachers scored highest on Standard 1,

Choosing Appropriate Assessment Methods. The two groups of teachers scored lowest on Standard 6, Communicating Assessment Results (Mertler, 2003).

Another study, conducted in the fall of 2002, surveyed both pre-service and in-service teachers with respect to their assessment literacy (Mertler, 2003). The study surveyed 67 pre-service teachers and 197 in-service teachers. The two groups were surveyed using an instrument called the Classroom Assessment Literacy Inventory (CALI). The CALI was adapted from the Teacher Assessment Literacy Questionnaire used by Plake in 1993. The data resulting from the pre-service teachers (N=67) demonstrated a reliability of .74. On average, pre-service teachers answered slightly less than 19 out of 35 items correctly (M=18.96/35.00). The highest score was on Standard 1-Choosing Appropriate Assessment Methods (M=3.25/5.00), while the lowest score was on Standard 5-Developing Valid Grading Procedure (2.06/5.00) (Mertler, 2003).

The data from the in-service teachers (N=197) demonstrated a reliability of .57. The pre-service teacher results showed higher reliability than the in-service teachers. The in-service teachers averaged less than 22 out of 35 items correctly (M=21.96/35.00). In-service teachers scored highest on Standard 3-Administering, Scoring, and Interpreting the Results of Assessments (M=3.95/5.00), and had the lowest scores on Standard 5-Developing Valid Grading Procedures (M=2.06/5.00) (Mertler, 2003).

Scores on each standard as well as the total scores were compared between the two groups of teachers by conducting independent sample t-tests. The analyses showed that significant differences existed between the two groups on 5 of 7 standards and for the total score. In each case where there was a significant difference, the in-service teacher scored significantly higher than the pre-service teachers (Mertler, 2003) The survey

supported the data from the earlier studies in that in-service teachers showed a higher level of assessment literacy than pre-service teachers.

### **Creating and Using Assessment Effectively**

The National Council on Measurement in Education delineates that principals must be able to assist teachers by having knowledge of the appropriate and useful mechanics of constructing various assessments. In 2002, Glickman wrote that educational leaders require the tools to improve classroom instruction, including a focus on what to attend to in improving teaching, observing classrooms, using achievement data, and considering samples of student work. To build a level of comfort during data collection, an administrator will want to help staff become literate in reading assessment reports (Boudett, City, & Murnane, 2006). Principals can be pivotal in the improvement of student learning by helping teachers develop and use sound classroom assessments to strengthen instruction and student learning (Stiggins & Duke, 2008). Principals can guide teachers in examining their assessment results to determine the effectiveness of their instruction (Huff, 2009).

The National Policy Board recommended one instructional leader competency as the ability to describe ways teachers can integrate assessment into the teaching/learning process (Arter, Stiggins, Duke, & Sagor, 1993). One concept of instructional leadership outlined by Hopkins (2001) stated the prime function of leadership for authentic school improvement is to enhance the quality of teaching and learning. Principals do not need to be masters at developing tests, but they should know enough about test development to help teachers with the tasks of development, scoring and interpretation (Popham, 1995). The principal must know the importance of, and be able to work with staff members to

set specific goals for the integration of assessment into instruction, and can assist teachers in reaching those goals. The principal needs to be able to cite specific strategies to engage staff members in the promotion of sound development and use of assessment in the classroom and can help teachers integrate assessment into the teaching and learning process (Arter, Stiggins, Duke, & Sagor, 1993).

Administrators have to be able to evaluate whether their faculty can identify the difference between sound and unsound assessment practices and whether they understand the full range of uses and users of assessment (King, 2009). Leaders must create a 21<sup>st</sup> century, assessment-literate culture to provide teachers with a stronger understanding of assessment skills and strategies (King, 2009). Principals should ensure teachers are comfortable understanding their results and how to use them in their classrooms to help students (Jakicic, 2009). For school-wide improvement, principals must step up as instructional leaders to build, promote, guide, provide, and monitor assessment work in their schools (Huff, 2009).

A meta-analysis of 70 studies involving almost 2,900 schools, approximately 1.1 million students, and 14,000 teachers, allowed Marzano, Waters, and McNulty (2005) to create a framework for leadership. The framework, entitled “Balanced Leadership,” identified 21 leadership responsibilities significantly associated with student achievement. Two of the leadership responsibilities are the knowledge of and direct involvement in the design and implementation of assessment practices. An effective principal also will have a familiarity with alternative approaches to assessment, including recent practices and processes (Noonan & Renihan, 2006). Cawelti and Protheroe (2001) studied six school districts, all of which had significantly increased student performance

on state-mandated tests despite serving high percentages of at-risk students. All of the districts began their improvement efforts after faculty and staff carefully reviewed and interpreted assessment data.

### **Building and District Level Assessment**

Local district assessment systems promote student success when they help to inform decisions both supporting and verifying learning (Chappuis, Commodore, & Stiggins, 2010). A principal needs to understand the importance of clear and consistent building and district level policies regarding student assessment (Buros Institute of Mental Measurement, 1997). Cizek (1995) introduced the idea of planned assessment systems. The components in a planned assessment system include: beneficiaries of assessment are clearly defined; uses of the assessment information are real, tangible, and valued by the users; and assessments are conducted in an efficient manner. An effective principal must be able to describe why classroom, building level, and district level assessments are important, and the difference sound assessment at all levels makes for instruction (Arter, Stiggins, Duke, & Sagor, 1993).

The field of assessment is changing, and administrators should be able to judge the reasonableness of new assessment techniques proposed for use in their schools and districts (Buros Institute of Mental Measurement, 1997). A principal needs to have knowledge of sound student assessment within school buildings. This entails distinguishing between sound and unsound assessments, and properly interpreting results. District and school leaders must understand the essential conditions for assessment to work well in any context: a clear purpose for the assessment, clear and appropriate learning targets, and accurate, sound assessment design and delivery (Chappuis,

Commodore, & Stiggins, 2010). It also requires the ability to put all assessments within the building together and making sure each piece fits together; this competency provides the opportunity for teachers in the building work together (Arter, Stiggins, Duke, & Sagor, 1993). Principals must ensure teachers are prepared to gather and productively use evidence of student learning in their classrooms. This requires principals who are assessment literate (Stiggins & Duke, 2008). Instructional leadership includes advocating on behalf of developing a district wide continuous progress curriculum and the competencies students are expected to master to qualify for graduation (Stiggins, 2001). The principal also must ensure every teacher is competent and confident in understanding those achievement targets (Stiggins, 2001). Principals should know the features and importance of sound classroom, district, state, and national assessment, and their impact on student achievement. Principals need to promote these assessment competencies in order to influence student learning. Principals also should understand the importance of and work with staff in setting goals for the integration of assessment into instruction, as well as assisting teachers in meeting goals of using sound assessment in the classroom (Arter, Stiggins, Duke, and Sagor, 1993). A principal must be able to evaluate a teacher's assessment competencies during teacher evaluations. As part of the teacher's evaluation, a principal should be able to describe and understand essential assessment competencies for teachers, set performance goals criteria, gather sound information about teacher performance, and provide meaningful feedback to teachers (Arter, Stiggins, Duke, and Sagor, 1993).

Another important activity of the principal as an effective instructional resource is to assess the school's ability to meet curriculum goals by interpreting information from

sources such as standardized or criterion referenced tests. Principals should be prepared to interpret and communicate results for faculty and community and to develop interventions designed to identify strengths and minimize weaknesses (Andrews, Basom, & Basom, 1991). In a cross-sectional study of low and high performing schools in five Florida school districts, principals reported using data from the state test and benchmark assessment to plan classroom observations and focus professional development opportunities (Cohen-Vogel, 2011).

### **Data-Driven Decision Making**

The premise of DDDM comes from the successful practice of Total Quality Management (TQM) as introduced by William Deming. Deming described TQM as using data to increase organizational improvement. DDDM is not a new concept to education but has become an emerging field of practice for school leadership (Streifer, 2002). DDDM in education refers to teachers, principals, and administrators collecting and analyzing various types of data including input, process, outcome, and satisfaction data, to guide a range of decisions to help improve the success of students and schools (Marsh, Payne, & Hamilton, 2006). ISLLC provided standards supporting DDDM. Standards one through four indicate an instructional leader must be able to collect, organize, and analyze student performance data to make recommendations regarding the design, implementation, and evaluation of curriculum to optimize the learning environment for all students (Council of Chief State School Officers, 2008). As Englert, Fries, Goodwin, Martin-Glenn, and Michael (2004) reported, “If schools are not actively engaged in effectively using accountability data, generating the increases in student achievement required by the NCLB legislation becomes unattainable” (p. 2).

The increased level of student testing has given school leaders the responsibility for conducting meaningful data analyses and providing clear, accurate reports of student assessment results (Chappuis, Commodore, & Stiggins, 2010). Principals in some districts spend time reviewing data with teachers (Childress, 2009). Fullan defined one capacity of assessment literacy as the capacity of teachers and principals to examine student performance data and make critical sense of them (2001b). The Wisconsin Department of Public Instruction printed a guide for schools, entitled “Characteristics of Successful Schools” with a chapter describing the seven characteristics comprising a successful school. One of the characteristics listed is leadership, and under this section the department recognizes that a leader in a successful school analyzes disaggregated data from multiple sources and uses it to inform decisions (Wisconsin Department of Public Instruction, 2000).

Districts use data to plan professional development activities, to identify achievement gaps, to align curriculum and instruction, to assign and evaluate personnel, and to identify students for placement in remedial or gifted and talented programs (Massell, 2000). This requires the ability for administrators to understand how to interpret the data and help teachers reach those same understandings. Data analysis skills related to principals’ education background and training experience seem to be a critical element influencing principals’ information behaviors of DDDM (McColskey, Altschuld, & Lawton, 1985). Data are not being frequently used systemically nor used well at the school level (Bernhardt, 2003). The lack of proper training is a tremendous barrier to successful implementation of data based decision making (Holcomb, 1999). DeStefano and Prestine (2002) also discussed the need for administrators to have support directed at

increasing their capacity to understand and interpret complex data and to engage in data-driven decision making on a systemic basis. If standardized tests are understood by their intended users and if they generate accurate information about student achievement, then sound instructional decisions may be made on the basis of the data such tests generate and student achievement may increase (Stiggins, 2001).

A study surveyed 20 schools in four different states, Colorado, Kansas, Missouri, and South Dakota, providing a sample of 121 principals. The study suggested a critical component in terms of implementing an accountability system is ensuring data are being used to make better and more systematic decisions. This is one of the intents of NCLB: by monitoring student achievement superintendents, principals, and teachers will be able to make the necessary instructional and organizational improvements to address and correct any weakness. This goal might only be met if data are used systematically across different levels in the educational system from administration to the classroom (Englert, Fries, Martin-Glenn, & Michael, 2005).

Using data to make informed decisions about instruction are a crucial component to an effectively functioning accountability system. There were large differences in the measure of the use of data to guide instruction when schools improving in student achievement were compared to those who were static or declining (Englert, Fries, Martin-Glenn, & Michael, 2005). The most significant differences were found in how data were used to evaluate and identify strengths and weaknesses in decision making at the school and classroom levels (Englert, Fries, Martin-Glenn, & Michael, 2005). A successful DDDM leader has an understanding of sound assessment processes and possesses data

analysis skills, which he or she applies in efforts to develop a plan towards improved teaching and learning (Stiggins & Duke, 2008).

### **Reporting of Assessment Results**

One of the most important communication challenges faced by school leaders is the reporting of annual standardized test results. Communication of student and school success becomes a critical issue when examining the role of accountability data, particularly as parents face decisions such as evaluating school choice options or supporting their child's learning at home (Englert, Fries, Martin-Glenn, & Michael, 2005). Using test results to improve instruction is vital to improving our education system, but equally important is to report results to other stakeholders (Roeber, 2003). The principal must both understand and be able to communicate with staff and the school community about these assessment results (Stiggins & Duke, 2008). School leaders need to help parents understand these assessments in ways beyond the scoreboard presented in the newspapers.

Each time a standardized test is administered at school, whether at the department, school, district, or state level, leaders need to communicate with parents about the purpose of the assessment (Chappuis, Commodore, & Stiggins, 2010). By taking steps to report test results directly to parents, rather than relying on the news media, schools have a unique opportunity to tell their own story, including what will be done with the results, and perhaps reduce the opportunity for misinterpretation or misrepresentation of the results (Roeber, 2003). The principal must both understand and be able to communicate with staff and the school community about assessment results. Principals must understand the fundamental differences in the information needs of assessment users (Stiggins &

Duke, 2008). The increased use of standardized testing has raised concerns about how the results of testing are communicated. In a survey of school districts and state departments of education it was found that many states and school districts had no policy regarding how the results from mandated testing should be reported to parents, and also they noted that few of those school districts or states that had dissemination policies required explanatory information to accompany reports to parents. Not surprisingly then, the surveys of those parents who did receive test reports revealed that few of the parents understood the test reports. (Marso & Pigge, 1999). Fullan defined the capacity to contribute to the political debate about the uses and misuses of achievement data in an era of high-stakes accountability as an aspect of assessment literacy. He also said that to be fully effective, assessment literacy extends to the sharing of the data gathered and interpretations of those data among other educators (Fullan, 2001a).

Communicating effectively with school and community members about assessment results and their relationship to instruction is listed as an instructional leader competency. Key behaviors are listed as explaining the meaning and significance of relevant assessment information to all who need to understand it and knowing how to use assessment information in the political arena to support quality education (Arter, Stiggins, Duke, & Sagor, 1993). A principal has the responsibility to understand standards of sound assessment practice and to help parents understand those standards. The communication must be tailored to the information needs of the intended audience (Chappuis, Commodore, & Stiggins, 2010). Effective leaders are compelled to constantly seek and implement strategies to enhance the dissemination of data to parents, teachers, and the community at large (Knuth, 2006).

Communication with external constituencies of local schools and with state policymakers is also necessary if educators are to participate in policy formation and discussions of accountability. This requires educators to understand sound assessment principles for classrooms and statewide tests (Vogel et al., 2009). As the spokesperson for the school, the principal must take the lead in helping the whole community become assessment literate (Stiggins, 2001). One of the important audiences for assessment results is the local school board. The board is responsible for the oversight of the education of students, and as a result has a vital interest in the performance of students on the assessment. School boards expect administrators to provide them with information in a timely manner and in a format they can easily understand (Roeber, 2003). A requirement of NCLB is schools must report the results of standardized tests. The results must be disaggregated according to school, gender, race, socioeconomic status, migrant status, and disability (McLeod, D'Amico, & Protheroe, 2003). NCLB requires the disaggregation of data to provide schools an opportunity to improve and develop over time (United States Department of Education, 2001). Schools are required to publish School Report Cards containing the following information:

- Student academic achievement of statewide tests disaggregated by subgroup
- Comparison of students at basic, proficient, and advanced levels of academic achievement
- High school graduation rates
- Number and names of schools identified for improvement
- Professional qualifications of teachers

- Percentages of students not tested (United States Department of Education, 2003)

The report cards must also include state assessment results by performance level, with two-year trend data for each subject and grade tested (McLeod, D'Amico, & Protheroe, 2003).

### **Assessment in Principal Preparation**

The role the principal plays in assessment has been well documented. The review in this section will examine the research on the level of assessment training taking place in principal preparation programs. In this era of accountability, where school leaders are expected to demonstrate bottom-line results and use data to drive decisions, the skill and knowledge of principals matter more than ever (Hess & Kelly, 2005). The Michigan State Action for Educational Leadership Project II worked with sixteen principals and after one year discovered three themes that emerged. Principals struggled with time constraints, felt overwhelmed by the massive amounts of data, and lacked knowledge about ways to use data from multiple sources to improve student learning (Cooley et al., 2003).

Principals also stated that training is critical to enhancing teachers' understanding of data (Reeves & Burt, 2006). Instruction in developing balanced assessment systems and sound classroom assessment practice needs to be part of the principal preparation curriculum (Stiggins & Duke, 2008). School personnel's effectiveness in increasing student achievement is directly impacted by the amount and quality of formal training received at colleges and universities (Stiggins, 1988). Since universities are responsible for the majority of pre-service education for school administrators, and since the success of the schools and their students might well rest on what it taught by the universities in

their educational administration programs, graduate schools of educational administration may serve as gatekeepers for school administration and overall school effectiveness (Peterson & Finn, 1985). Colleges and universities must provide assessment training to principals to enable future school personnel in becoming agents, initiators and catalyst of change, and having some influence on reform efforts (Smith & O'Day, 1990).

During the last decade, a number of researchers have promoted the position that colleges and universities have not thoroughly trained school personnel in assessment. Trevisan (2002), Thorn and Mulvenon (2002), and Stiggins (2008) have all concluded school personnel receive inadequate assessment training. Trevisan investigated student assessment knowledge and skill requirements for administrators in all 50 states and the District of Columbia (Trevisan, 1999). Eighteen states reported having such requirements. Specifically, 14 states have assessment requirements for elementary principals, and 13 states have such requirements for secondary principals. According to a 2006 Public Agenda survey, nearly two-thirds of principals felt typical graduate leadership programs “are out of touch” with today’s realities (Butler, 2008). Change is beginning to occur in states regarding principal preparation. Since 2010, 23 states have enacted new legislation to support school leadership initiatives including an emphasis on the use of data to support student achievement (Shelton, 2011).

The evidence indicates preparation has not kept pace with changes in the larger world of schooling, leaving graduates of most principal preparation programs ill-equipped for the challenges and opportunities posed by an era of accountability (Hess & Kelly, 2005). In studies conducted by Schafer and Lissitz (1987), Popham (2004) and Stiggins and Duke (2008), these authors suggested graduate training programs for school

administrators do not usually require work in measurement. Stiggins (1991) discovered administrators are often trained less in basic assessment...than the teachers whose work they are supposed to supervise. Principal certification programs often include a basic course in statistics, but traditional classes do not provide the skills and background necessary to enable principals to analyze and interpret data (Creighton, 2001). According to Tucker and Coddling (2002), principal preparation should stress the “principal’s role as the driver for results” and highlight

the crucial role of data in the drive for results, from the careful setting of targets to the collection, display, and analysis of implementation and outcome data to the use of data for setting goals, monitoring progress, allocating and reallocating resources and managing the school program (p. 37).

Effective principal preparation should include significant attention to accountability, managing with data, and utilizing research. Hess and Kelly (2005), surveyed 56 different principal preparation programs and found just two percent of 2,424 course weeks addressed accountability in the context of school management or school improvement and less than five percent included instruction on managing school improvement via data, technology, or empirical research. Just 11 percent of course weeks made mention of or reference to statistics, data, or empirical research in some context.

In 2005, Levine rated principal preparation programs from inadequate to appalling following a four-year extensive study of institutions. His study consisted of a national survey of deans, chairs, directors, faculty, working principals, and alumni of education schools; 28 case studies of national school and departments of education; and a demographic report of institutions across the United States, including, a review of their

dissertations, the degrees awarded, and programs offered. Levine reported 30 percent of school administrators stated their preparation programs did poor jobs of preparing them for handling test-based accountability systems. However, in the same survey, 93% of principals rated their own preparation program as “very” (55%) or “somewhat” (38%) valuable (Levine, 2005). An article written in response to Levine’s findings agreed with the recommendations by Levine but disagreed with some of his research, in particular the idea that preparation programs have not instituted change (Young, Crow, Orr, Ogawa, & Creighton, 2005). A report by the University Council for Educational Administration pointed out many focused and effective efforts to revise leadership preparation led by a number of professional organizations (Young et al., 2005). Trevisan, professor at Washington State University, conducted a study of state licensing requirements related to student assessment for principals. Trevisan (2002) found only 18 states required some form of assessment competence, with only two states offering enough specificity to allow the determination of the nature and scope of the required competence. Strong preparation programs instill in aspiring principals the importance of making decisions based on research. They are taught and given opportunities to use a systemic approach, in which data is gathered and analyzed in light of school improvements and student achievement (Davis & Jazzar, 2005). Some leader preparation programs are introducing new courses and modules within courses aligned with the increased accountability demands of NCLB and various state accountability requirements. This new generation of training typically covers such assessment related topics as data-driven decision making for instructional improvement (Stiggins & Duke, 2008).

## Summary

The level of accountability being asked of schools and educational leaders is rising. The stakeholders in education are calling for a greater level of accountability in schools. The demand for results oriented communication from educational leaders is changing some of the responsibilities of the currently practicing principal. As the demands on the principal change, it creates a need for change in the programs training future principals and necessitates an avenue for training for those currently serving in an educational leadership capacity. The literature has shown the importance of knowledge and skills regarding assessment and measurement for principals to be successful in leading their staffs and ensuring their students are meeting expectations.

The community is also relying upon school leaders to interpret test results in a manner making sense to each group of stakeholders. The literature has shown principal preparation programs have traditionally been short in assessment and measurement. The programs also have been short in helping future educational leaders translate the data into decision making to help with student achievement. The data from the surveys on principal preparation programs shows current principals feel as though some of the training emphasized in graduate school programs focuses too much on theory and is not relevant to current demands on the job. Disappointment in traditional and theory-based preparation programs, coupled with the public demand for increased expertise in the principalship, has produced a wave of redesigned principal preparation programs (Lauder, 2000). As leaders of assessment systems, educational leaders may be called upon to commit more of their time to acquiring the knowledge and skills necessary to become leaders of planned assessment systems. Coordination, leadership, and a view of

the big picture in assessment activities must be required of school administrators if the promise of assessment reform is to be realized (Cizek, 1995).

## CHAPTER THREE - METHODOLOGY

The use of assessment in the classroom has increased due to pressure from the public and regulations called for by the federal government (DeMoss, 2002). The purpose of this study was to determine the level of assessment knowledge and skills of high school administrators in comparison to classroom teachers. This chapter describes the research design of this study including the population, data-collection procedures, survey instrument, and the statistical procedures used to analyze the data.

### **Research Design**

This non-experimental descriptive research study used an online survey to analyze Montana public high school principals' and teachers' levels of assessment knowledge. The study used a cross-sectional survey to collect all data at one point in time. The online survey allowed respondents to access the questions at a time best for them and provide the data in a shorter amount of time than through a mailed survey.

### **Population**

The population consisted of all high school principals in the state of Montana. The study surveyed the population of principals designated as high school principals in the 2011-2012 Directory of Montana Schools compiled by the Montana Office of Public Instruction.

According to the Montana Office of Public Instruction data, there are 169 individuals serving in the capacity of high school principal. The CALI was sent to each high school principal. At the end of the survey, the principal was asked to submit the names of two teachers within their buildings to take the same online assessment literacy survey. The principals were asked specifically to submit the names of teachers in the

curriculum areas of English, math or science. This created a teacher population size of 338 teachers. The sample of teachers was not random, as the principal was asked to choose the two teachers to take the survey.

### **Research Questions**

The study analyzed and looked for what differences, if any, existed among Montana public school principals regarding the following research questions about the need for assessment knowledge:

1. What is the level of assessment literacy of Montana high school principals as measured by the CALI?
2. What is the level of assessment literacy of Montana high school teachers as measured by the CALI?
3. How does the assessment literacy of Montana high school principals compare to that of Montana high school core subject teachers?

### **Instrumentation**

The survey consisted of two sections. The first section collected demographic information. Participants were asked for information regarding experience in teaching and administration, education level, years since principal preparation program, assessment coursework, size of school population, and region.

The second section used a survey instrument titled the CALI and was developed by Campbell and Mertler (2003). The CALI was designed to find the level of assessment knowledge of teachers. Campbell and Mertler (2003) developed the CALI based on a survey used by Impara and Plake in 1993 for a survey of in-service teachers. The online survey asked principals to examine five scenarios and answer seven questions at the end

of each scenario. Each of the seven questions within a single scenario was aligned to one of the seven standards.

Standard 1 expects teachers to be skilled in choosing assessment methods appropriate for instructional decisions. Questions 1, 8, 15, 22, and 29 measure the ability to choose the appropriate assessment method. Standard 2 requires teachers to be skilled in developing assessment methods appropriate for instructional decisions. Questions 2, 9, 16, 23, and 30 measure the ability to develop appropriate assessment methods. Standard 3 defines a teacher's ability to administer, score, and interpret the results of both externally produced and teacher-produced assessment methods. Questions 3, 10, 17, 24, and 31 measure this standard.

A teacher's skill in using assessment results when making decisions about individual students, planning teaching, developing curriculum, and school improvement is Standard 4. Questions 4, 11, 18, 25, and 32 address the level of competence in Standard 4. Standard 5 says teachers should be skilled in developing valid pupil grading procedures that use pupil assessments. Questions 5, 12, 19, 26, and 33 address Standard 5. Standard 6 addresses the ability of teachers to communicate assessment results to students, parents, other lay audiences, and other educators. The questions measuring this ability are numbers 6, 13, 20, 27, and 34. Standard 7 asks teachers to be skilled in recognizing unethical, illegal, and otherwise inappropriate assessment methods and uses of assessment information. The questions measuring this standard are 7, 14, 21, 28, and 35. Table 4 delineates the questions on the CALI as they relate to the standards.

Table 4

*Alignment of Standards with CALI Items*

Standards for Teacher Competence	CALI Item Numbers
Standard 1-Choosing Appropriate Assessment Methods	1, 8, 15, 22, 29
Standard 2- Developing Appropriate Assessment Methods	2, 9, 16, 23, 30
Standard 3- Administering, Scoring, and Interpreting the Results of Assessments	3, 10, 17, 24, 31
Standard 4- Using Assessment Results to Make Decisions	4, 11, 18, 25, 32
Standard 5- Developing Valid Pupil Grading Procedures	5, 12, 19, 26, 33
Standard 6- Communicating Assessment Results	6, 13, 20, 27, 34
Standard 7- Recognizing Unethical or Illegal Practices	7, 14, 21, 28, 35

Mertler and Campbell also compared the Classroom Assessment Competencies as published by Stiggins (1999) to the Standards for Teacher Competence in the Educational Assessment of Students (Table 2). Stiggins' first competence is connecting assessments to clear purposes and this directly relates to Standards 1, 2, and 4. The second competence is clarifying achievement expectations and relates to Standard 4. The third competence is applying proper assessment methods, which corresponds to Standards 1 and 2. The fourth competence is developing quality assessment exercises and scoring criteria and sampling appropriately and relates to standards 2 and 5. The fifth competence is avoiding bias in assessment and links with standards 5 and 7. Stiggins' sixth competence is communicating effectively about student achievement, which is the same as standard 6. The seventh and final competence for Stiggins is using assessment as an

instructional intervention and matches up with standards 3 and 7 from the Standards for Teacher Competence in the Educational Assessment of Students. The comparisons of Stiggins' assessment competencies to the Standards for Teacher Competence are shown in Table 5.

Table 5

*Stiggins' Assessment Competencies*

Classroom Assessment Competency	Standards for Teacher Competence
Competence 1- Connecting Assessment to Clear Purpose	Standards 1, 2, 4
Competence 2- Clarifying Achievement Expectations	Standard 4
Competence 3- Applying Proper Assessment Methods	Standards 1, 2
Competence 4- Developing Quality Assessments	Standards 2, 5
Competence 5- Avoiding Bias in Assessment	Standards 5, 7
Competence 6- Communicating Student Achievement	Standard 6
Competence 7- Using Assessment for Instruction	Standards 3, 7

### **Data Analysis**

The first section of the survey consisted of demographic questions, specifically asking each respondent to give information regarding years of experience in teaching and years in administration, education level, assessment coursework, number of years since the completion of a principal preparation program, size of school population and region. The years of experience will allow the data to reflect the amount of time spent in the classroom and as an administrator. The education level also will allow the data to show

how much education has been attained after the initial teacher preparation program. The question regarding assessment coursework will determine whether the principal has had any courses specifically in assessment. The question regarding number of years since the principal preparation program will show the amount of time lapsed from the formal training setting.

Descriptive analyses at the individual item level will include frequencies and reliability analyses; descriptive analyses also will be conducted for the seven composite scores based on the Standards. Inferential analyses included a t-test comparison, evaluated at an alpha level of .05, of the teachers' to the principals' mean scores for each of the seven composite scores, as well as the total score for the entire instrument.

The data were used to determine the level of high school principal assessment literacy in comparison to high school teachers. The data was examined to identify areas of weakness in assessment for high school principals. The information gathered during the study showed areas of deficiency in assessment literacy and will allow principal preparation programs to determine if changes need to be made in curriculum.

### **Reliability**

The CALI was given to 152 in-service teachers in the fall of 2003. The mean score was 24.50 with a standard deviation of 4.92. The mean item difficulty was equal to .64. The mean difficulty of the items on the test is the average percent correct across all questions contributing to the test or subtest score. The mean difficulty statistic can be useful in estimating how hard the test was relative to the ability level of the group (The Office of Testing and Evaluation Services, 2011). The mean item discrimination was equivalent to .32. The discrimination index reflects the degree to which an item and a test

as a whole are measuring a unitary ability or attribute (University of Washington, 2005). The second phase occurred in 2004 when the test was given to 249 pre-service teachers. The mean score for this group was 22.98 with a standard deviation of 4.05. The examination of the item analysis between the two phases resulted in an overall instrument reliability of .54 for in-service teachers and .74 for pre-service teachers. Instrument reliability is defined as the extent to which an instrument consistently measures what it is supposed to measure (Buros Institute of Mental Measurement, 1997). The original instrument was subjected to a thorough content validation in 1991, including reviews by members of the National Council on Measurement in Education.

### **Distribution of Survey.**

This study used a web-based survey program to administer the survey instrument to all Montana high school principals. The web-based program, SurveyMonkey, was used to collect data for this research. An email was sent to each member of the population inviting them to participate in the survey. The introductory email described the purpose for the survey, a description of the survey (including access to the survey), a confidentiality statement, contact information for questions, and an invitation to request survey results. The participants were given one week to complete the survey. To increase the return rate, an appreciation and reminder email message was sent to the survey participants following the initial email communication, thanking those who may have already participated and encouraging those who had not done so. The participants were given a total of eight weeks time to complete the survey. At the completion of the collection of principal data, a database was created with the names of teachers submitted by their building principals. An introductory email was sent to each teacher with an

invitation to participate in the survey. The same methods used for the principal survey were employed with the teachers.

**Delimitations.**

The study was restricted to high school principals in Montana. The survey was further delimited by only involving those listed as high school principals within the 2011-2012 Montana Office of Public Instruction directory. The study was delimited by restricting the surveyed teachers to the names provided by principals participating in the survey. A further delimitation was the use of an on-line survey. Also, the length of the survey may have limited some participants' completing the study resulting in a lower response rate (Bourque & Fielder, 2003)

**Limitations.**

The study may be limited by inaccurate information as contained in the 2011-2012 Montana Office of Public Instruction directory. The study also may be limited by the use of the high school principal designation whereas some administrators in Montana schools may carry dual administrative titles. There are 17 individuals listed as "high school principal" in the Office of Public Instruction directory who also serve as "district superintendent." These individuals were included in the study. The study utilized a quantitative format to decrease bias, but limited the study by not providing more individualized data.

## **Summary**

This study was designed to examine the current assessment literacy level of high school principals and high school teachers in the state of Montana. The surveyed principals completed the Classroom Assessment Literacy Inventory. Montana high school teachers in the core subjects of English, math or science were also surveyed using the CALI. The data was analyzed according to the research questions guiding this study. The results will add to the existing literature regarding assessment literacy for high school principals.

## CHAPTER FOUR - RESULTS

The purpose of this study was to determine the level of assessment knowledge and skills of high school principals in comparison to classroom teachers. The research questions for the study addressed the level of assessment literacy for Montana high school principals and Montana teachers as measured by the CALI. The study looked at the level of assessment literacy of high school principals and teachers. The study then compared the results between the principals and teachers in relation to the seven standards of assessment competence. Chapter four is divided into the following sections: a) Response Rate, b) Part I Survey Results – Demographic Information, c) Part II Survey Results – CALI, d) Summary.

### **Response Rate**

A survey, the CALI, was delivered electronically to 169 high school principals in the state of Montana. There were 32 completed surveys returned for a return rate of 18.9%. Six email addresses were undeliverable. Each of the principals was asked to recommend two teachers in their own building to participate in the CALI survey. In the 32 completed surveys, four principals did not provide teacher contact information and three of the principals provided only one teacher contact. Once all principal respondents completed the CALI survey, the survey was then sent to 53 high school teachers in Montana. Of the 53 possible participants, 14 completed and returned surveys for a return rate of 26.4%.

### **Part I Survey Results – Demographic Information**

The demographic information is provided in Tables 3 through 16. The demographic section of the survey sent to the high school principals solicited the following information:

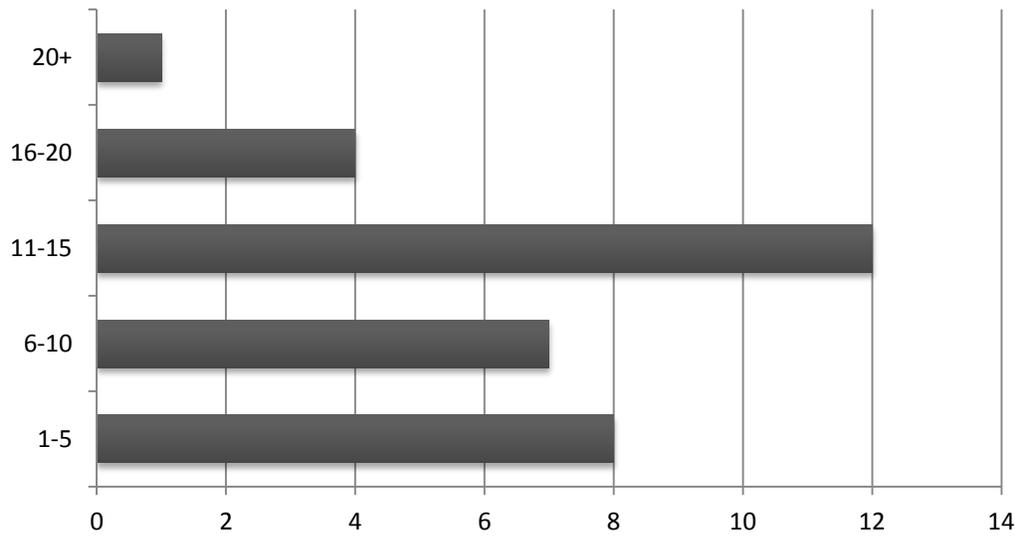
- a) Years in education;
- b) Years in administration;
- c) Number of years since completion of a principal preparation program;
- d) Highest completed educational degree;
- e) Principals' school enrollment;
- f) Participation in a stand alone course in assessment;
- g) Region of school location.

The demographic section of the survey sent to the high school teachers asked for the following information:

- a) Years in education;
- b) Number of years since completion of a teacher preparation program;
- c) Highest completed educational degree;
- d) Teachers' school enrollment;
- e) Participation in a stand alone course in assessment;
- f) Region of school location.

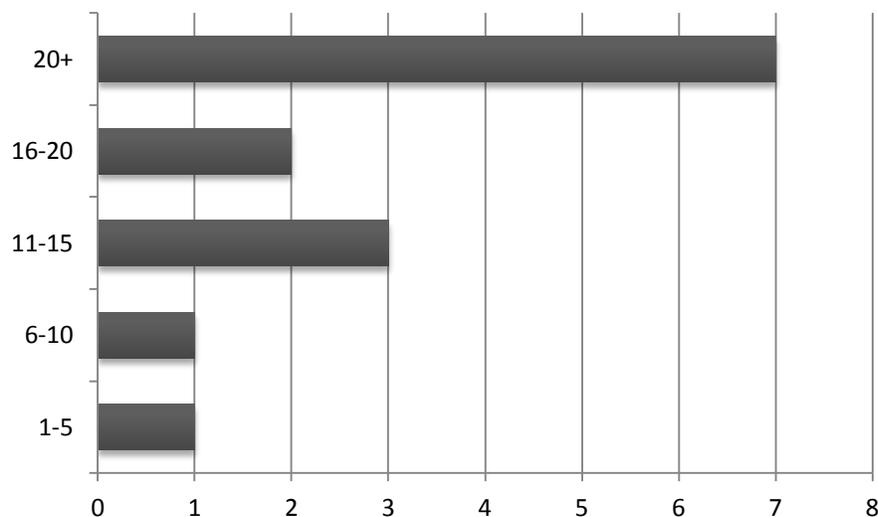
Figure 1 shows the breakdown of survey responses by the principals regarding the years of experience in the classroom. The majority (27) of principals responding had less

than 15 years of experience. There were no principals responding with more than 25 years of experience in the classroom.



*Figure 1. Years in the Classroom - Principals*

The breakdown of survey responses by the teachers regarding the years of experience in the classroom is shown in Figure 2. Teachers were split evenly between those having less than 20 years of experience and those having over 20 years of experience.



*Figure 2. Years in the Classroom - Teachers*

The responses for the number of years that each principal has served in a principal position are tabulated in Table 6. When queried about the number of years' of service as principal, 30 of the 32 principals have served less than 15 years as a principal. One principal indicated more than 30 years in an administrative position.

Table 6

*Years as Principal*

Years of Experience	Number of Respondents
1-5	6
6-10	16
11-15	8
16-20	1
21-25	0
26-30	0
30+	1

Table 7 shows the number of years since each principal completed their principal preparation program. When asked for the number of years since completion of their principal preparation program, 28 of the principals completed their preparation program in the last 15 years or less. Two principals completed their preparation over 20 years ago.

Table 7  
*Years Elapsed from Principal Preparation Program*

Years of Experience	Number of Respondents
1-5	6
6-10	13
11-15	9
16-20	2
21-25	2
26-30	0
30+	0

According to the survey results all of the teachers have been out of their preparation program for at least five years. Six teachers left their preparation program over 20 years ago. The final results are indicated in Table 8.

Table 8

*Years Elapsed from Teacher Preparation Program*

Years of Experience	Number of Respondents
1-5	0
6-10	3
11-15	1
16-20	4
21-25	3
26-30	1
30+	2

Table 9 indicates the education level of the responding principals. All but 1 of 32 principals has a master's degree. Three of the responding principals have a doctoral degree.

Table 9

*Education Level-Principals*

Education Attained	Number of Respondents
Bachelors	1
Masters	28
Doctorate	3

The results regarding the level of education obtained by each of the teachers are shown in Table 10. Surveyed teachers include nine teachers that have an education exceeding a bachelor's degree. One teacher has earned a doctoral degree.

Table 10

*Education Level-Teachers*

Education Attained	Number of Respondents
Bachelors	5
Masters	8
Doctorate	1

The student population of the school served by each principal is presented in Figure 3. The majority of principals responding to the survey represent schools with a student population of fewer than 700 students in the high school. Two principals represented schools with greater than 1200 students in the school.

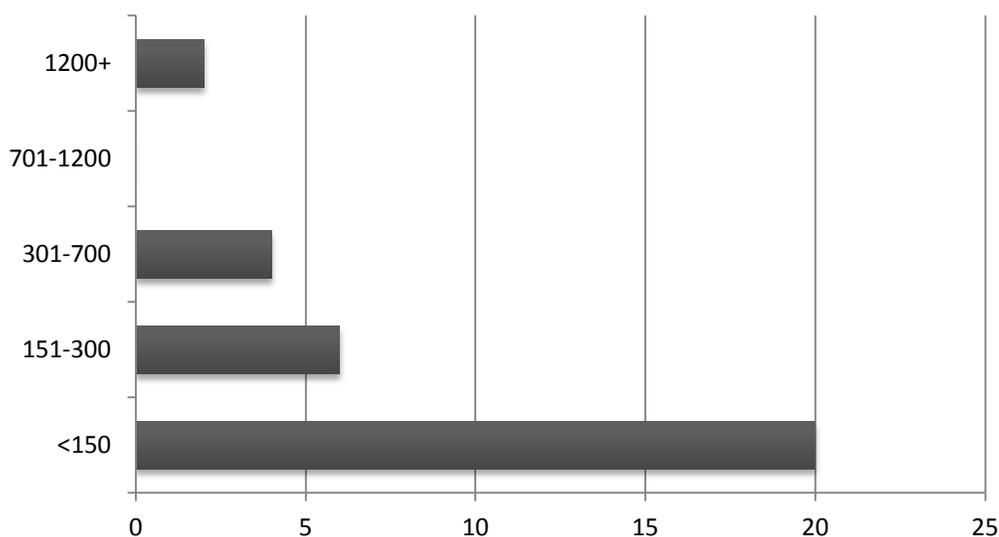
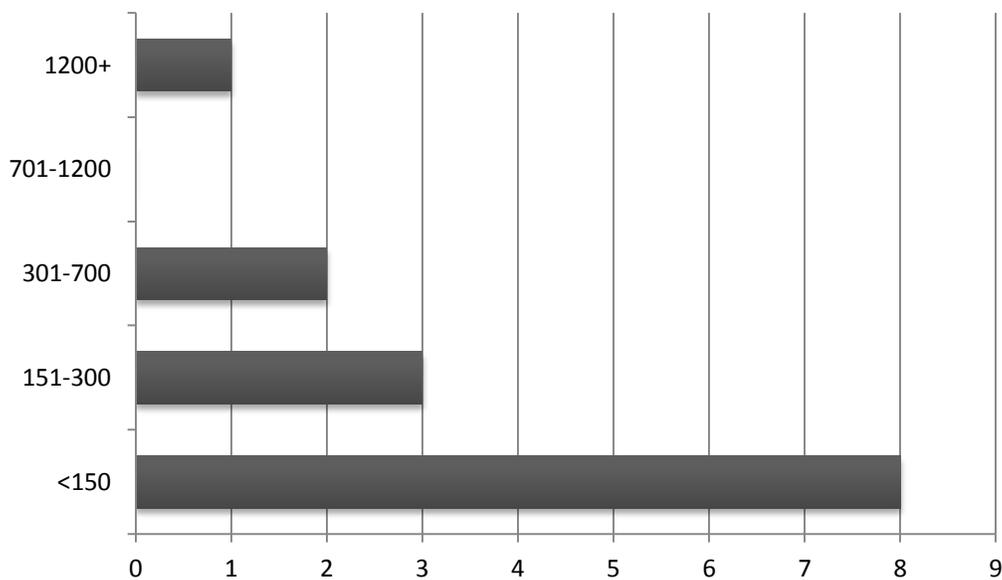
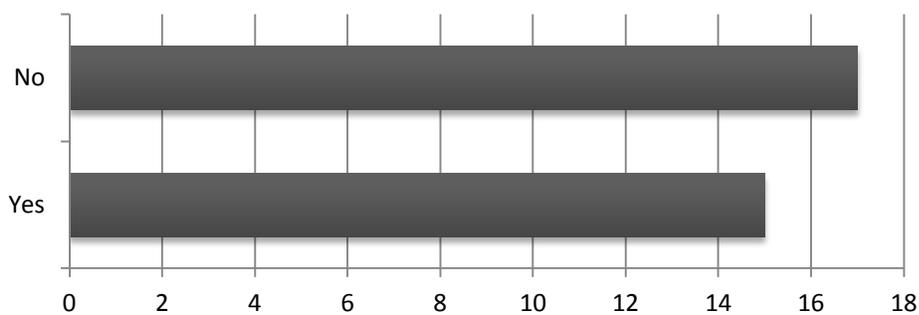
*Figure 3. School Population – Principals*

Figure 4 presents the student population of the school employing the teacher. The majority of teacher respondents (13) work in schools with fewer than 700 students. Only one teacher represented a school with a population of more than 700 students.



*Figure 4. School Population – Teachers*

Figure 5 addresses whether the principal had taken a stand-alone course in assessment during their principal preparation program. The numbers represented by the principals show an almost even split between those that have taken a stand-alone assessment course and those that did have a specific stand-alone course.



*Figure 5. Stand Alone Assessment Course - Principals*

The number of teachers taking a stand-alone course in assessment during their teacher preparation programs is shown in Figure 6. The teachers surveyed showed the majority of teachers, over 70 percent, had not taken a stand-alone course in assessment.

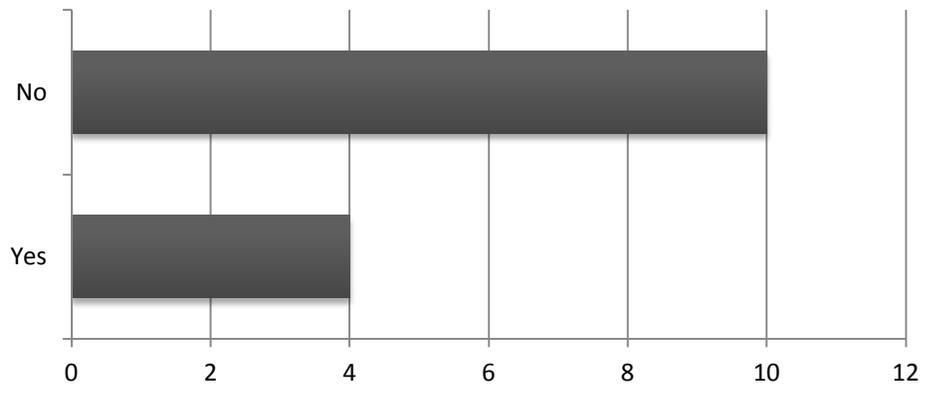


Figure 6. Stand Alone Assessment Course -Teachers

One of the demographic questions asked survey participants to indicate in which OPI region their school is located. Figure 7 shows the different OPI regions as defined by the Montana OPI.

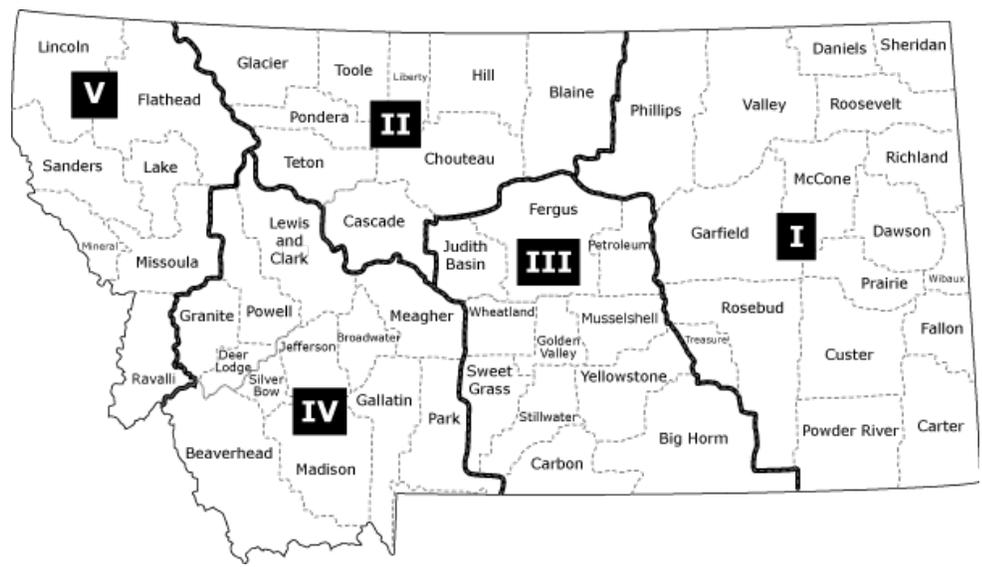


Figure 7. Montana Office of Public Instruction Region Map

Table 11 delineates which regions, as defined by OPI, are represented by completed principal surveys. Region II was the highest represented region with 11 principals

responding. The next highest responding region was Region IV with nine principals returning completed surveys.

Table 11

*OPI Region-Principals*

OPI Region	Number of Respondents
Region I	4
Region II	11
Region III	6
Region IV	9
Region V	2

The number of teachers responding from each of the OPI defined regions is set out in Table 12. Regions II and V had the majority of representation by responding teachers. A total of 5 teachers responded from regions V and 4 teachers from region II. The next highest responding regions were regions I and III with 2 teachers each.

Table 12

*OPI Region-Teachers*

OPI Region	Number of Respondents
Region I	2
Region II	4
Region III	2
Region IV	1
Region V	5

### Part II Survey Results-CALI

The teacher and principal responses were evaluated for correctness, with a correct response given a value of one and an incorrect answer assigned a value of zero. This procedure is the same as used by Plake, et al. (1993) in the national administration of the CALI in the early 1990's and the administration by Mertler and Campell in the early 2000's (Mertler & Campbell, 2005). Tallying the total number of correct responses for the five questions derived a composite score for each standard. Means approaching 5 indicated a greater knowledge for each specific standard. The results that follow are presented by each individual research question.

#### Research Question One

Research question one was designed to find the level of assessment literacy as measured by the CALI for Montana high school principals. On average, principals answered slightly less than 21 out of 35 items correctly. Out of the seven competency areas, as delineated by *The Standards for Teacher Competence in the Educational Assessment of Students*, the highest overall performance for principals was found for

Standard 4-*Using Assessment Results to Make Decisions* (M=3.84; maximum possible score = 5). The lowest performance was found for Standard 7- *Recognizing Unethical or Illegal Practices* (M=1.69; maximum possible score = 5). The results for the principals for each of the seven standards are presented in Table 13.

Table 13

*Means and Standard Deviations for Principals by Standard and Total on CALI*

Standard	Mean	Standard Deviation
Standard 1 <i>Choosing Appropriate Assessment Methods</i>	3.16	.95
Standard 2 <i>Developing Appropriate Assessment Methods</i>	3.34	1.21
Standard 3 <i>Administering, Scoring, and Interpreting the Results of Assessments</i>	2.81	.90
Standard 4 <i>Using Assessment Results to Make Decision</i>	3.84	.92
Standard 5 <i>Developing Valid Grading Procedures</i>	2.94	1.01
Standard 6 <i>Communicating Assessment Results</i>	2.97	1.00
Standard 7 <i>Recognizing Unethical or Illegal Practices</i>	1.69	.90
Total Score	20.75	3.93
Note: n=32		

Principals correctly answered 5 of the 35 questions with greater than 90%. Two of the questions came from Standard 1 – Choosing Appropriate Assessment Methods and

two questions from Standard 6 – Communicating Assessment Results. One question came from Standard 4 – Using Assessment Results to Make Decisions.

On three of the 35 items, 25% or fewer answered the item correctly. Two of the questions came from Standard 7 – Recognizing Unethical or Illegal Practices; one item came from Standard 6 – Communicating Assessment Results.

#### Research Question Two

Research question two was designed to find the level of assessment literacy as measured by the CALI for Montana high school teachers. On average, teachers answered slightly less than 22 out of 35 items correctly. Out of the seven competency areas, as delineated by The Standards, the highest overall performance for teachers was found for Standard 4-*Using Assessment Results to Make Decisions* (M=4.07; maximum possible score = 5). The lowest performance was found for Standard 7- *Recognizing Unethical or Illegal Practices* (M=1.29; maximum possible score = 5). The results for the teachers for each of the seven standards are presented in Table 14.

Table 14

*Means and Standard Deviations for Teachers by Standard and Total on CALI*

Standard	Mean	Standard Deviation
Standard 1 <i>Choosing Appropriate Assessment Methods</i>	3.43	1.09
Standard 2 <i>Developing Appropriate Assessment Methods</i>	3.64	1.09
Standard 3 <i>Administering, Scoring, and Interpreting the Results of Assessments</i>	2.93	1.39
Standard 4 <i>Using Assessment Results to Make Decision</i>	4.07	1.00
Standard 5 <i>Developing Valid Grading Procedures</i>	3.21	.58
Standard 6 <i>Communicating Assessment Results</i>	3.36	.93
Standard 7 <i>Recognizing Unethical or Illegal Practices</i>	1.29	.91
Total Score	21.93	3.27
Note: N=14		

On 9 of the 35 items, 90% or more of the teachers answered the item correctly. Two items each came from Standard 1 – Choosing Appropriate Assessment Methods, Standard 4 – Using Assessment Results to Make Decisions, Standard 5 – Developing Valid Grading Procedures and Standard 6 – Communicating Assessment Results. One item came from Standard 2 – Developing Appropriate Assessment Methods. The teachers answered less than 25% correctly on 5 items. Three items from Standard 7 – Recognizing

Unethical or Illegal Practices and one item each from Standard 3 – Administering, Scoring, and interpreting the Results of Assessment and Standard 6 – Communicating Assessment Results.

#### Research Question Three

The third research question focused on how the assessment literacy of high school principals compared with the assessment literacy of high school teachers in the state of Montana. Descriptive analyses were conducted for the seven composite scores that reflected the Standards. Inferential analyses included a two tailed t-test comparison, evaluated at a  $\alpha$ -level of .05, of the teachers to principal mean scores for each of the seven composite scores, as well as the total score for the entire instrument. The comparison results are shown in Table 15.

Table 15

*t-Test Results for Comparison of CALI Scores for Principals and Teachers*

Standard	Group	Mean	t-statistic	P- value
1. Choosing Appropriate Assessment Methods	Principals	3.15	-.853	.398
	Teachers	3.43		
2. Developing Appropriate Assessment Methods	Principals	3.34	-.348	.730
	Teachers	3.64		
3. Administering, Scoring and Interpreting the Results of Assessments	Principals	2.81	-.810	.422
	Teachers	2.93		
4. Using Assessment Results to Make Decisions	Principals	3.84	-.753	.455
	Teachers	4.07		
5. Developing Valid Grading Procedures	Principals	2.94	-.952	.346
	Teachers	3.21		
6. Communicating Assessment Results	Principals	2.97	-1.238	.222
	Teachers	3.36		
7. Recognizing Unethical or Illegal Practices	Principals	1.69	1.391	.171
	Teachers	1.29		
Total Score	Principals	20.75	-.981	.332
	Teachers	21.93		

The examination of the data analyses revealed that in 6 out of the 7 standards, including the total, the teachers scored higher than the principals in assessment literacy on the CALI. The largest discrepancies occurred in Standard 3, Standard 6 and Standard 7. Standard 3 showed the teachers scoring ( $M=2.93$ ,  $SD=1.39$ ) while the principals were ( $M=2.81$ ,  $SD=.9$ ),  $t (.81)$   $p=.42$ , two-tailed. For Standard 6, the teachers scored higher ( $M=3.36$ ,  $SD=.9$ ) than the principals ( $M=2.97$ ,  $SD=1.0$ )  $t (1.24)$   $p=.42$ , two-tailed. The two groups scored highest on Standard 4, using assessment results to make decisions. Standard 7 was the only category where the principals scored higher ( $M=1.69$ ,  $SD=.9$ )

than the teachers ( $M=1.29$ ,  $SD=.91$ )  $t(1.39)$   $p=.42$ , two-tailed. The teachers and principals scored the lowest scores on Standard 7, recognizing unethical or illegal practices. The teachers and principals both averaged less than 50% correct on 4 of the 5 questions in Standard 7.

The overall total score showed the teachers once again scoring higher ( $M=21.93$ ,  $SD=3.27$ ) than the principals ( $M=20.75$ ,  $SD=3.93$ ),  $t(.981)$   $p=.42$ , two-tailed. The teachers' scores were similar to the average score of 23 obtained by Plake (1993) and the average score of 22 in the Mertler (2003) study. The effect size between the in-service teachers in the Plake study and the in-service teachers in the Mertler study was .366 and the effect size between the in-service teachers in the Plake study and the current study was .385. The effect size between the in-service teachers in the Mertler study and the in-service teachers in the current study is .009, showing an extremely small effect size between the two most recent studies. The overall score of 20.75 by the principals is lower than the teachers' scores in all three studies.

### **Summary**

The purpose of this study was to determine the level of assessment knowledge and skills of high school principals in comparison to high school teachers. The research will fill a gap regarding the level of assessment literacy for high school principals in the state of Montana. An internet survey was sent out to 169 high school principals and 53 teachers that fit the parameters of the study. An overall return rate of 32 out of 169 (18.9%) administrators and 14 out of 53 teachers (26.4%) was utilized for data analysis to respond to the three research questions.

The survey research gathered data pertaining to assessment literacy for both

principals and teachers in Montana high schools. The data was gathered using a previously used survey known as the CALI. The data was analyzed using the SPSS statistical program to compare the responses of currently practicing principals and teachers in the state of Montana.

As with any study, it is important that the results are used appropriately. The study was limited to high school principals. While the importance of assessment literacy continues to be cited as important in the use of data to improve student achievement, this study only surveyed the assessment literacy of one group of leaders. The last chapter of this dissertation presents the interpretation of the findings, conclusions and recommendations for principals, professional organizations and principal preparation programs regarding assessment literacy and for further research.

## CHAPTER FIVE - DISCUSSION

### **Conclusions and Recommendations**

There are many efforts underway to reform education. One major effort listed in the literature is a move toward evaluating the quality of public education by focusing on student learning. This chapter presents a detailed discussion of the findings as they relate to the research questions and the implications these findings have for future studies. This chapter also makes recommendations intended to be a guide for administrators regarding their own level of assessment literacy. The recommendations are also intended to encourage principal preparation programs to look at the assessment content of required courses. The recommendations are also intended for professional organizations to use in organizing professional development opportunities for practicing principals. Recommendations are also made for researchers interested in pursuing further questions in this area of educational research.

### **Findings and Conclusions**

#### **Demographic Discussion**

The majority of both teachers and principals in the survey had a Masters degree. The information from the study showed the principals averaged between 6 and 15 years of classroom experience while the teachers averaged between 16 to 25 years of classroom experience. The greater number of years spent in the classroom by the teachers could explain some of the higher scores obtained on the CALI. The majority of teachers and principals involved in the survey all worked in schools with student populations of less than 150 students.

The number of principals taking a stand-alone course in assessment was less than 50 percent while the number of teachers was less than 30 percent. The number of teachers taking a class on assessment is less than the number of principals despite teachers scoring higher on the CALI. The data shows that the teachers are receiving the assessment training embedded in other classes or obtaining the training while serving in the classroom.

*Research Question One: What is the level of assessment literacy of high school principals in Montana as measured by the Classroom Assessment Literacy Inventory?*

The data from this survey showed that principals averaged 20.75 out of 35 (59 %) questions correct. Principals had the highest score on standard 4 (M=3.84), using assessment results to make decisions. The literature review discussed the importance of using data in making decisions to improve student achievement. The data shows that Standard 4, regarding one of the most important reasons for assessment literacy is the highest score obtained by the principals. The score obtained on standard 7 (M=1.69), recognizing unethical and illegal practices was the lowest score of the seven standards. Standard 7 was the one standard where the principals' scored higher than the teachers. The data shows that the majority (n=28) of principals left their preparation program less than 15 years ago. This data shows that either too many years have elapsed since completion of the program or the principal candidates are not learning the information measured on the CALI.

*Research Question Two: What is the level of assessment literacy of high school teachers in Montana as measured by the Classroom Assessment Literacy Inventory?*

The overall percentage of correct answers for the teachers was 63%. The teachers averaged 21.93 out of 35 (62.6%) questions. The scores by the teachers in the current study are almost identical to the scores obtained by teachers 10 years ago in the Campbell and Mertler (2002) study. The results of the current study suggest that teachers' knowledge of classroom assessment has not changed significantly since the study conducted by Impara in the early 1990's. The overall scores for teachers dropped in the ten year span between the Plake study in 1991 and the Mertler study in 2003. The scores for in-service teachers in the current study also dropped during another ten year span. In an era of increased accountability due to NCLB the scores do not show any increase of assessment knowledge which should be a cause of concern. A comparison of the teachers scores are listed in Table 16 with the common scores for in-service teachers listed for each study, included are also the scores for principals in the current study.

Table 16

*Comparison of CALI Scores*

Standard		Plake et al. (1993)	Campbell & Mertler (2003)	Current Study
Standard 1 <i>Choosing Methods</i>	In-Service Teachers	3.46	3.74	3.43
	Principals			3.15
Standard 2 <i>Developing Methods</i>	In-Service Teachers	3.22	3.18	3.64
	Principals			3.34
Standard 3 <i>Interpreting Results</i>	In-Service Teachers	3.96	3.95	2.93
	Principals			2.81
Standard 4 <i>Using to Make Decisions</i>	In-Service Teachers	3.40	3.36	4.07
	Principals			3.84
Standard 5 <i>Developing Procedures</i>	In-Service Teachers	3.19	2.06	3.21
	Principals			2.94
Standard 6 <i>Communicating Results</i>	In-Service Teachers	2.70	2.57	3.36
	Principals			2.97
Standard 7 <i>Illegal Practices</i>	In-Service Teachers	3.26	3.10	1.29
	Principals			1.69
Total Score	In-Service Teachers	23.20	21.96	21.93
	Principals			20.75

*Research Question Three: How does the assessment literacy of Montana high school principals compare to that of Montana high school core subject teachers?*

No other studies could be located that looked at the assessment literacy of school administrators in comparison to teachers. The literature has shown that next to the teacher, the principal has the greatest ability to impact student achievement (Boscardin, 2005; Herrington & Willis, 2005; Leithwood et al., 2004; Marzano, 2008). The results from the comparison of CALI scores show that the teachers scored higher in 6 of the 7 Standards. The lone standard that principals scored higher was on Standard 7, recognizing unethical or illegal practices. The principal's ability to recognize unethical or illegal practices is important as a supervisor, however the score for principals was 1.69/5.00. The teachers scored 1.29/5.00. The comparison of scores shows that despite being higher than teachers, principals only averaged 34% correct.

No Child Left Behind (NCLB) has increased the importance of assessment in determining the success of a school in terms of student achievement. Standardized assessment has been designated as the tool to measure a school's level of success. The federal government has imposed consequences for the lack of achievement for students based on standardized assessments. Two different sanctions outlined by the federal government include replacing the school's principal. The literature review showed a concern regarding an apparent lack of assessment training in principal training programs. The review also discussed numerous university programs making strides to improve principal training to meet the increased demands from NCLB. The findings in the current study are consistent with the information found in earlier studies of teachers conducted

by Impara et al. (1993) and Campbell and Mertler (2003). This study verified information found in the literature review regarding the need for a foundation in assessment literacy to effectively use data to improve student achievement. Federal and state accountability mandates have demanded an increase in the emphasis placed on assessment results used in defining achievement. The accountability movement has not been accompanied with an increase in knowledge of assessment.

### **Recommendations for Montana High School Principals**

According to Popham (1995), a principal needs to be at least as well trained as teachers in order to lead in assessment. The data from this study shows that the principals need additional training to reach the current level of the teachers. Principals need to look at the results of the survey and determine steps to take to increase their own level of assessment literacy. The principals need to address the Standards of Assessment as developed in the early 1990's (NCME, 1997). The majority of principals, having left their principal preparation within the last 15 years, scored less than 60 percent on the CALI. On Standard 7, principals scored less than 50% correct on 4 of the 5 questions. A look at the results of questions focusing on standard 7 show that the principals surveyed are lacking in knowledge regarding the area of test reliability. Professional development focused on test reliability is needed to improve principal's responses in this area. The NCLB act has created sanctions, which include a principal losing their job, based on student achievement scores (Collins et al., 2005). Principals must increase their knowledge and skills in the area of assessment in order to assist in the success of students.

### **Recommendations for School Administrators of Montana**

Montana's principal organization for secondary school principals, the Montana Association of Secondary School Principals (MASSP), constitution says that providing and promoting programs for the professional improvement of member middle and secondary education leaders is a part of their platform. The MASSP can use the information gathered from this study to look at the areas of assessment literacy that according to the CALI appear to be lacking in high school principals. The lowest area was Standard 7, recognizing unethical or illegal practices. Principal organizations have the opportunity to provide professional development for currently practicing principals. The research in this study can provide a baseline for the MASSP to develop courses to address the areas of apparent deficiencies in assessment literacy for the high school principals in the state of Montana. Principal organizations could also recommend and require principals that are renewing their licenses to participate in training and show competency in assessment.

### **Recommendations for Principal Preparation Programs**

Principal preparation programs have been making changes in their curriculum in order to keep up with the changing landscape in leadership. The principals in this study averaged less than 15 years since completing their preparation program. The scores shown on the CALI indicate that principals are not learning the assessment literacy skills measured by the CALI. Principal preparation programs need to use the CALI to assess and determine necessary skills for today's school leaders.

### **Implications for Further Research**

The current study is based on two earlier studies performed in 1993 and again in 2003. The data for the teachers' assessment literacy as measured by the CALI for all three studies were similar. A question for further research is whether the CALI continues to measure the assessment knowledge necessary to meet the goals set forth by NCLB. Another question to be researched would be if the Standards for Teacher Competence on Educational Assessment of Students as developed in 1991 still cover the skills important for teachers and principals to meet the current testing requirements.

The survey did not address the question of how involved the principal was in testing in the school. A larger high school may employ a testing coordinator or counselor that is in charge of the testing within a school. A small high school might not have any other individuals to help with testing other than the principal. The question of a principals direct involvement in standardized testing within a school would be an area for further research.

Another area of research would be to look at the data from principals and teachers within individual high schools. This study did not look at data in a cohort manner. This research could offer an insight into the effect that assessment literacy of principals and teachers within a school could have on student achievement. The research could be expanded to look at assessment literacy levels on a regional or national level providing greater generalizability.

### **Summary**

This study provided data for educators and educational leaders in the state of Montana concerning the level of assessment literacy of both high school teachers and

principals. The literature has shown the importance of educational leaders understanding the testing of students. NCLB calls for a higher level of accountability for students, teachers and administrators. A principal is hired to provide leadership for staff in the building and to be the instructional leader in the improvement of student achievement (Polnick, 2005). This research provides data for principals, principal organizations, and principal preparation programs to use in improving assessment literacy for principals in the state of Montana.

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APPENDIX A:  
Classroom Assessment Literacy Inventory  
PART I

1. Including the current year, how many years of experience do you have as a classroom teacher?

- 1 – 5 years
- 6 – 10 years
- 11 – 15 years
- 16 – 20 years
- 21 – 25 years
- 26 – 30 years
- more than 30 years

2. Including the current year, how many years of experience do you have as a high school principal?

- 1 – 5 years
- 6 – 10 years
- 11 – 15 years
- 16 – 20 years
- 21 – 25 years
- 26 – 30 years
- more than 30 years

3. Including the current year, how many years since you completed your principal preparation program?

- 1 – 5 years
- 6 – 10 years
- 11 – 15 years
- 16 – 20 years
- 21 – 25 years
- 26 – 30 years
- more than 30 years

4. Which **best** describes the educational level you have attained?

- B.A. /B.S.
- M.A. /M.S.
- Ed. D./Ph.D.

5. What is the student population of your high school?

- Less than 150
- 151-300
- 301-700
- 701-1200
- Over 1201

6. To the best of your knowledge, did you take a **stand alone** course in classroom

assessment as part of your principal preparation program?

- yes
- no

7. In which curriculum region is your high school located?

- I
- II
- III
- IV
- V

## PART II

1. What is the **most** important consideration in choosing a method for assessing student achievement?

- The ease of scoring the assessment.
- The ease of preparing the assessment.
- The accuracy of assessing whether or not instructional objectives were attained.
- The acceptance by the school administration.

2. When scores from a standardized test are said to be “reliable,” what does it imply?

- Student scores from the test can be used for a large number of educational decisions.
- If a student retook the same test, he or she would get a similar score on each retake.
- The test score is a more valid measure than teacher judgments.

- The test score accurately reflects the content of what was taught.
3. Mrs. Bruce wished to assess her students' understanding of the method of problem solving she had been teaching. Which assessment strategy below would be **most** valid?
- Select a textbook with a "teacher's guide" with a test developed by the authors.
  - Develop an assessment consistent with an outline of what she has actually taught in the class.
  - Select a standardized test providing a score on problem solving skills.
  - Select an instrument measuring students' attitudes about problem solving strategies.
4. What is the **most** effective use a teacher can make of an assessment requiring students to show their work (e.g., the way they arrived at a solution to a problem or the logic used to arrive at a conclusion)?
- Assigning grades for a unit of instruction on problem solving.
  - Providing instructional feedback to individual students.
  - Motivating students to attempt innovative ways to solve problems.
  - None of the above.
5. Ms. Green, the principal, was evaluating the teaching performance of Mr. Williams, the fourth grade teacher. One of the things Ms. Green wanted to learn was if the students were being encouraged to use higher order thinking skills in the class. What documentation would be the **most** valid to help Ms. Green to make this decision?
- Mr. Williams' lesson plans.
  - The state curriculum guides for fourth grade.

- Copies of Mr. Williams' unit tests or assessment strategies used to assign grades.
  - Worksheets completed by Mr. Williams' students, but not used for grading.
6. A teacher wants to document the validity of the scores from a classroom assessment strategy she plans to use for assigning grades on a class unit. What kind of information would provide the **best** evidence for this purpose?
- Have other teachers judge whether the assessment strategy covers what was taught.
  - Match an outline of the instructional content to the content of the actual assessment.
  - Let students in the class indicate if they thought the assessment was valid.
  - Ask parents if the assessment reflects important learning outcomes.
7. Which of the following would most likely **increase** the reliability of Mrs. Lockwood's multiple choice end-of-unit examination in physical science?
- Use a blueprint to develop the test questions.
  - Change the test format to true-false questions.
  - Add more items like those already on the test.
  - Add an essay component.
8. Ms. Gregory wants to assess her students' skills in organizing ideas rather than just repeating facts. Which words should she use in formulating essay exercises to achieve this goal?
- compare, contrast, criticize
  - identify, specify, list

- order, match, select
- define, recall, restate

9. Mr. Woodruff wanted his students to appreciate the literary works of Edgar Allen Poe.

Which of his test items shown below will **best** measure his instructional goal?

- "Spoke the raven, nevermore." comes from which of Poe's works?
- True or False: Poe was an orphan and never knew his biological parents.
- Edgar Allen Poe wrote: 1. Novels 2. Short stories 3. Poems 4. All of the above.
- Discuss briefly your view of Poe's contribution to American literature.

10. Several students in Ms. Atwell's class received low scores on her end-of-unit test covering multi-step story problems in mathematics. She wanted to know which students were having similar problems so she could group them for instruction. Which assessment strategy would be **best** for her to use for grouping students?

- Use the test provided in the "teacher's guide."
- Have the students take a test with separate items for each step of the process.
- Look at the student's records and standardized test scores to see which topics the students had not performed well on previously.
- Give students story problems to complete and have them show their work.

11. Many teachers score classroom tests using a 100-point percent correct scale. In general, what does a student's score of 90 on such a scale mean?

- The student answered 90% of the items on this test correctly.
- The student knows 90% of the instructional content of the unit covered by this test.

- The student scored higher than 90% of all the students who took the test.

- The student scored 90% higher than the average student in the class.

12. Students in Mr. Jakman's science class are required to develop a model of the solar system as part of their end-of-unit grade. Which scoring procedure below will **maximize** the objectivity of assessing these student projects?

- When the models are turned in, Mr. Jakman identifies the most attractive models and gives them the highest grades, the next most attractive get a lower grade and so on.

- Mr. Jakman asks other teachers in the building to rate each project on a 5-point scale based on their quality.

- Before the projects are turned in, Mr. Jakman constructs a scoring key based on the critical features of the projects as identified by the highest performing students in the class.

- Before the projects are turned in, Mr. Jakman prepares a model or blueprint of the critical features of the product and assigns scoring weights to these features. The models with the highest scores receive the highest grade.

13. At the close of the first month of school, Mrs. Friend gives her fifth grade students a test she developed in social studies. Her test is modeled after a standardized social studies test. It presents passages and then asks questions related to understanding and problem definition. When the test was scored, she noticed two of her students—who had been performing well in their class assignments—scored much lower than other students. Which of the following types of additional information which would be most helpful in interpreting the results of this test?

- The gender of the students.

- The age of the students.

- Reliability data for the standardized social studies test she used as the model.
- Reading comprehension scores for the students.

14. Frank, a beginning fifth grader, received a G. E. (grade equivalent score) of 8.0 on the Reading Comprehension subtest of a standardized test. This score should be interpreted to mean Frank

- can read and understand 8th grade reading level material.
- scored as well as a typical beginning 8th grader scored on this test.
- is performing in Reading Comprehension at the 8th grade level.
- will probably reach maximum performance in Reading Comprehension at the beginning of the 8th grade.

15. When the directions indicate each section of a standardized test is timed separately, which of the following is **acceptable** test-taking behavior?

- John finishes the vocabulary section early; he then rechecks many of his answers in the section.
- Mary finishes the vocabulary section early; she checks her answers on the previous test section.
- Jane finishes the vocabulary section early; she looks ahead at the next test section but does not mark her answer sheet for any of those items.
- Bob did not finish the vocabulary section; he continues to work on the section when the testing time is up.

16. Ms. Camp is starting a new semester with a factoring unit in her Algebra I class. Before beginning the unit, she gives her students a test on the commutative, associative, and

distributive properties of addition and multiplication. Which of the following is the **most** likely reason she gives this test to her students?

- The principal needs to report the results of this assessment to the state testing director.
- Ms. Camp wants to give the students practice in taking tests early in the semester.
- Ms. Camp wants to check for prerequisite knowledge in her students before she begins the unit on factoring.
- Ms. Camp wants to measure growth in student achievement of these concepts, and scores on this test will serve as the students' knowledge baseline.

17. To evaluate the effectiveness of the mathematics program for her gifted first graders, Ms. Allen gave them a standardized mathematics test normed for third graders. To decide how well her students performed, Ms. Allen compared her students' scores to those of the third-grade norm group. Why is this an **incorrect** application of standardized test norms?

- The norms are not reliable for first graders.
- The norms are not valid for first graders.
- Third grade mathematics items are too difficult for first graders.
- The time limits are too short for first graders.

18. When planning classroom instruction for a unit on arithmetic operations with fractions, which of these types of information have **more** potential to be helpful?

*norm-referenced information*: describes each student's performance relative to other students in a group (e.g., percentile ranks, stanines), or

*criterion-referenced information*: describes each student's performance in terms of status on specific learning outcomes (e.g., number of items correctly answered for each specific objective)

- Norm-referenced information.
- Criterion-referenced information.
- Both types of information are equally useful in helping to plan for instruction.
- Neither, test information is not useful in helping to plan instruction.

19. Students' scores on standardized tests are sometimes inconsistent with their performances on classroom assessments (e.g., teacher tests or other in-class activities). Which of the following is **not** a reasonable explanation for such discrepancies?

- Some students freeze up on standardized tests, but they do fine on classroom assessments.
- Students often take standardized tests less seriously than they take classroom assessments.
- Standardized tests measure only recall of information while classroom assessments measure more complex thinking.
- Standardized tests may have less curriculum validity than classroom assessment.

20. Elementary school teachers in the Baker School system collectively designed and developed new curricula in Reading, Mathematics, and Science based on locally developed objectives and objectives in state curriculum guides. The new curricula were not matched directly to the content of the fourth grade standardized test. A newspaper reports the fourth grade students in Baker Public Schools are among the lowest scoring districts in the State Assessment Program. Which of the following would **invalidate** the comparison between Baker Public Schools and other schools in the state?

- The curriculum objectives of the other districts may more closely match those of the

State Assessment.

- Other school systems did not design their curriculum to be consistent with the State Assessment test.

- Instruction in Baker schools is poor.
- Other school systems have different promotion policies than Baker.

21. Which of the following choices typically provides the **most** reliable student-performance information a teacher might consider when assigning a unit grade?

- Scores from a teacher-made test containing two or three essay questions related directly to instructional objectives of the unit.
- Scores from a teacher-made 20 item multiple-choice test designed to measure the specific instructional objectives of the unit.
- Oral responses to questions asked in class of each student over the course of the unit.
- Daily grades designed to indicate the quality of in-class participation during regular instruction.

22. A teacher gave three tests during a grading period and she wants to weight them all equally when assigning grades. The goal of the grading program is to rank order students on achievement. In order to achieve this goal, which of the following should be **closest** to equal?

- Number of items.
- Number of students taking each test.
- Average scores.
- Variation (range) of scores.

23. When a parent asks a teacher to explain the basis for his or her child's grade, the teacher

should

- explain the grades are assigned fairly, based on the student's performance and other related factors.
- ask the parents what they think should be the basis for the child's grade.
- explain exactly how the grade was determined and show the parent samples of the student's work.
- indicate the grading scale is imposed by the school board and the teachers have no control over grades.

24. Which of the following grading practices results in a grade **least** reflecting students' achievement?

- Mr. Jones requires students to turn in homework; however, he only grades the odd numbered items.
- Mrs. Brown uses weekly quizzes and three major examinations to assign final grades in her class.
- Ms. Smith permits students to redo their assignments several times if they need more opportunities to meet her standards for grades.
- Miss Engle deducts 5 points from a student's test grade for disruptive behavior.

25. During the most recent grading period, Ms. Johnson graded no homework and gave only one end-of-unit test. Grades were assigned only on the basis of the test. Which of the following is the **major** criticism regarding how she assigned the grades?

- The grades probably reflect a bias against minority students existing in most tests.
- Decisions like grade assignment should be based on more than one piece of information.

- The test was too narrow in curriculum focus.
- There is no significant criticism of this method providing the test covered the unit's content.

26. In a routine conference with Mary's parents, Mrs. Estes observed Mary's scores on the state assessment program's quantitative reasoning tests indicate Mary is performing better in mathematics concepts than in mathematics computation. This probably means

- Mary's score on the computation test was below average.
- Mary is an excellent student in mathematics concepts.
- the percentile bands for the mathematics concepts and computation tests do not overlap.
- the mathematics concepts test is a more valid measure of Mary's quantitative reasoning ability.

27. Many states are revising their school accountability programs to help explain differences in test scores across school systems. Which of the following is **not** something to be considered in such a program?

- The number of students in each school system.
- The average socio-economic status of the school systems.
- The race/ethnic distribution of students in each school system.
- The drop-out rate in each school systems.

28. The following standardized test data are reported for John.

**Subject -- Stanine Score**

*Vocabulary -- 7*

*Mathematics Computation -- 7*

*Social Studies -- 7*

Which of the following is a **valid** interpretation of this score report?

- John answered correctly the same number of items on each of the three tests.
- John's test scores are equivalent to a typical seventh grader's test performance.
- John had the same percentile rank on the three tests.
- John scored above average on each of the three tests.

29. Mr. Klein bases his students' grades mostly on graded homework and tests. Mr. Kaplan bases his students' grades mostly on his observation of the students during class. A major difference in these two assessment strategies for assigning grades can **best** be summarized as a difference in

- formal and informal assessment.
- performance and applied assessment.
- customized and tailored assessment.
- formative and summative assessment.

30. John scored at the 60th percentile on a mathematics concepts test and scored at the 57th percentile on a test of reading comprehension. If the percentile bands for each test are five percentile ranks wide, what should John's teacher do in light of these test results?

- Ignore this difference.
- Provide John with individual help in reading.
- Motivate John to read more extensively outside of school.
- Provide enrichment experiences for John in mathematics, his better performance area.

31. In some states testing companies are required to release items from prior versions of a test to anyone who requests them. Such requirements are known as

- open-testing mandates.
- gag rules.
- freedom-of-information acts.
- truth-in-testing laws.

32. Mrs. Brown wants to let her students know how they did on their test as quickly as possible. She tells her students their scored tests will be on a chair outside of her room immediately after school. The students may come by and pick out their graded test from among the other tests for their class. What is wrong with Mrs. Brown's action?

- The students can see the other students' graded tests, making it a violation of the students' right of privacy.
- The students have to wait until after school, so the action is unfair to students who have to leave immediately after school.
- Mrs. Brown will have to rush to get the tests graded by the end of the school day; hence, the action prevents her from using the test to identify students who need special help.
- The students who were absent will have an unfair advantage, because her action allows the possibility for these students to cheat.

33. A state uses its statewide testing program as a basis for distributing resources to school systems. To establish an equitable distribution plan, the criterion set by the State Board of Education provides additional resources to every school system with student achievement test scores above the state average. Which cliché **best** describes the likely outcome of this regulation?

- Every cloud has its silver lining.
- Into each life some rain must fall.
- The rich get richer and the poor get poorer.
- A bird in the hand is worth two in the bush.

34. In a school where teacher evaluations are based in part on their students' scores on a standardized test, several teachers noted one of their students did not reach some vocabulary items on a standardized test. Which teacher's action is considered **ethical**?

- Mr. Jackson darkened circles on the answer sheet at random. He assumed Fred, who was not a good student, would just guess at the answers, so this would be a fair way to obtain Fred's score on the test.
- Mr. Hoover filled in the answer sheet the way he thought Joan, who was not feeling well, would have answered based on Joan's typical in-class performance.
- Mr. Stover turned in the answer sheet as it was, even though he thought George, an average student, might have gotten a higher score had he finished the test.
- Mr. Lund read each question and darkened in the bubbles on the answer sheet representing what he believed Felicia, a slightly below average student, would select as the correct answers.

35. Mrs. Overton was concerned her students would not do well on the State Assessment Program to be administered in the Spring. She got a copy of the standardized test form to be used. She did each of the following activities to help increase scores. Which activity was **unethical**?

- Instructed students in strategies on taking multiple choice tests, including how to use

answer sheets.

- Gave students the items from an alternate form of the test.
- Planned instruction to focus on the concepts covered in the test.
- None of these actions are unethical.